

Assessment of poaching activities and wildlife trade in and around Old Oyo National Park, Nigeria

✉ **Olumuyiwa A. Akande,¹ Oladipo S. Olajesu,² Adeola A. Lameed,¹ Victoria Rowland,¹ and Oluwatobi P. Olusina¹**

¹*Tourism & Development Programme, Department of Sustainability Studies, Faculty of Multidisciplinary Studies & ²Department of Wildlife & Ecotourism Management, Faculty of Renewable Natural Resources & Agriculture, University of Ibadan, Nigeria*

✉ Corresponding author: email; taioladipo@gmail.com/muyiwaakande2@gmail.com

Accepted on December 22, 2022.

Abstract

This study assessed poaching activities and wildlife trade in and around Old Oyo National Park (OONP). National Parks are known as sanctuaries for biodiversity conservation globally. Thus, poaching and wildlife trade are two major banes threatening the existence and survival of our natural heritage. Both primary and secondary instruments were employed for data collection, A set of 365 questionnaires were administered using quantitative survey research method, by purposive sampling technique to select staff of OONP and thirty percent of the inhabitants around the park environs. Data were analyzed using descriptive statistics. Results revealed that majority of the respondents were male (91.9%), The resources attracting poachers to the Park includes herbs (86.8%), fuel food (84.6%), seeds (81.6%), palm wine (78.9%), animal (73.7%), honey (52.9%), and timber (67.7%), among others. It was further revealed that local people, loggers and hunters were the key people involved in the illegal activities. The reasons for these were attributed to shortage of natural resources (74%), spread of food borne illness (87%), tourist boycott due to poaching (58%) and extinction of flora and fauna species (65%). It can be concluded that illegal activities is the bane of sustainable development of our Parks. We therefore suggest that the Park be managed in a purely communal and scientific way to serve as sanctuary for wildlife.

Keywords: National Park, Wildlife trade, Poaching, Conservation, Tourist Boycott, Sanctuary

Introduction

Protected area by definition is a designated large tract of land desirable from the conservation point of view for effective management of natural resources that includes both flora and fauna and the entire ecosystem (MacKinnon *et al.* 1986). It is one of the most efficient ways to reduce the impact of human on biodiversity globally to the barest minimum. These include the forest reserves, strict nature reserves, biosphere reserve, natural regeneration plots, permanent sample plots, game reserves/sanctuaries, fish parks, National Parks and Ramsar sites (Adetola and Adetoro, 2014). However, most of these are plagued with various challenges ranging from poaching, logging, illegal grazing, and bush burning (Jacob *et al.*, 2015). Studies have revealed that in spite of the high level of commitment by government and Non-Governmental Organizations (NGOs) to increase the global number and enhance the efficiency of protected areas, wildlife population keep declining at an alarming rate. Poaching is still a serious threat to

many game species. This is a cruel and wasteful venture capable of depleting the resources God entrusted to man's care for the benefit of the past, present and future generations. Majority of the previous studies examined ways to reduce encroachment on the Park, assessed wildlife trade and poaching as it has positive and negative impact on wildlife and the community. This therefore necessitated the need to assess the effect of both wildlife trade and poaching activities on wildlife conservation in Old Oyo National Park, (OONP). This research was conducted with the aim of investigating the forms and trend of poaching activities in the perimeter of the National Park and also to determine the species of animal and plants mostly poached and traded in the protected area.

Objectives of the Research

This research set out to:

- i. Assess people's awareness and their perception of poaching activities and illegal wildlife trade in the national park.
- ii. Identify the various methods of poaching and people involved in wildlife trade around the National park.
- iii. Examine the animal and plant species mostly poached and traded in and around old Oyo national park.
- iv. Determine different ways of resolving human wildlife conflicts in the National park.

Conceptual Clarification

Exploitation has caused extinction of severally threatened species and as human population increases, the demand for wildlife also increases, (Willmott *et al.*, 2022). Haken (2011) notes that the global illicit trade in wildlife products inflicts significant harm on developing countries, where 'economic and structural damage imposed on already weak developing states' is even more destructive than losses in biodiversity. Traffickers exploit poverty and inequality to entice poachers, operating in territories with little government presence. They have a vested interest in preventing source countries from developing economically and structurally. Rosen and Smith (2010) also note that illegal wildlife trade undermines the efforts of developing nations to manage their natural resources.

There are many layers of actors involved in illicit trade in wildlife. These range from tourists, hunters, foresters, government agents to professional traffickers, militants and terrorists. The United Nations Office for Drug and Crime (UNODC, 2012) notes that not all those involved in illicit trade in wildlife were professional poachers rather, some were informal participants. It notes further that these small players (informal participants) play a role in trafficking wildlife internationally. Studies by Eniang *et al.* (2008) and Bassett (2005) confirm the significant role small players play in global wildlife trafficking. Tourists also play significant role in wildlife trafficking especially from South America and Africa. Another set of actors involved in wildlife poaching and trafficking are militants, terrorists and professional poachers. Militants and terrorists are reported to use proceeds from wildlife trafficking to fund their operations. Haken (2011) reports that since 2003, hundreds of elephants in neighbouring Chad's Zakouma National Park have been poached by Sudan's Janjaweed militia, who use the money from the traffic to purchase arms for use in the killing fields of Darfur. Haken (2011) further cited Interpol and U.S. State Department reports, which implicated two Islamic terrorist groups, Harakatul-Jihad-I-Islami-Bangladesh (HUJI-B) and Jamaatul Mujahedin Bangladesh (JMB) as well as Somali Warlords, in sponsoring illegal elephants and rhino poaching operations.

Poaching is the illegal killing of wildlife against established laws (Local, Federal or International) and includes any unlicensed taking of animals, animals taken out of season, in

excess of bag limits, by banned weapons or during trespassing (Lin, 2005). Despite the combined efforts of governments and conservation NGOs to protect indigenous wildlife species globally, some animal populations continue to decline. These declines are attributable to a myriad of factors including habitat destruction, a byproduct of mining, logging and other human activities that remove natural resources, introduction of non-native species to habitats, fluctuations in climate (drought, floods, and so on), and poaching (Musyoki *et al.*, 2012). Of these factors, poaching is becoming more prevalent and destructive (Gao and Clark, 2014).

Globally, the problem of wildlife poaching has reached epic proportions with estimates ranging from \$5 billion to \$20 billion annually, (Obe and Lawson, 2014). North America illegal hunting activities severely impact populations of grizzly bears bighorn sheep moose and walrus as poachers sell wildlife products e.g. the paws bladders and meat of bears; walrus tusks as ivory; and animal antlers and pelts (Musgrave *et al.*, 1993). In Asia, poaching has reached critical levels for animals such as tigers, pangolins (Duckworth, 2008), and the Asiatic black bear (Steinmetz and Garshelis, 2008). Effects of poaching activities included reduction of animal population in the wild and possible extinction; effective size of protected area is reduced. Also, in Nigeria bush meat (wild animal) happens to be a source of income but this trade is a treat to wildlife population as there is drastic reduction in the population of animal species. There is emergence of zoonotic diseases transmitted from animal to man like Ebola virus associated with the butchering of apes and consumption of their meat, Severe Acute Respiratory Syndrome (SARS) attributed to contact with and consumption of meat from the masked palm civet, raccoon dogs and chimes, ferret badger, (*Kainji Museum, Niger State*).

The difference between hunting and poaching is legal. Poaching is the illegal killing, trapping or capture of any animal for the express purpose of either personal need or monetary gain. Killing of any species that is legally “integrally” (completely) protected under national legislation is, by definition, illegal, whether the species lives in a protected area or not. There are occasional, limited exceptions, when a government permit is issued allowing a specified number of individuals of a particular species to be hunted. In Central African Republic (CAR) and Democratic Republic (DRC), most species that are listed on the IUCN Red List of Threatened Species¹ as “Endangered” are protected by national legislation (for DRC, see Loi No 14/003 of February 2014 and guides. The illegal trade in wildlife has caused the decline of many species in Nigeria and the world in general. Animals such as elephant, sea turtle, and vultures are usually poached and their body part sold for sundry uses and traditional medicine pushing the animal species at the risk of extinction without taking into account their health and economic benefit to the society (Onoja *et al.*, 2016). Hunting on the other hand, is the pursuit and killing or capture of game and wild animals, regarded as a sport. (Collins English Dictionary, 2014). Hunters and protection activists sometimes consider themselves as the stewards of nature whereas poachers are mostly perceived by both as illegal operators in the wildlife (Barca *et al.*, 2016). Barca *et al.* (2016) also observed that the accusers of both the hunters and poachers are mostly the environmentalists who maintain that with or without permission, both are attacking the offerings of the environment to mankind. Von Essen *et al.*, (2014) rather advocated that even ‘illegal hunting’ should be seen as a deviant sociopolitical behaviour and not a crime. In any case, hunters sometimes operate with a sense of legality while poachers rob designated areas of its animals, (Von Essen *et al.*, 2014). In essence, there could be ‘legal hunting’ but never a ‘legal poaching’. However, both hunters and poachers are threats to the wildlife.

Methodology

Study Area

Old Oyo National Park (OONP) is geographically located between North latitudes 8° 10' and 9° 05', and East longitudes 3° 35' and 4° 21', and centered on North latitude 8° 36' 00'' and East longitude 3° 57' 05''. The Park covers a land area of approximately 2,512 km² making it the fourth largest National Park in Nigeria. Politically, it lies in Oyo State in the Southwest of Nigeria and borders Kwara State in the Northeast. It is surrounded by ten (10) Local Government Areas in Oyo State. Figure 1 shows the location of OONP and the adjoining communities. There are three watersheds in OONP: River Ogun, River Tessi and River Iwa with their numerous tributaries. Vegetation of the OONP was classified as Southern Guinea Savanna (Keay, 1959). Animals like Lion, Leopard, Greater bustard, Spotted hyena, Serval cat, Aardvark, Elephant, Buffalo, Kob, Waterbuck, Reedbuck, Oribi, Roan antelope, Hartebeest Bushbuck, Spotted hyena, Common warthog, Red river hog, Red flanked duiker, Bush buck, Mongoose, Maxwell's duiker, Patas monkey, Tantalus monkey, Olive baboon, Hunting dog and Mangabey have been sighted in the OONP (Petrides, 1962; Ayodele, 1988; Alarape, 2002).

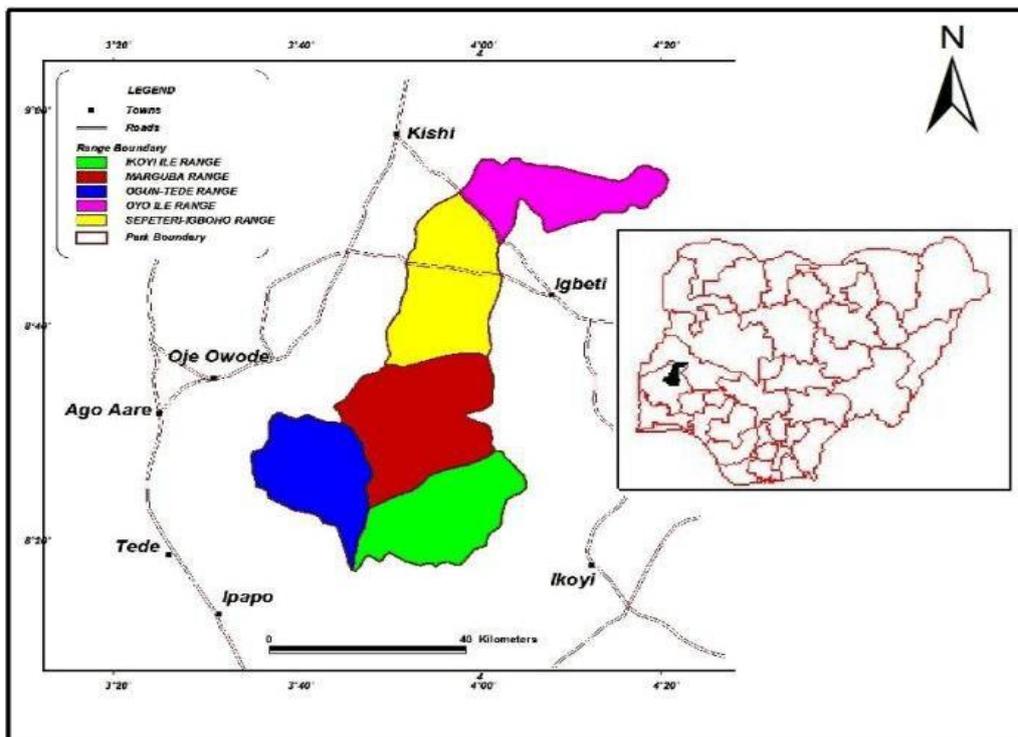


Figure 1: Map of Old Oyo National Park and major communities at its Buffer Zone

Study Population

The population of the study involved the total number of staff at OONP as of the time of this study. The number of junior (281) and senior staff (87) the time this study was carried out was 368.

Table 1. Staff Strength of Old Oyo National Park

S/N	YEAR	NUMBER OF JUNIOR STAFF	NUMBER OF SENIOR STAFF	TOTAL NUMBER OF STAFF
1	2014	147	139	286
2	2015	121	169	290
3	2016	302	120	182
4	2017	292	101	393
5	2018	281	87	368

Sample Size Sampling Technique and Data Collection

The purposive sampling technique was used to select staff of OONP for this study and simple random sampling technique was used to distribute questionnaires among staff in all the ranges of the Park. Primary data was collected through the administration of 368 questionnaires (through a census) out of which two hundred and eighty (280) copies were retrieved, giving response rate of 76% which is statistically viable. The questionnaire was administered to both senior and junior staff while Secondary data was collected from Journals, Articles, Handbooks and related publications from the Research Department of the National Park. Data were analyzed and interpreted quantitatively using tabular format of frequencies and percentages. The qualitative data generated by the in-depth interview was analyzed with the aid of ethnographic summaries and content analysis.

Results

The socio-demographic characteristics of respondents presented in Table 1 include age, sex, marital status and educational background. The Table shows that majority (43.5%) were within the age of 37-43 years old which shows that they are well experienced to have adequate knowledge of the park. Also, the gender of the respondents in which 91.9% were males while 8.1% were females. The recognition of gender roles in biodiversity management is an important step in the achievement of conservation and sustainability of the National Park. Furthermore, significant number of the staff which included both senior and junior staff (75.80%) of the Park are married while 24.2% are single. Also indicated in this Table is that majority of the respondents had College-Polytechnic qualification (83.9%) and therefore, lettered. This confirms that most of the employees had the required educational skills and are well knowledgeable to provide the needed information on poaching activities and wildlife trade in and around the Park, over the years.

Table 2. Socio-Demographic Characteristics of Respondents

Variables	Percentage (%)
Age	
21-29	17.70
30-36	33.90
37-43	43.50
44-50	4.80
Sex of Respondents	
Male	91.9
Female	8.1
Marital Status	
Married	75.80
Single	24.20
Educational Qualifications	
Secondary Certificate Holder	6.50
College Polytechnic	83.90
University	4.80
University Polytechnic	1.60
No response	1.20

Table 3 summarizes the cases of arrest at Old Oyo National Park with the highest number of arrest coming up in the year 2017 with the total compensation of three million, eight hundred and sixteen thousand, eight hundred naira only (₦3,816,800.00) were compounded and three were released while the total arrest in the year 2018 was one hundred and thirty eight (138), raising a compensation amounting to five million, two hundred and eighty five thousand and two hundred naira only (₦5,285,200.00). This result shows that there was an increase in the compensation with a reduced arrest.

Table 3. Summary of Arrest from 2014 to 2018 at OONP

YEAR	TOTAL ARREST	CASES TREATED IN COURT	FINED CASES	PENDING CASES	JAILED CASES	COMPOUNDMENT	WARN RELEASE	COURT FINES	COMPENSATION
2014	126	16	12	1	1	110	2	173,500	2,303,000
2015	123								
2016	99	-	-	1	-	94	5	-	3,913,500
2017	147	8	2	-	6	136	3	50,000	3,816,800
2018	138							-	5,285,200

Source: Administrative Office, OONP

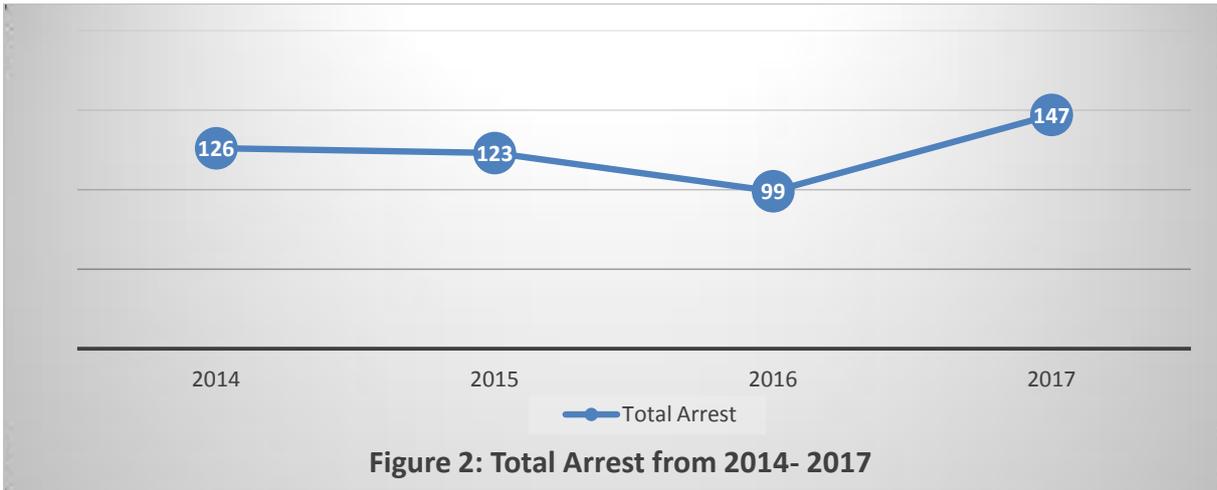
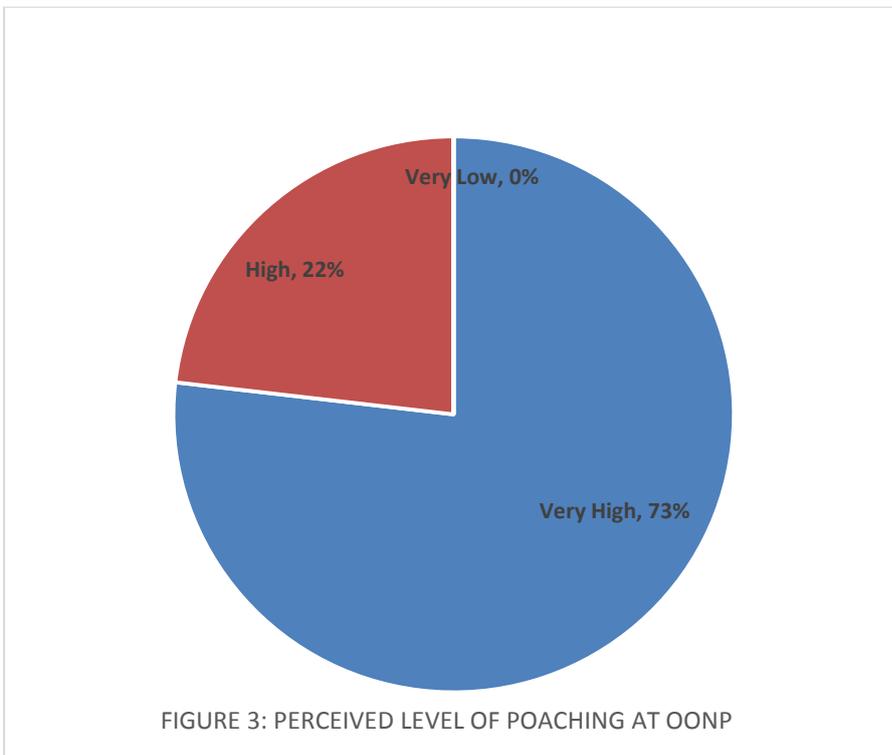


Figure 2 shows the variation in the number of arrest of poachers in OONP from 2014 to 2017. The highest number of arrests (147) was in the year 2017, while 2016 had the least number (99). Arrest and prosecution are the major tools of law enforcement in Nigerian protected areas but has not been a deterrent to reduce illegal activities in the protected areas particularly in the National Parks due to the frequent release of poachers by the court and mild penalties imposed by current wildlife laws (Gubbi, 2003)

Perception and Awareness on Poaching and Illegal Wildlife Trade

Figure 3 presents awareness and perception of poaching and wildlife trade in and around OONP. It reveals that 73% of the respondents were aware of illegal hunting of animals and plants within and around the Park. Very few (22%) indicated lack of awareness on poaching activities in the National park. 73% of the respondents attested to the fact that the level of poaching in OONP is very high.



From Table 4, it is indicated that activities such as grazing (89.2%), illegal entry (63.2%), mining (71.1%), hunting (76.3%), conspiracy (73.7%), fuel wood and charcoal (65.8%), farming (50 %), and lumbering (55.0%) were evident in OONP. The respondents however did not identify fishing (68.4%) and bush burning (18.2%) as a form of grazing in the research area. It can therefore be concluded that poaching activities in OONP was high. Activities such as grazing, illegal entry, fuel wood and charcoal, as well as lumbering were perceived as the most frequent dimension of poaching in the Park, has all of which have threatened and endangered the wildlife species in the protected area.

Table 4. Dimensions of Poaching at OONP

Variables	A (%)	D (%)	(\bar{x})	SD
Grazing and livestock	250 (89.2)	30 (10.8)	1.11	0.31
Illegal entry	177 (63.2)	103 (36.8)	1.37	0.48
Mining	199 (71.1)	81 (28.9)	1.29	0.45
Hunting	214 (76.3)	66 (23.7)	1.23	0.43
Dimension of Illegal Activities	206 (73.7)	74 (26.3)	1.24	0.44
Fishing	89 (31.6)	191 (68.4)	1.68	0.47
Fuel wood/charcoal	184 (65.8)	96 (34.2)	1.50	0.50
Farming	140 (50.0)	140 (50.0)	1.34	0.48
Lumbering	154 (55.0)	126 (45.0)	1.45	0.50
Bush fires	51 (18.2)	229 (81.8)	1.82	0.39
Average mean = 1.40305				
Soil	148 (52.9)	132 (47.1)	1.47	.50
Average mean = 1.3077				

The resources attracting poachers to OONP identified were animal (73.7%), honey (52.9%), fuel food (84.6%), herbs (86.8%), and wood for timber (67.7%), water (63.2%), seeds (81.6%), palm wine (78.9%), and soil (52.9%). The resources that attract poachers to OONP identified was high with the most common were animal, fuel wood, herbs, honey, wood for timber, water and soil (Table 5).

Table 5. Percentage Distribution of Resources that attract Poachers into the Park.

Variables	Agreed (%)	Disagreed (%)	(\bar{x})	Strongly Disagreed
Animal	206 (73.7)	74 (26.3)	1.26	0.44
Honey	148 (52.9)	132 (47.1)	1.47	0.50
Fuel wood	237 (84.6)	43 (18.4)	1.18	0.39
Herbs	243 (86.8)	37 (13.2)	1.13	0.34
Fish	133 (47.4)	147 (52.6%)	1.47	0.47
Wood for timber	190 (67.7)	90 (32.2)	1.32	0.50
Water	176 (63.2)	103 (36.8)	1.37	0.48
Seeds	246 (81.6)	34 (18.4)	1.18	0.39
Palm wine	220 (78.9)	60 (21.1)	1.21	0.41
Soil	148 (52.9)	132 (47.1)	1.47	0.50

Average mean = 1.31

Ungulates species encountered in OONP were Kobs (88%), waterbucks (22%), bushbuck (86%), Oribi (36%), Roan antelope (36%), Duikers (42%) and very few (4%) indicated that buffalo was still in the Park.(Figure 4).

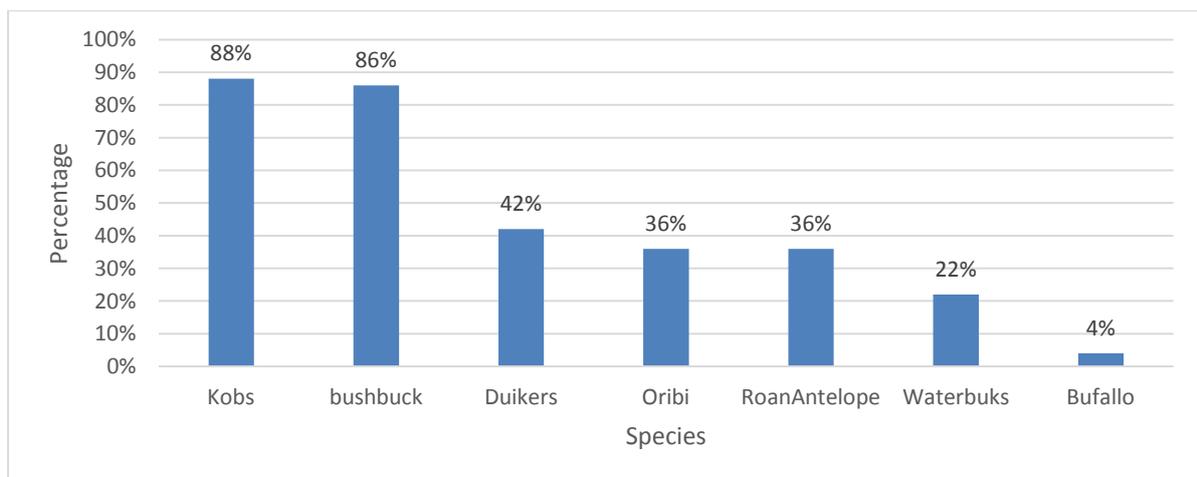
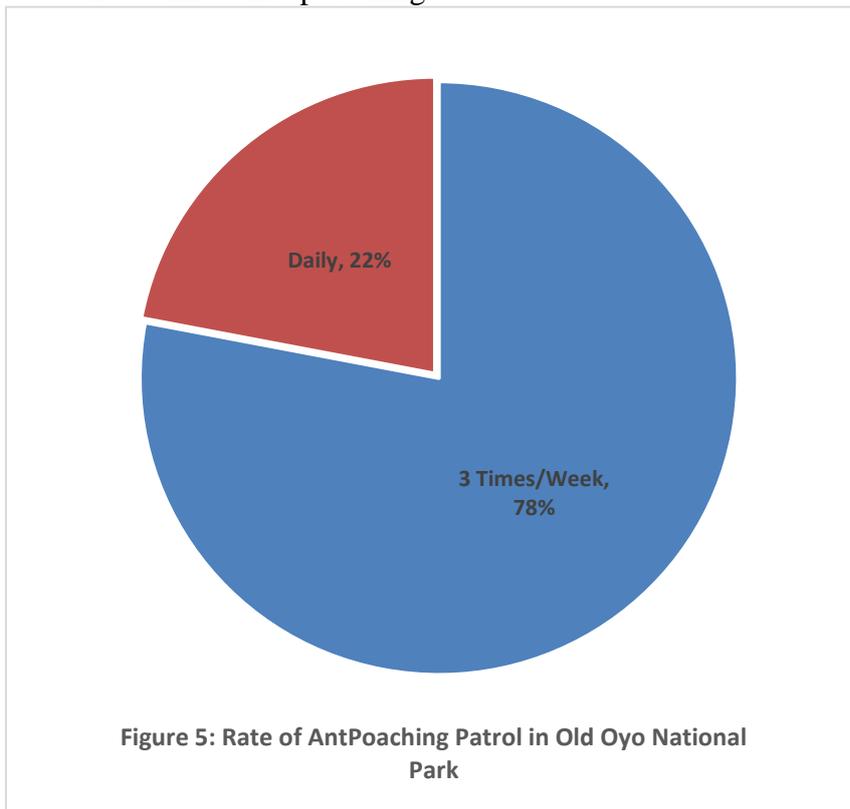


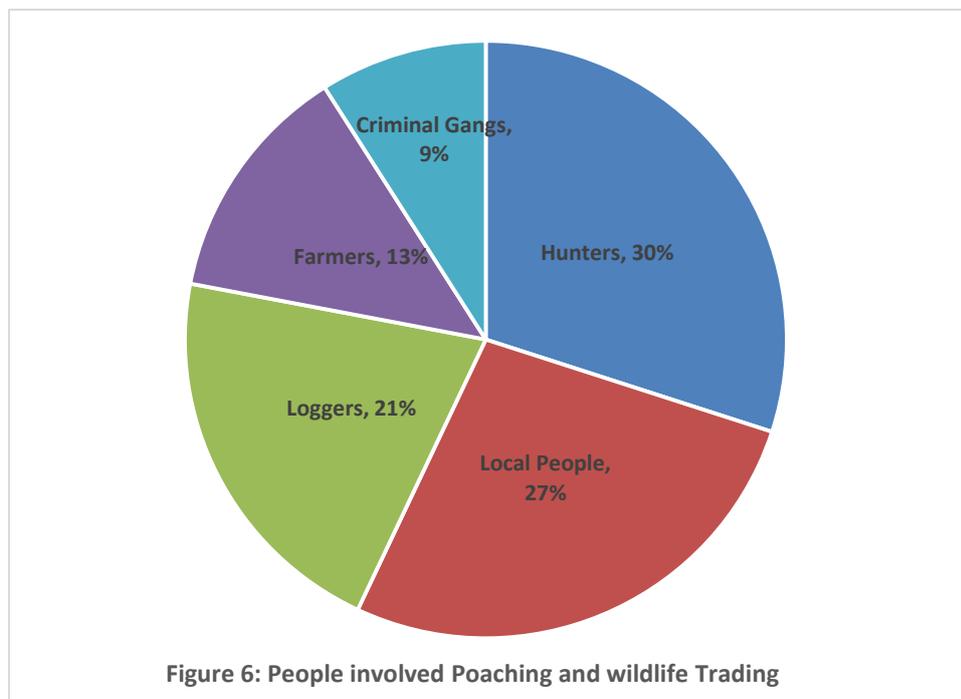
Figure 4. Species of Ungulates encountered in Old Oyo National Park

Figure 5 reveals that, in order to protect these species, (78%) of the respondents indicated that they normally go on patrol at least 3 times per week to ensure that there is no illegal entry to

the Park and to protect the Park while (22%) go on patrol daily. This shows that the rangers rotate/have shift while patrolling.



Majority of the respondents (30%) identified hunters, 27% identified local people, 21% identified loggers, 13% identified farmers and 9% identified criminal gang. This shows that the key people involved in poaching activities are local people, loggers and hunters (Figure 6).



The respondent identified the effects of poaching and wildlife trade. The effects identified were lack of natural resources (74%), spread of food borne illness (87%), tourist boycott due to poaching (58%) and extinction of flora and fauna species (65%). (Figure 7)

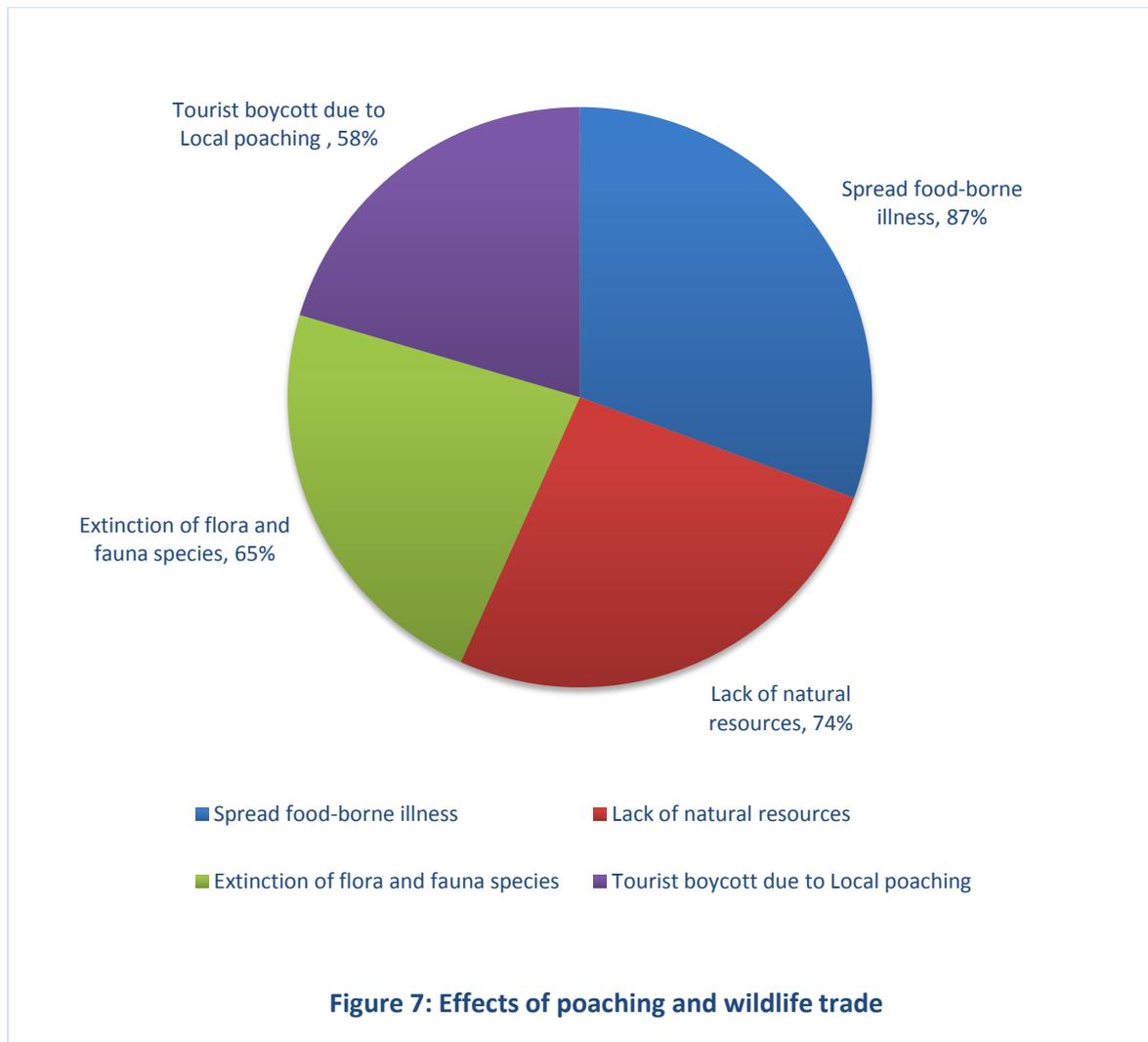


Table 6 reveals the causes of poaching and wildlife trade. Majority of the respondent strongly agreed that high population growth (78.9%), policy and legislation constraints (57.6%), and poor land use planning (55.3%), are the causes of poaching and wildlife trade. While minority of the respondents agreed that poverty (31.6%), governance and transparency (28.9%), and socio-cultural food and trade connections are the causes. It can be deduced that increase in population poverty, governance and transparency and socio-cultural characteristics, food and trade connections are the major causes of poaching and wildlife trade.

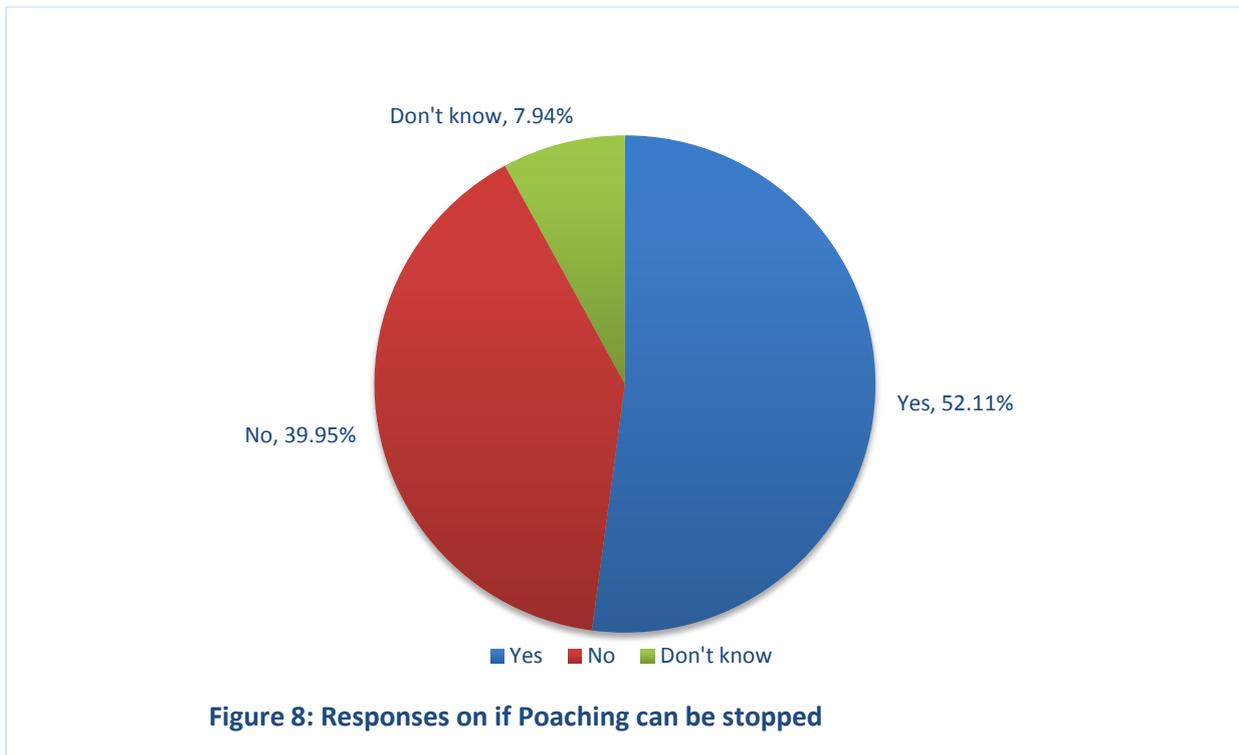
Figure 8 reveals that poaching activities can be stopped. 52.11% of the respondent agreed to that fact while just (7.94%) claim that poaching activities cannot be stopped.

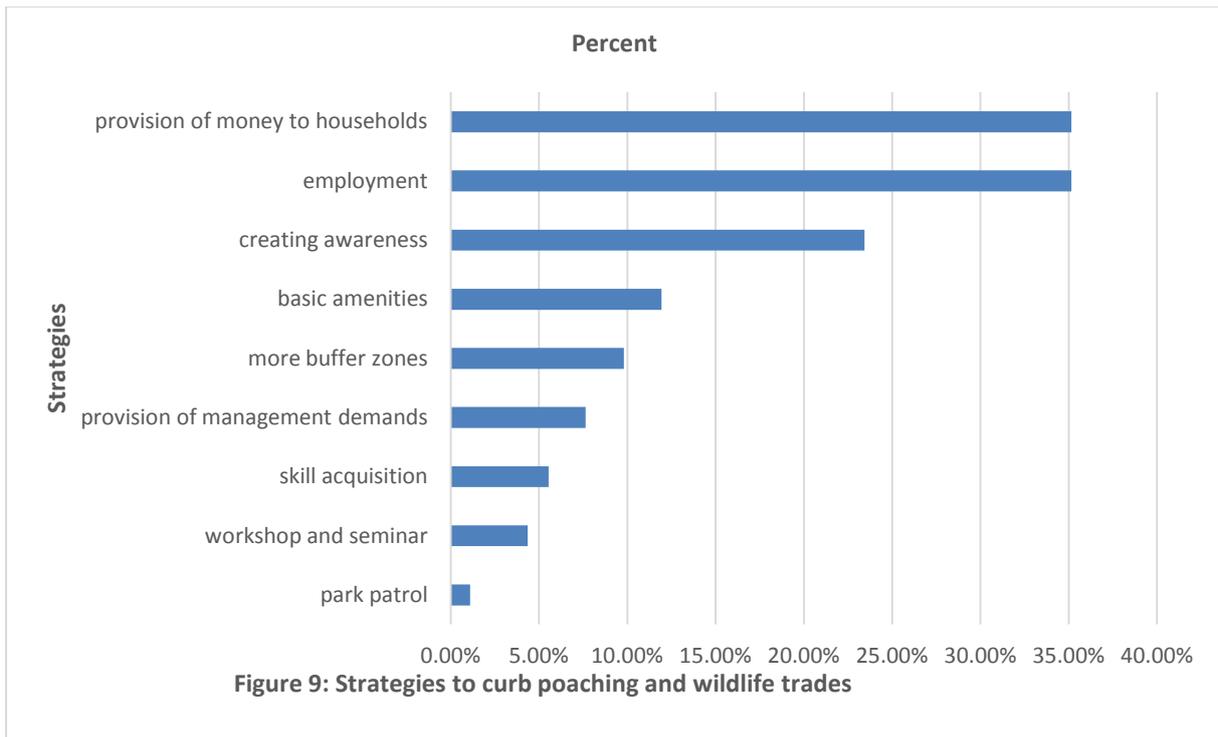
The strategies that can be used to curb poaching and wildlife trading as presented in Figure 9 were provision of money to households (35.15%), employment (35.15%), and creating awareness (23.43%).

Table 6. Causes of poaching and wildlife trade

Variables	SA (%)	A (%)	U (%)	SD (%)	D (%)	(\bar{x})	SD
High population growth rate	221 (78.9)	29 (10.5)	7 (2.6)	10 (5.3)	7 (2.6)	1.42	0.96
Poverty	80 (28.7)	88 (31.6)	29 (10.5)	67 (23.9)	15 (5.3)	2.45	1.27
Policy and legislation constraints	161 (57.6)	97 (34.5)	7 (2.6)	0 (0)	15 (5.3)	1.60	0.96
Poor land use planning	154 (55.3)	96 (34.2)	7 (2.6)	15 (5.3)	7 (2.6)	1.65	0.95
Governance and transparency	66 (23.9)	81 (28.9)	52 (18.4)	51 (18.2)	29 (10.5)	2.62	1.38
Socio-cultural characteristics, food and trade connections	88 (31.6)	147 (52.6)	7 (2.6)	22 (7.9)	15 (5.3)	2.02	1.06

Average Mean = 2.35844





Discussion

Majority of the respondents that participated in this research work were male as indicated in the number of male staff at Old Oyo National Park was more than the number of female staff at the park. They all had adequate educational qualification ranging from secondary certificate to University degree.

Perception and awareness on poaching and wildlife trade revealed that the respondents had high perception as regards poaching activities in the Park. The forms of poaching activities in the Park were identified as grazing and livestock, illegal entry, mining, hunting, conspiracy, fuel wood/charcoal, farming and lumbering. According to Happold (1995), illegal hunting is considered to be one of the main reasons for the decline in the populations of all Artiodactyls, primates, large rodents, carnivores, rhinoceroses and elephants. The demand for bush meat increased as human populations have increased and as a consequence, intense hunting pressure has caused a decline in the population of many wildlife species in all parts of Nigeria. Another key factor that involves wildlife trade and poaching identified at OONP was illegal logging of wood which according to Kemp and Palmberg (1995), unless carefully planned and controlled, harvesting may severely damage stand structure, site capacity and regeneration of the rainforest.

The people involved in poaching and wildlife trade were local people, farmers, loggers, criminal gangs and hunters. The United Nations Office for Drug and Crime (UNODC, 2012) notes that not all those involved in illicit trade in wildlife were professional poachers rather, some were informal participants. It noted further that these small players (informal participants) play a role in trafficking wildlife internationally. There are many layers of actors involved in illicit trade in wildlife. These range from tourists, hunters, foresters, government agents to professional traffickers, militants and terrorists. Ungulates available in Old Oyo National Park as at the time of study were seven; these are Kobs, Waterbuck, Duikers, Bushbuck, Oribi, Roan antelope and Buffaloes. Western hartebeest has become locally extinct

in the Park. Among the major threats to animals in the Park are hunting, grazing and honey tapping.

Resources attracting poachers to the Park were animal, honey, fuel food, herbs, and wood for timber, water, seeds, palm wine, and soil. In most cases, high level of poverty is the major reason for this. According to the Human Development Index Report (UNDP 2008-2009), the number of poor people in Nigeria remains high and the level of poverty rose from 27.2% in 1980 to 65.6% in 1996, an annual average increase of 8.83% over a 16-year period. However, between 1996 and 2004, the level of poverty declined at an annual average of 2.1% to 54.4%. To a large extent, poverty contributes a major threat to biodiversity and in other ways continues to further deepen the level of poverty in most rural areas. As an underlying factor for biodiversity degradation, poverty causes threats to biodiversity in two ways.

To solve the issues attached with poaching and wildlife trade, the respondents identified strategies such as creation of more employment, more buffer zones, creation of awareness among the local people on the importance of preserving and conserving the Park, workshop and seminar, provision of management demands, provision of basic amenities, skill acquisition, frequent Park patrol and provision of money for households. Bottom-up research focuses on deforestation and poverty issues (Knapp *et al.*, 2017; Roe, 2015; Booker *et al.*, 2017). A 2008 Botswana African Elephant Summit report commissioned by the International Union for Nature Conservation (IUCN) identified a direct link between poverty and poaching by comparing infant mortality rates and poaching rates (IUCN, 2013).

Conclusion and Recommendations

The Park's management practices are for all wildlife resources. There is no special ungulate protection that makes some of the ungulates locally extinct. Hunting, grazing, fishing, hunting, honey-tapping, farming, logging are the main threats affecting the ungulates in the Park.

The Park needs to be managed in a purely natural and scientific way, so that it can act as a sanctuary for ungulates. There is a need to create artificial water sources, reseeding and salts for the ungulates. This will help the ungulates disperse around the Park instead of concentrating on a spot to enable visitors see them in any of the visited areas.

The following are recommended:

- i. Implementation of Community Participation; the management of OONP must promote the management of the Park through Community Participation, due to the fact that the majority of the threats to ungulates in the Park are caused by the communities surrounding the Park, so that the use of force in regulation is minimal.
- ii. Campaign for enlightenment; the Park authority should embark on an enlightenment campaign for the towns and villages surrounding the Park, as well as the use of the electronic and print media in both English and Local Languages for the benefit of the majority of the rural population.
- iii. Regular and effective anti-poaching patrols should be conducted to mitigate a number of threats in the Park.
- iv. The government must seek to impose a stiffer penalty on anyone who may have violated the Park as this is the only way to protect the park from the infamous poachers.

References

- Ayodele A.I. 1988. Ecological basis for the management of Old Oyo National Park Ph.D Thesis submitted to the Department of Wildlife and Fisheries, University of Ibadan.
- Adetola, B. O., and Adetoro, A. O. (2014). Threats to biodiversity conservation in Cross River National Park, Nigeria. *International Journal of Conservation Science*, 5(4).
- Alarape. A. (2002). Culture and Conservation in and around Old Oyo National Park. Unpublished PhD Thesis Submitted to the Department of Wildlife and Fisheries, University of Ibadan
- Barca, B., Lindon, A., and Root-Bernstein, M. (2016). Environmentalism in the crosshairs: Perspectives on migratory bird hunting and poaching conflicts in Italy. *Global Ecology and Conservation*, 6, 189-207.
- Bassett, T. J. (2005). Card-carrying hunters, rural poverty, and wildlife decline in northern Côte d'Ivoire. *Geographical Journal*, 171(1), 24-35.
- Booker, F., and Roe, D. (2017). First line of defence. *A Review of Evidence on The Effectiveness of Engaging Communities to Tackle Illegal Wildlife Trade*. Available at www.iied.org (accessed on April 22, 2017).
- Dictionary, C. E. (2014). Collins English Dictionary. *Complete and Unabridged*.
- Duckworth, R. A. (2008). Adaptive dispersal strategies and the dynamics of a range expansion. *The American Naturalist*, 172(S1), S4-S17.
- Eniang, E. A., Eniang, M. E., and Akpan, C. E. (2008). Bush meat trading in the Oban Hills region of south-eastern Nigeria: implications for sustainable livelihoods and conservation. *Ethiopian Journal of environmental studies and management*, 1(1), 70-83.
- Gao, Y., and Clark, S. G. (2014). Elephant ivory trade in China: Trends and drivers. *Biological conservation*, 180, 23-30.
- Gubbi, S. (2003). Wildlife on the run. www.wildlifefirst.info/images/wordfiles/ontherun.doc
- Haken, J. (2011). Transnational crime in the developing world. *Global financial integrity*, 32(2), 11-30: (A Publication of Global Financial Integrity).
- Happold, D. C. D. (1995). The interactions between humans and mammals in Africa in relation to conservation: a review. *Biodiversity and Conservation*, 4(4), 395-414.
- IUCN. (2013) "African Elephant Summit in Gaborone, Botswana." *International Union for the Conservation of Nature*. 4 Dec. 2013. Web. 3 May. 2017.
- Jacob, D. E., Nelson, I. U., Udoakpan, U. I., and Etuk, U. B. (2015). Wildlife poaching in Nigeria national parks: A case study of Cross River National Park. *International Journal of Molecular Ecology and Conservation*, 5.
- Kainji Museum, Niger State, Nigeria: <https://www.thenigerianvoice.com/news/73015/enjoy-the-museum-4-gates-and-ancient-wall-in-this-town-name.html>
- Keay, R.W.J. (1959). An outline of Nigerian vegetation, . Government Printer, Lagos, Pg 1-10,
- Kemp, R. H., and Palmberg-Lerche, C. (1995). Conserving genetic resources in forest ecosystems. *Estudio FAO: Montes (FAO)*.
- Knapp, E. J., Peace, N., and Bechtel, L. (2017). Poachers and poverty: assessing objective and subjective measures of poverty among illegal hunters outside Ruaha National Park, Tanzania. *Conservation and Society*, 15(1), 24-32.
- Lin, J. (2005). Tackling Southeast Asia's illegal wildlife trade. *Sybil*, 9, 191
- MacKinnon, J., MacKinnon, K., Child, G., and Thorsell, J. (1986). *Managing protected areas in the tropics*.
- Musgrave, R. S., Parker, S., and Wolok, M. (1993). The status of poaching in the United States-Are we protecting our wildlife. *Nat. Resources J.*, 33, 977.

- Musyoki, C., Andanje, S., Said, M., Chege, M., Anyona, G., Lukaria, L., and Kuloba, B. (2012, January). Challenges and opportunities for conserving some threatened species in Kenya. In *The George Wright Forum* (Vol. 29, No. 1, pp. 81-89). George Wright Society.
- Obe, A. V., and Lawson, K. (2014). Global impacts of the illegal wildlife trade: the costs of crime, insecurity and institutional erosion.
- Onoja, A. B., Adeniji, J. A., and Olaleye, O. D. (2016). High rate of unrecognized dengue virus infection in parts of the rainforest region of Nigeria. *Acta tropica*, 160, 39-43.
- Petrides, G.A (1962). Advisory report on Wildlife and National Parks in Nigeria, 1962. A report prepared for I.U.C.N the American committee for International Wildlife Protection Special publication N0.18
- Roe, D. (2015). Conservation, crime and communities: Case studies of efforts to engage local. URL:https://www.researchgate.net/publication/276267349_Conservation_Crime_Communities_Case_studies_of_efforts_to_engage_local_communities_in_tackling_illegal_wildlife_trade.
- Rosen, G. E., and Smith, K. F. (2010). Summarizing the evidence on the international trade in illegal wildlife. *Eco Health*, 7(1), 24-32.
- Secretariat, G. T. I. (2012). Managing Tiger Conservation Landscapes and Habitat Connectivity: Threats and Possible Solutions. Experiences from Bangladesh, India, Indonesia, Malaysia, Myanmar, Nepal, Thailand, and Vietnam.
- Steinmetz, R., and Garshelis, D. L. (2008). Distinguishing Asiatic black bears and sun bears by claw marks on climbed trees. *The Journal of Wildlife Management*, 72(3), 814-821.
- Von Essen, E., Hansen, H. P., Nordström Källström, H., Peterson, M. N., and Peterson, T. R. (2014). Deconstructing the poaching phenomenon: A review of typologies for understanding illegal hunting. *British Journal of Criminology*, 54(4), 632-651.
- UNODC, 2012: <https://www.unodc.org/unodc/en/data-and-analysis/WDR-2012.html>
- UNDP 2008-2009: <https://www.undp.org/nigeria/publications/nigeria-human-development-report-2008-2009>.
- Willmott, N. J., Wong, B. B., Lowe, E. C., McNamara, K. B., and Jones, T. M. (2022). Wildlife Exploitation of Anthropogenic Change: Interactions and Consequences. *The Quarterly Review of Biology*, 97(1), 15-35.