Scholars Journal of Agriculture and Veterinary Sciences (SJAVS) **e-ISSN 2348–1854**
Abbreviated Key Title: Sch. J. Agric. Vet. Sci. **p-ISSN 2348–8883**

A Unit of Scholars Academic and Scientific Society, India
www.saspublishers.com

Assessment of Wildlife Hunting Methods in Two Ecological Zones of Nigeria

Akinyemi I.G*
Forestry Research Institute of Nigeria, P.M.B. 5054, Ibadan, Oyo State, Nigeria

Original Research Article

***Corresponding author**
Akinyemi I.G

Article History
Received: 09.12.2018
Accepted: 19.12.2018
Published: 30.12.2018

DOI:
10.36347/sjavs.2018.v05i12.007

Abstract: The meat of wild animals has been the primary source of animal protein particularly for the forest rural dwellers. Hunting for wild animals is one of the oldest professions handed down from our fore fathers to interested descendants. A survey on different hunting methods adopted by hunters was carried out in Obot Akara and Oluyole Local Government Areas of Akwa Ibom and Oyo states respectively. Structured questionnaires were used for data collection in purposively selected communities. Descriptive statistical technique was used to analyse the variables. The result revealed that three hunting methods were practiced which include the use of trap, bait and gun. They were ranked in the following order: trap>bait>gun represented with the values 53.57%>35.71%>10.71%, respectively. Based on these findings, hunting with bait had more disadvantage because most baits used for hunting tend to persist in the environment, increasing exposure and toxicity to wildlife and humans either through direct contact with the compound or through secondary exposure after ingesting contaminated food items. It is therefore recommended that government should educate hunters on the advantages and disadvantages of indiscriminate hunting. Laws should also be promulgated and enforced to forestall the use of deleterious means of hunting while meting stiff penalties to culprits. It is very pertinent that *in situ* conservation as an alternative source of animal protein will further forestall the indiscriminate and excessive hunting, which will further minimise extinction of the very many valuable species that play major roles in the ecosystems.
Keywords: Wildlife, food security, biodiversity, conservation, livelihood.

INTRODUCTION

In human history and cultures, wildlife hunting, trading and consumption at various geographic and economic scales has been in existence. Different types of people hunt with various hunting patterns for various purposes. Whether wildlife hunting is done by specialized or non-specialized hunters, the purpose could either be for subsistence, trade or recreation. According to [1], the value of wild meat is of economic, nutritional, ecological and socio-cultural significance depending on the culture. In order words, [2] defined wild meat as any non-domesticated terrestrial mammals, birds, reptiles and amphibians harvested for food and its use remains important in many developing countries with its sustainable use being fully recognized as legitimate by all international institutions and conventions.

A well-known and established fact staring us at the frontline is the issue of bushmeat commercialization and its utilization in many developing nations thereby bringing an intersection between biodiversity conservation, livelihoods and food security [3]. This has led to several fauna species becoming endangered and the list of depleted and extinct species in Africa continues to increase in the IUCN red list of depleted and extinct species [4].

Hunters hunt, poach, maim and capture bush meats which are known delicacies eaten and cherished by Africans and constitute an essential ingredient without which certain cultural and ceremonial events among African communities cannot be complete. Some of the commonly hunted animals include: cane rat, antelope, duiker, giant rat, pangolin, bush dog, civet cat, porcupine, python, monitor lizard, squirrel etc.

That poisons are used on baits for hunting is history worldwide although of recent, instead of the traditional use of plant and animal based poisons to deliberately kill wildlife, the ubiquitous and cheap, synthetic pesticides are used. It is noteworthy that animals are not just hunted for food [5] but for traditional medicine [6] and animal products like fur, horn and ivory. At this point, not only are the target affected but so also the non-target species like the vultures whose population has so declined [7] and man. Hunters who practice animal hunting with pesticides smear on known leaves of various plants highly potent pesticides as baits which animals feed on. Bush meat baiting and fishes with high potent pesticide is one of the methods resorted to by hunters and fishermen in their quest to generate higher income. It is a risk not only to food security but to the very survival of the human race [8]. These chemicals no doubt may be

retained in their tissues and the tendency of depositing them on subsequent consumers in the food chain hence leading to biomagnification cannot be overruled. The safety of this unconventional method of hunting bush meat leaves everyone at risk. It is a risk not only to food security but to the very survival of the human race. Available information indicate that some chemicals used for hunting have resulted in the death of consumers of bush meat which suggest that the chemicals are harmful not only to the animals but to humans as well [9].

The hunters and bush meat sellers use insecticides in particular to wade off insect infestation on their products which unknown to them may be poisonous, dispersed into the environment and causing side effects on non-target species [10]. In a bid to eliminate the incidence of rodents from either devaluing their products through ingestion or carrying them away to safer place thereby incurring losses to bush meat sellers, they practice and encourage the use of rodenticides. Rodenticides used may be in diverse forms: pellet, powdered or solid block form. Great care must be taken in placing these baits, as other animals; most especially the domestic ones and children may ingest them. Another burning issue is seen in the area of the class of pesticide (organophosphate, organochlorine, pyrethroids, traizine, urea etc) used to fight against insect.

Regardless of their level of awareness on the risk and threat of pesticides and its residues on biodiversity, their quest to generate higher income make them resort to baiting bush meat with highly potent chemical pesticides probably including organochlorine pesticides (OCPs). Although the use of OCPs were banned and restricted in most countries due to their long term persistence in the environment, many developed countries and some developing countries are still illegally applying them for agricultural and public health purposes due to their low cost [11]. Pesticides like the OCPs tend to persist in the environment, increasing exposure to wildlife and humans [12]. OCPs are lipophilic, meaning that its direct contact with preserved meat can further trigger chains of chemical reactions to the detriment of consumers. [13] Opines that acute toxicity from OCPs can be experienced.

The worldwide rapid demand for wild meat high in protein content, vitamins, minerals, lipids and savory sensation has been on the increase resulting from the growing rural and urban locations [14]. Nevertheless, in times of crisis, be it environmental, economic or personal, wild meat provides succour for food or income. There has been threat globally due to the hunting and eating of wild meat that has been left unaddressed.

MATERIALS AND METHODS

Study area

This study was carried out in two states of Nigeria, namely Akwa Ibom and Oyo States, respectively. One local government in each state was selected; Obot Akara Local Government Area (LGA) in Akwa Ibom State and Oluyole LGA in Oyo State.

Akwa Ibom State: History and geography

Akwa Ibom State, lying between latitudes 5°09´ and 15°00´N and longitudes 7°40´ and 6º59´E, is located in the coastal part of the country, one of the geographical zones located in the rainforest belt - an area known for high density of agro-genetic diversity.

It has an area of 7,081km^2 and a population of 5,482,200 [15]. Akwa Ibom state is named after the Qua Iboe River. The state shares boundaries with Cross River State on the east, on the west by Rivers and Abia States and on the south by the Atlantic Ocean. The main languages in the state are Ibibio, Annang, Eket, and Oron. Akwa Ibom State is the third largest producer of crude oil in the country and is endowed with various resources such as natural gas, salt, silver nitrate, limestone, clay, coal, and glass sand. Its forest reserves include mangrove, iroko, raffia, rubber, kolanut, coconut, peas, mango etc. The inhabitants are predominantly fishermen with over 65 per cent involved in active fishing.

The underlying geology of the state is predominantly coastal plain sediments, thus making the landscape mostly flat. Although, there are in some areas valleys, marshes, ravines and swamps due to influence of Atlantic Ocean, Qua Ibo, Imo and the Cross Rivers. The location of Akwa Ibom state just north of the equator and within the humid tropics, in addition to its proximity to the sea makes the state generally humid. Its climate can be described as a tropical rainy type which experiences abundant rainfall with very high temperature and mean annual temperature lying between 26° C and 28° C, while mean annual rainfall ranges from 2000 mm to 3000 mm, depending on the area. Naturally, maximum humidity is recorded in July while the minimum occurs in January.

Oyo State: History and geography

Oyo State is in the south-west of Nigeria with its capital in Ibadan. The state lies between latitudes 6°55´ and longitudes 8°45´N and longitude 2°50´and 3°56´E. It is bounded in the north by Kwara State, in the east by Osun State, in the south by Ogun State and in the west partly by Ogun State and partly by the Republic of Benin. Oyo State covers approximately an area of 28,454 square kilometers and is ranked 14th by size. The state has 33 LGAs. Ibadan is the third largest metropolitan area (by population) in Nigeria after Lagos and Kano. It has an area of 629 km² and a population of 7,840,900 [15]. Oyo has five broad group divisions; Ibadans, Ibarapas, Oyos, Oke-Oguns and Ogbomoshos. Oyo State is homogenous, mainly inhabited by the Yoruba ethnic group who are primarily agrarian but

have a predilection for living in high-density urban centers. The indigenes mainly comprise the Oyos, the Oke-Oguns, the Ibadans and the Ibarapas, all belonging to the Yoruba society. Agriculture is the main occupation of the people of Oyo State. Oyo enjoys a similar dual climate condition to the rest of the south-western states, with a rainy season and a dry season. The climate is equatorial, notably with dry and wet seasons with relatively high humidity. The dry season lasts from November to March while the wet season starts from April and ends in October. Average daily temperature ranges between 25°C (77.0°F) and 35°C (95.0°F), almost throughout the year.

The climate is ideal for the cultivation of crops like maize, yam, cassava, millet, rice, plantain, cocoa, palm produce, cashew etc.

Study design

Multi-staged sampling technique was used for the study. The two states were purposively selected based on: the availability of wildlife species, trade in wildlife products and population of wildlife sellers in the area. Hunters were randomly selected in each local government area (LGA) of the two states.

Sampling design

Detailed appraisal of the various aspects of the objectives of the study was carried out via the use of questionnaire and focus group discussions to collect primary data. The content of the questionnaire was open and close ended questions.

Sampling technique

Sampling technique was used for the study. Where population is less than 100, 10% sampling intensity was used [16].

Statistical analysis

Descriptive statistical techniques such as percentages and frequency count were used to analyse the data.

RESULTS AND DISCUSSION

Figure 1 shows the various hunting methods adopted by the hunters in the study areas. The study revealed that the hunting methods practiced followed the order: traps>bait>gun represented with the values 53.57%>35.71%>10.71%, respectively.

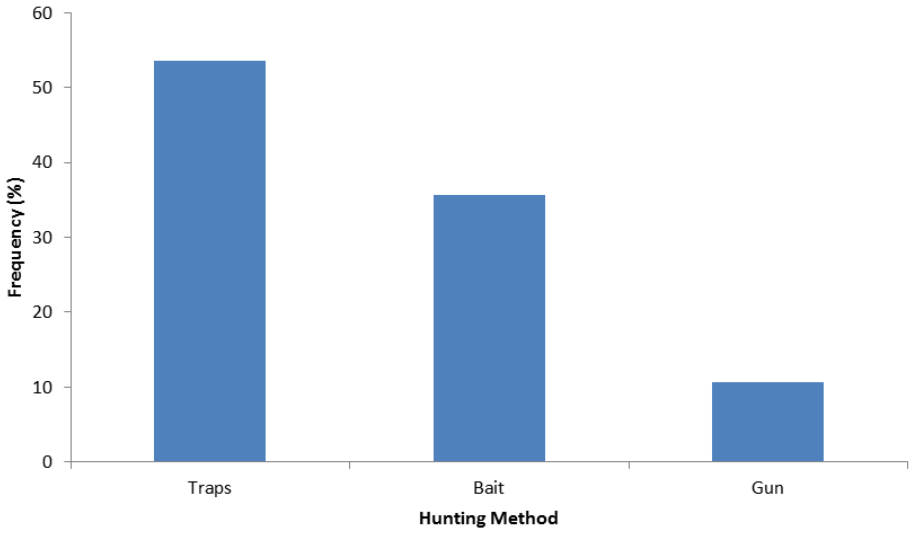

Fig-1: Hunting methods adopted by hunters

These days, fewer animal species available for sale or consumption by the hunter could also be as a result of the hunters poor and unskilled hunting expertise, years of experience and hunting method adopted which subsequently determine the species and sex composition of catch. Animal hunting through trapping ranked highest , although the time of the day when high success rate was recorded was not stated, it complements the report of [17] who illustrated that trapping and night hunting had the greatest success rates for hunters in a village in north-eastern Gabon, and small nocturnal preys such as porcupines were more easily caught by snares. A number of duiker species may remain mesmerised by the hunting lamp, thus making them easy prey for night hunters. Animal hunting with gun shots are species dependent and also involves expertise who can hit the target at specific range and spot. Hunting with guns has the following disadvantages: hitting of non-target species, bullet wounds infliction on animal body which makes the price depreciate and the fear of accidental crushing of hidden bullets while relishing the delicacy. Arboreal species such as monkeys are better shot since they are highly unlikely to be caught in traps. Hunting and poaching of animals has led to several fauna species becoming endangered and the list of depleted and extinct species in Africa continues to increase in the IUCN red list of depleted and extinct species [4].

Although [18] stated that Nigerians per capita intake of high quality protein is too low, till date it is still in the lowest ebb when compared to plant protein consumption.

Whereas in the past bushmeat was the most common source of animal protein: from those who eat it as part of a forest dependent life-style, to those who trade and transport it at all points along different supply chains, to those who consume it in restaurants and homes, often far from the forest [19], it is currently a luxury item, eaten only occasionally. The current low contribution of bushmeat to the protein intake is attributed to scarcity, relatively high prices and the unavailability in small affordable pieces, particularly in the rural areas since most of the hunters catch were sold as whole animals to be retailed in city markets, homes, and for those who relish bushmeat but cannot afford the cost of purchasing it for use in their homes, the chop bars remain their main source of bushmeat dishes.

The commercialization and utilization of bushmeat in many developing nations remains a frontline issue at the intersection between biodiversity conservation, livelihoods and food security [3]. Elaborate research has highlighted the ever increasing utilization of bush meat in different parts of Africa [20-23]. Bushmeat plays a leading role in local food security, engages more people than any other wildlife activity, and significantly contributes towards rural revenue generation [24]. However, the numerous gains derived from the hunting of wildlife by man has in no doubt made man forget to stop and make a rethink of its disadvantages and identified associated risks in terms of health: zoonotic diseases, food poisoning, hormonal imbalance/endocrine disruption, reproductive and immune dysfunction, neurobehavioural and developmental disorders and cancer. 60% of emerging infectious diseases of humans are zoonotic with 75% originating from wildlife [25] while [26] reports global death of 16% from infectious diseases [27].

The reduction in biodiversity of fauna species has emanated to a situation where any wild animal is acceptable as comestible and people have resorted to exploiting and marketing whatever they can find including a variety of small animals which in the past were not eaten at all or were only eaten by children.

CONCLUSION AND RECOMMENDATIONS

Biodiversity especially the fauna species in Nigeria are either tending towards extinction or they are already extinct as a result of over exploitation. Most hunters find it difficult to balance socially and economically; thus abject poverty, hunger, thirst and malnutrition overwhelms them. To forestall these, they go extra miles abusing the use of agricultural pesticides to ensure that a prey is captured in each hunting exercise not minding the repercussions.

It is therefore recommended that the following strategies be adopted:

- Awareness campaign conducted through the mass media, organized talks, film shows and seminars should be carried out in local dialects for proper understanding to enlighten stakeholders about the consequences and abuse of hunting with poisonous chemicals
- All relevant bodies and groups should ensure the enforcement of constituted laws guiding against indiscriminate hunting to ensure effective conservation of biodiversity.
- Alternative source of animal protein like sustainable livestock and microlivestock farming products should be made a priority if high prevalence of food insecurity is to be corrected, taking into account the high demand for wildlife and wildlife products for the ever increasing human population in the developing countries.

REFERENCES

1. Chardonnet P. Conservation of the African lion: contribution to a status survey.2002.
2. Nasi R, Brown D, Wilkie D, Bennett E, Tutin C, Van Tol G, Christophersen T. Conservation and use of wildlife-based resources: the bushmeat crisis. Secretariat of the Convention on Biological Diversity, Montreal. and Center for International Forestry Research (CIFOR), Bogor. Technical Series. 2008;50.
3. Mainka S, Trivedi M. Links between Biodiversity Conservation, Livelihoods and Food Security: The sustainable use of wild species for meat. IUCN; 2002.
4. IUCN. Red list of threatened species. 2000.
5. Odino M. Measuring the conservation threat to birds in Kenya from deliberate pesticide poisoning: a case study of suspected carbofuran poisoning using Furadan in Bunyala Rice Irrigation Scheme. Carbofuran and Wildlife Poisoning: Global Perspectives and Forensic Approaches.. 2011:53-70.
6. Mander M, Diederichs N, Ntuli L, Mavundla K, Williams V, McKean S. Survey of the trade in vultures for the traditional health industry in South Africa. Unpublished report. 2007 Mar;54.
7. Ogada DL, Keesing F, Virani MZ. Dropping dead: causes and consequences of vulture population declines worldwide. Annals of the New York Academy of Sciences. 2012 Feb 1;1249(1):57-71.
8. Entsie P. Bush meat crisis and its implications on food security sustainability: an overview. Report delivered at the National Conference on bush meat Crisis in Ghana. Organized by Conservation International Ghana October. 2002ph.
9. Mensah J. Grasscutter: the most preferred bush meat in Ghana. 2003. A daily Guide Report-Accra January 2003 Ghana National Implementation Plan, 2007.http://www.pops.int/>.

10. Ademoroti CM. Environmental chemistry and toxicology. Ibadan: Foludex Press Ltd. 1996.
11. Iwata H, Tanabe S, Sakai N, Nishimura A, Tatsukawa R. Geographical distribution of persistent organochlorines in air, water and sediments from Asia and Oceania, and their implications for global redistribution from lower latitudes. Environmental pollution. 1994 Jan 1;85(1):15-33.
12. Forget G. Pesticides and the third world. Journal of Toxicology and Environmental Health, Part A Current Issues. 1991 Jan 1;32(1):11-31.
13. Henriques W, Jeffers RD, Lacher TE, Kendall RJ. Agrochemical use on banana plantations in Latin America: perspectives on ecological risk. Environmental toxicology and chemistry. 1997 Jan 1;16(1):91-9.
14. Zakpaa HD, Mak-Mensah EE, Johnson FS. Production of bio-ethanol from corncobs using Aspergillus niger and Saccharomyces cerevisae in simultaneous saccharification and fermentation. African journal of biotechnology. 2009;8(13).
15. National Population Commission, Nigeria, (NPC). Census Report. 2006.
16. Diaw K, Blay D, Adu-Anning C. Socio-economic survey of forest fringed communities: Krokosua hills reserve. A report submitted to the forestry commission of Ghana. 2002:1-86.
17. Lahm SA. Utilization of forest resources and local variation of wildlife populations in northeastern Gabon. Man and the Biosphere Series. 1993;13:213-.
18. FAO. Food Composition Tables for Use in Africa: Rome Series No 37. Rome. 1990.
19. Nasi R, Brown D, Wilkie D, Bennett E, Tutin C, Van Tol G, Christophersen T. Conservation and use of wildlife-based resources: the bushmeat crisis. Secretariat of the Convention on Biological Diversity, Montreal and Center for International Forestry Research (CIFOR), Bogor. Technical Series. 2008;50.
20. Barnett R. Food for Thought: The Utilization of Wild Meat in Eastern and Southern Africa. 2000. TRAFFIC East/ Southern Africa, Nairobi, 264.
21. Friedmann Y. Bushmeat–A southern African issue too. Endangered Wildlife. 2003;43:16-7.
22. Chardonnet P, des Clers B, Fischer J, Gerhold R, Jori F and Lamarque F.The Value of Wildlife. Scientific and Technical Review, Office of International Epizootiology. 2002; 21, 15-51.
23. Bakarr MI, Fonseca GABD, Mittermeier RA, Rylands AB and Painemilla KW. Hunting and Bushmeat Utilisation in the African Rainforest: Perspectives towards a Blueprint for Conservation Action. Conservation International, Washington DC. 2001.
24. Brown D and Davies G. Bushmeat and Livelihoods: Wildlife Management and Poverty Reduction. Blackwell Publishers, Oxford. 2007.
25. Woolhouse ME. Population biology of emerging and re-emerging pathogens. *Trends Microbiology*. 2002; 10(10) 53-57.
26. WHO. The global burden of diseases: 204 update. Geneva, Switzerland, WHO research? 2008.
27. Woolfe ND, NgoleEiten M, Gockowski J, Muchaal PK, Notte C, Tassy Prosser A, Ndonge-Torimiro J, Weise SF and Burke DS. Deforestation, hunting and the ecology of microbial emergence. Global change and human health. 2000; 1(1).