# A SURVEY OF TRENDS AND PATTERNS IN TRADE AND CONSUMPTION OF BUSHMEAT ALONG IBADAN-IFE EXPRESSWAY AND IMPLICATIONS ON FAUNA BIODIVERSITY LOSS

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**ABSTRACT**
The study carried out a survey of the trend and pattern in bushmeat trade and consumption along Ibadan-Ife Expressway and its implication to biodiversity loss. This was achieved through; assessment of the effects of trade on bushmeat in Ibadan-Ife expressway, evaluation of the attitude and behaviour of traders towards wildlife, and investigation of the various uses of wildlife and its components by consumers. This was with a view to suggest possible solutions needed to promote sustainable bushmeat trade in the study area and protection of wildlife resources. To carry out this survey, the study identified the locations of high trade in bushmeat in the study area; respondents were randomly selected from the high activity areas and administered structured questionnaires to elicit expected responses. The target population required to conduct the study were the various business operators and consumers of bushmeat. In order to assess the sources, effect and control of bushmeat trade and consumption, questionnaires, semi-structured interviews, direct observation and wildlife count were used to gather all the data required for the study. The data collected were subjected to descriptive statistics so as to produce frequencies and percentages which were used as tools of analysis using statistical packages for social sciences SPSS. Monitor lizards (12%), Wild birds (12%), giant rats (10.7%), antelopes (10.7%), pangolins (10.7%), different snake species (10.7%) and others (12%) comprising animals like tortoise, bush dogs, bush pigs and invertebrates like snails that were mentioned as the most common species in the study locations. 89.3% of respondents agreed that awareness and education on wildlife conservation can help control the negative effects of bushmeat trade and consumption, 89.3% also agreed that substitute food will help control wildlife trade, 100% of respondents agreed that alternative sources of income if provided can help to control the business in wild animals, increasing preference for domestic animals 89.3% can also help to control wildlife trade, 54.7% of respondents agreed diligent enforcement and monitoring of activities of wildlife traders can help control the business. Forest protection and regulation of forest activities 11.6%, alternative sources of income 15.1%, regulating hunting 8.7%, and restricting hunting 8.7% were some of the suggest strategies to control bushmeat trade. The study provided some interesting insights into the role of bushmeat in biodiversity loss in forest locations/communities along Ibadan – Ife expressway. Contrary to perceived notions of continued existence of wildlife species, the study showed that there are significant changes in the fauna populations along these communities which are caused by the amount of bushmeat that is being sold and consumed thereby depleting the forest stock.

**KEYWORDS:** Bushmeat, Wildlife, Forest, Trade, consumption, Ife-Ibadan Expressway.

## INTRODUCTION
Forest and woodlands of Nigeria are often referred to as the "bush", as a result, wild animal Products derived from the bush are known as "bushmeat". Bushmeat is composed of various animal species that range from drills (*Papio leucophaeus*) to rodents such as Giant rats (*Cricetomys gambianus*), Monitor Lizards (V*aranus niloticus*), Bush buck (*Tragelaphus scriptus*), Guninea fowls (*Gutera plumifera)*, Giant pangolins (*Manis gigantean*) to the African Elephants (*Loxodonta africana cyclotis*). Wild game "bushmeat" has been variously defined to refer to any species of animal or bird that is shot, speared, or trapped and sold for public consumption either fresh or preserved (Willcox *et al*., 2007). Wildlife has been hunted for food ever since human race evolved, and bush meat is still viewed as a resource "free-for-the-taking" in many

areas of Africa (Wilkie *et al*., 1999). The meat provides a significant resource for traditional purposes and protein in both rural and urban household diets (Abdulawahab *et al*., 2014). Thus, the amount and rate of bush meat consumption in most Nigerian cities and major highways like the Ibadan-Ife expressway is assuming a threatening height that imperative measures need be taken to control the trend. Essentially, wildlife hunting is mostly promoted and driven by the ready-made market provided by the urban elites who have the financial muscle to purchase bush meat at almost three times the price of conventional animal meats (Bowen-Jones *et al*., 2002). The meat is usually consumed more in restaurants or "bush meat spots" by most people than in their homes (Schenck *et al*., 2006). The attractive market provided by the cities for bush meat has therefore changed the dimension of wildlife

hunting from subsistence to commercial hunting, where hunters kill just anything to meet the demand for family protein needs and also generate income (Abdulawahab *et al*., 2014). By so doing, some very rare species primates, Artiodactyl, Rodents, Carnivores, Reptiles, *etc* are gradually going extinct (Struhsaker, 1999). Hunting intensity is increasing as demand for meat increases with human population, just as there is an evolution of more dangerous hunting techniques and methods like wire snares, guns and chemicals are wildly employed to aid the hunting business. Paths are created in the forests that were once inaccessible making hunting easier and the trade bigger. Timber operations facilitate access to remote forests by opening roads in previously isolated areas. Roads provide access to markets and bushmeat can become a commodity, transforming hunting from a largely subsistence activity into a commercial one (Poulsen *et al*., 2009). Infrastructure and equipment linked to logging, such as camps, cars and trucks, have in several instances been used for the commercial trade of hunted species, often protected ones. Hunters consider all wildlife fair game, they prefer large animals as they generate more incomes, when large animals become scarce, hunters clamp down on smaller animals to keep the hunting and trade ministry viable.

Bushmeat, or the use of wild animals for food, is a resource of vital importance to the majority of rural and poor people in the tropics. It is also the cause of a looming biodiversity crisis as a result of over-exploitation caused by a combination of growing human populations and shrinking natural habitats. There is a wealth of literature discussing bushmeat, wild food and the impact of exploitation of wildlife on biodiversity (*e.g*. Robinson and Bennet, 2000; Brown and Davies, 2007) but little of this provides peculiar measures and strategies to mitigate and assuage the problems associated with the bushmeat trade in a peculiar location like the Ibadan-Ife Expressway. There is the concurrent issue that the biodiversity crisis caused by the over-exploitation of wild animals for food is concentrated in the tropics, where governments of these typically developing nations have little financial and technical resources to draw on to control the problem and for which some have no political will to address issues of the environment.

The unsustainable hunting of bushmeat has been shown to create "empty forests" (Redford 1992). This has grave consequences for the food security and livelihoods of many forest-dependent people living along the Ife-Ibadan Expressway. It also affects important fauna-dependent ecological processes such as pollination and seed dispersal (Wright 2003, Wright *et al*., 2007). Given its implication and magnitude, it is not surprising that the bushmeat trade and consumption is opinioned by many observers as among the greatest threats to biodiversity, particularly in the tropical rainforest regions of Nigeria. Indeed, case studies illuminate a multitude of locations were once vibrant wildlife communities as those along Ibadan-Ife expressway are harvested to a state of defaunation. There exist a common harmony among researchers that unsustainable harvest can have shattering consequences for ecosystems and the services and livelihoods that they provide. The problem is multi-disciplinary, since there are linkages between the socioeconomics of traders, consumers and hunters, and the ecology of the hunted species. Bushmeat is utilised by a wide range of rural and urban populations that travel through the Ibadan-Ife expressway. Peoples of a wide range of socio-economic backgrounds and levels of access to wildlife are involved. Although the extent of use differs according to the individuals and traders, a clear trend exists in that demand is high and increasing. There are no anti-poaching efforts by the government to help reduce the flow of bushmeat from the area and control of bushmeat trade. The study seeks to critically survey the trends and patterns in trade and consumption of bushmeat along Ibadan-Ife expressway and implications on biodiversity decline.

## RESEARCH METHODOLOGY
### The Study Area
Ibadan – Ife expressway lies between Lat E 40 30' 12.96" and E 40 30' 38.88" and Longitude N70 29 55.68 and N 7 29' 29.76". The road has several towns and villages like Asejire, Adekunle, Yaba-Isokan, Ikire, Wassimi, Gbonga, Akinlalu etc. Most of this road side settlements and business locations are involved in the sale of bushmeat, live, roasted, or dried.
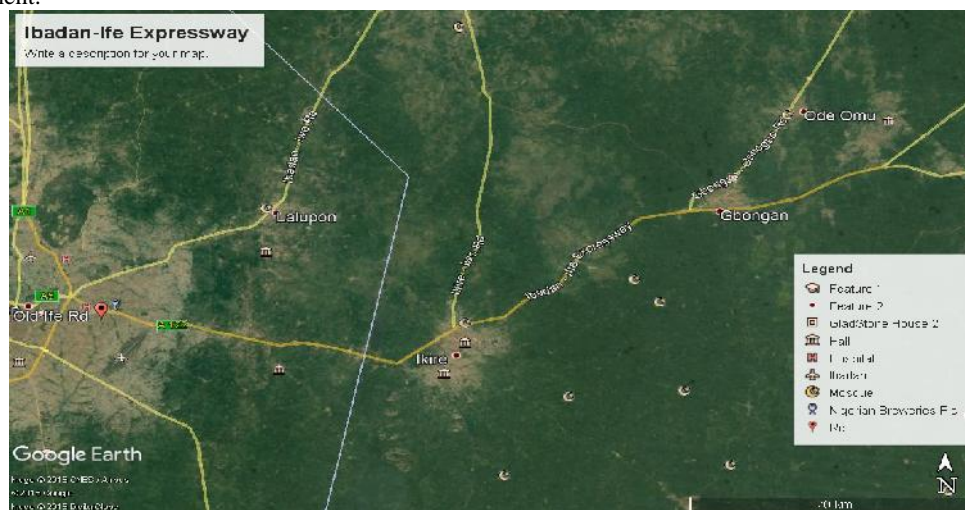


**FIGURE 1**: Showing Imagery of Ibadan – Ife Expressway and adjoining communities

**Research Design**
To carry out a survey of the trends and patterns in trade and consumption of bushmeat along Ibadan-Ife expressway and implications on fauna biodiversity loss, the study identified the locations of trade in bushmeat in the study area; respondents were randomly selected from the high activity areas and administered structured questionnaires to elicit expected responses. The target population required to conduct the study were the various business operators and consumers of bushmeat. In order to assess the sources, effect and control of bushmeat trade and consumption, questionnaires, semi-structured interviews and direct observation were used to gather all the data required for the study.

**TABLE 1**: Sample Population

| ITEMS | POPULATION | % |
|---|---|---|
| Asejire | 10 | |
| Adekunle town | 10 | |
| Ikoyi - Isokan | 10 | |
| Ikire | 10 | |
| Wassimi | 10 | |
| Gbonga | 10 | |
| Ipetumodu | 10 | |
| Akinlalu | 10 | |
| Osegere | 10 | |
| TOTAL | 100 | 100% |

**Source:** Fieldwork 2018.

**Research Instrumentation**
The main instrument of data collection in this study were informal interview, direct observations, Global Positioning System (GPS), digital cameras and self developed questionnaires. The questionnaires comprised questions relating to assessment of the perception of traders and consumers on the trade and consumption of bushmeat along Ibadan- Ife expressway.

**Effects of trade on bushmeat in Ibadan-Ife expressway**
To determine the effects of bushmeat trade on fauna population and availability, the study sort the opinion of respondents on the common species found, the preference species for sale and consumption, the species with high population at present, rare species not easily seen at present and species of high presence and abundance 10 to 20 years ago. The outcomes of the survey are presented in tables below.

**TABLE 2:** common species

|  |  | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Grasscutters | 8 | 10.7 | 10.7 | 10.7 |
| | Different snakes | 8 | 10.7 | 10.7 | 21.3 |
| | Giant rats | 8 | 10.7 | 10.7 | 32.0 |
| | Antelopes | 8 | 10.7 | 10.7 | 42.7 |
| | Pangolins | 8 | 10.7 | 10.7 | 53.3 |
| | Different Wild Cats | 8 | 10.7 | 10.7 | 64.0 |
| | Monitor Lizards | 9 | 12.0 | 12.0 | 76.0 |
| | Wildbirds | 9 | 12.0 | 12.0 | 88.0 |
| | others | 9 | 12.0 | 12.0 | 100.0 |
| | Total | 75 | 100.0 | 100.0 | |

Regarding the common types of wild animals seen at present in the bushmeat markets, the respondents listed monitor lizards (12%), Wild birds (12%), Giant rats (10.7%), Antelopes (10.7%), Pangolins (10.7%), different Snake species (10.7%) and others (12%) comprising animals like tortoise, bush dogs, bush pigs and invertebrates like snails that were not mentioned on the list. The responses of respondents were consistent in all the locations. The researcher also made a list of common species sighted during the study and this is presented in table 2b.

**TABLE** 2b List of animal species encountered during the study

| Common name | Scientific name | Pidgin name | |
|---|---|---|---|
| Mona monkey | *Cercopithecus mona* | | **Primates** |
| White throated guenon | *Cercopithecus sp* | | **Primates** |
| Bay duiker | *Cephalophus dorsalis* | Frotambo | **Artiodactyla** |
| Bush buck | *Tragelaphus scriptus* | Antelope | **Artiodactyla** |
| Red river hog (Bush pig) | *Potamoschus porcus* | Bush swine | **Artiodactyla** |
| Tree pangolin | *Manis tricuspis* | Catah beef | **Pholidota** |
| Long -tailed pangolin | *Manis tetradactyla* | | |
| Cane rat | *Thryonomis swinderianus* | Cutting grass | **Rodentia** |
| Giant rat | *Cricetomys gambianus* | Grumbeef | |
| Brown rat | *Crecetomys spp.* | Brown rat | |
| African giant squirrel | *Protexerus stangeri* | Squirrel | |
| African palm Civet | *Nandinia binotata* | Bush preussi | **Carnivore** |
| African civet | *Viverra civetta* | Bush dog | |
| Gabon viper | *Bitis gabonica* | Viper | **Reptiles** |
| Cobra | *Naja spp* | Black snake | |
| African rock python | *Python sebae* | Python | |
| Nile monitor lizard | *Varanus niloticus* | | |
| Nile crocodile | *Crocodylus spp.* | Crocodile | |
| African dwarf crocodile | *Osteolaemus tetraspis* | Alligator | |
| Tortoise sp. | | | |
| Guinea fowl | *Gutera plumifera* | Bush fowl | **Birds** |

**TABLE 3:** Preferred Species

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Pangolins | 8 | 10.7 | 10.7 | 10.7 |
| | Reptiles | 17 | 22.7 | 22.7 | 33.3 |
| | Antelopes and Duikers | 8 | 10.7 | 10.7 | 44.0 |
| | Rodents | 8 | 10.7 | 10.7 | 54.7 |
| | Primates | 8 | 10.7 | 10.7 | 65.3 |
| | Different Cats | 8 | 10.7 | 10.7 | 76.0 |
| | Invertebrates | 9 | 12.0 | 12.0 | 88.0 |
| | Wildbirds | 9 | 12.0 | 12.0 | 100.0 |
| | Total | 75 | 100.0 | 100.0 | |

During the analyses of data on preferred species of bushmeat, it was discovered that there was a marked difference in the demand for and preference for reptiles. Various reptiles are hunted and sold in villages throughout the study locations. Being slow moving creatures, reptiles were mostly butchered with machetes and guns were scarcely used in hunting them. They were occasionally caught in traps. Picking of tortoises was a very common practice but they occasionally fell into traps as well. Children commonly caught water tortoises in fishing nets.

For a better understanding and to make the information more useful, the data was presented in percentages. Reptiles had 22.7% preference; Wild birds (Guinea fowl) 9%, Snails 9%, Pangolins, Antelopes, Rodents, primates each had a 8% preference value. Other bushmeat consumed mostly comprised of animals that could not be readily bought by bushmeat traders (Bird species, Squirrel species, Tortoise species, Snakes, Giant Rat or half-rotten beef). Some of species encountered in study are presented in plates below.

**Plate 1** Monitor Lizard

**Plate 2** Antelope

**Plate 3** Long tailed pangolin

**Plate 4** Tortoise sp

**Plate 5** Bush pig

**Plate 6** Bush dog

**Plate 7** Grasscutter

**Plate 8** Giant rat

**TABLE 4** High Populations

|  |  | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Pangolins | 8 | 10.7 | 10.7 | 10.7 |
|  | Monitor Lizards | 8 | 10.7 | 10.7 | 21.3 |
|  | Antelopes | 17 | 22.7 | 22.7 | 44.0 |
|  | Snakes | 17 | 22.7 | 22.7 | 66.7 |
|  | Bush Cats | 8 | 10.7 | 10.7 | 77.3 |
|  | Giant Rats | 8 | 10.7 | 10.7 | 88.0 |
|  | Grasscutters | 9 | 12.0 | 12.0 | 100.0 |
|  | Total | 75 | 100.0 | 100.0 |  |

On high animal populations and species still relatively abundant at the various locations, 17% of respondent said antelopes were still in high numbers, 17% said snakes of various species were still being seen in high numbers, 9% said wild grass cutters are still high in population, 8% of respondents picked bush cats, giant rats, and pangolins as still high in population.

**Table 5** Rare Species

|  |  | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Elephants | 26 | 34.7 | 34.7 | 34.7 |
|  | Chimpazees | 8 | 10.7 | 10.7 | 45.3 |
|  | Large Cats | 8 | 10.7 | 10.7 | 56.0 |
|  | Crocodiles | 8 | 10.7 | 10.7 | 66.7 |
|  | Gorilla | 8 | 10.7 | 10.7 | 77.3 |
|  | others | 17 | 22.7 | 22.7 | 100.0 |
|  | Total | 75 | 100.0 | 100.0 |  |

On species that have become very rare to the respondents, 34.7% said elephants has become very rare, 8% percent went for chimpanzees, large cats, crocodiles and gorilla respectively. 17% said they were other wildlife species that were present in the locations but have become very rare with time.

**TABLE 6** Animals 10-20yrs Ago

|  |  | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Elephants | 26 | 34.7 | 34.7 | 34.7 |
|  | Chimpanzees | 8 | 10.7 | 10.7 | 45.3 |
|  | Baboons and Drills | 8 | 10.7 | 10.7 | 56.0 |
|  | Hippopotamus | 8 | 10.7 | 10.7 | 66.7 |
|  | Leopards | 9 | 12.0 | 12.0 | 78.7 |
|  | Others | 16 | 21.3 | 21.3 | 100.0 |
|  | Total | 75 | 100.0 | 100.0 |  |

For animals that existed over 10 to 20 years ago but are no longer seen these days, 26% agreed that elephants were seen 10-20years ago, 9% said the leopard was seen long ago, 8% said hippopotamus, baboons respectively and 16% listed other animals that were seen 10 to 20 years ago. Common wildlife species and the location/distribution are presented in figures.
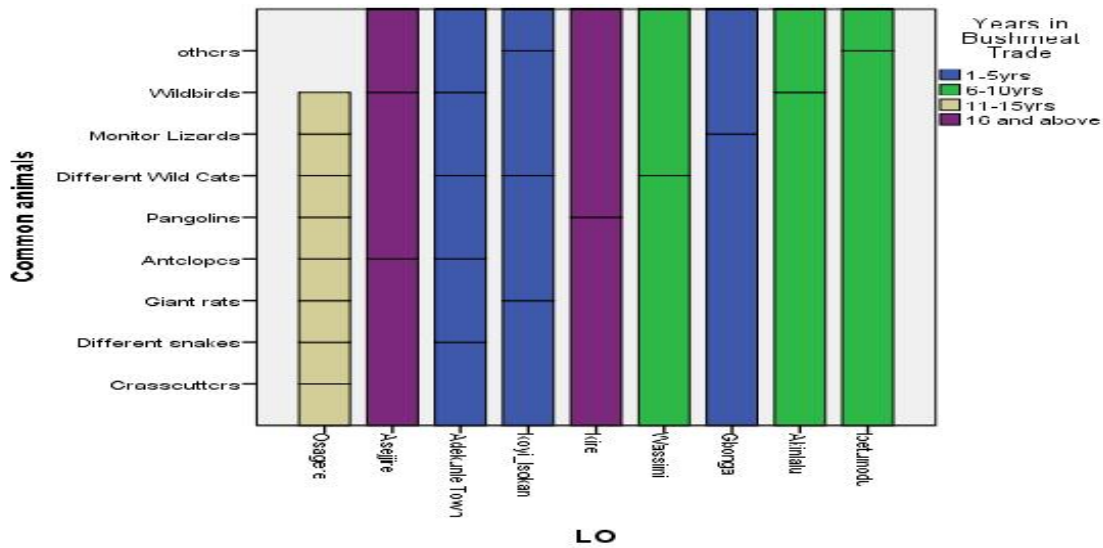


**FIGURE 1:** Common animals and their locations
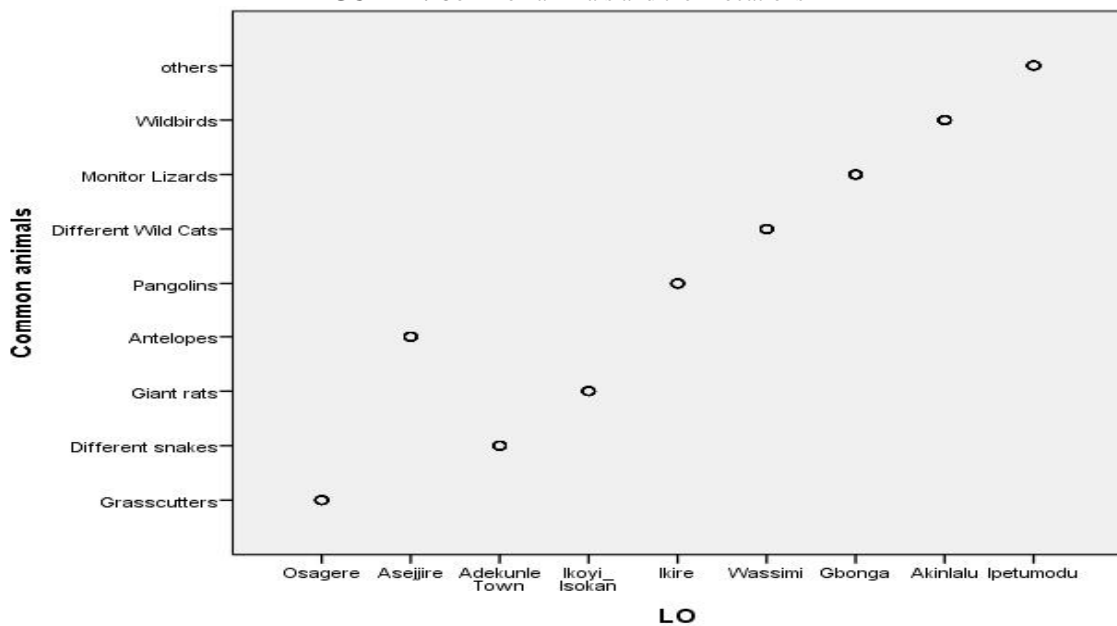


**FIGURE 2:** Common animals and their spread

**Attitude and Behaviour of Traders towards Wildlife**
The attitude and behaviour of bushmeat sellers and consumers towards wildlife was evaluated, the responses elicited from respondents are presented in tables below.

**TABLE 7** Bushmeat Trade Contribute to Biodiversity loss

|       |                  | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|------------------|-----------|---------|---------------|--------------------|
| Valid | I know           | 51        | 68.0    | 68.0          | 68.0               |
|       | I don't know     | 8         | 10.7    | 10.7          | 78.7               |
|       | I don't believe so | 16      | 21.3    | 21.3          | 100.0              |
|       | Total            | 75        | 100.0   | 100.0         |                    |

Respondents were asked of their knowledge on bushmeat trade contributing to biodiversity loss, 51 (68%) of respondents agreed they know bushmeat trade contribute to biodiversity loss, 8 (10.7%) said they don't know while 16(21.3%) opined they do not believe bushmeat trade can contribute to biodiversity loss.

**TABLE 8** Meaning of Protected Animals

|       |       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------|-----------|---------|---------------|--------------------|
|       | YES   | 25        | 33.3    | 33.3          | 33.3               |
| Valid | NO    | 50        | 66.7    | 66.7          | 100.0              |
|       | Total | 75        | 100.0   | 100.0         |                    |

When asked if they know the meaning of protected animals, 25 (33.3%) said they know what protected animals are, a larger number of respondents 50 (66.7%) involved in bushmeat trading said they don't know the meaning of protected animals.

**TABLE 9** Common Protected Animals

|       |              | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--------------|-----------|---------|---------------|--------------------|
|       | Elephant     | 8         | 10.7    | 10.7          | 10.7               |
| Valid | Chimpazees   | 8         | 10.7    | 10.7          | 21.3               |
|       | I don't know | 59        | 78.7    | 78.7          | 100.0              |
|       | Total        | 75        | 100.0   | 100.0         |                    |

59 of the 75 respondents that make up 78.7% of respondents do not know the animals that are protected in Nigeria.

**TABLE 10** Religious and cultural Believes that protects wildlife

|       |              | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--------------|-----------|---------|---------------|--------------------|
|       | YES          | 33        | 44.0    | 44.0          | 44.0               |
| Valid | NO           | 25        | 33.3    | 33.3          | 77.3               |
|       | I don't know | 17        | 22.7    | 22.7          | 100.0              |
|       | Total        | 75        | 100.0   | 100.0         |                    |

44.0% of respondents believe there are certain wildlife species that culture and religion forbids people from killing and eating, 33.3% said there are no animals protected by religion and culture, and 22,7% said they don't know.

**TABLE 11** If YES Which?

|       |               | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|---------------|-----------|---------|---------------|--------------------|
|       | Some Primates | 16        | 21.3    | 21.3          | 21.3               |
|       | Elephant      | 8         | 10.7    | 10.7          | 32.0               |
| Valid | some rodents  | 9         | 12.0    | 12.0          | 44.0               |
|       | others        | 42        | 56.0    | 56.0          | 100.0              |
|       | Total         | 75        | 100.0   | 100.0         |                    |

Respondents that said YES to question above on religious and cultural believes on wildlife, 16 (21.3%) said some primates like monkeys are forbidden by culture and religion, 9 (12%) said rodents like giant rats are forbidden, 8 (10.7%) said the elephants are protected by religion and culture, and 42 (56%) listed other animals that are forbidden by religion and culture.

**TABLE 12** Why Bushmeat Trade?

|       |                          | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--------------------------|-----------|---------|---------------|--------------------|
|       | Just for pleasure        | 8         | 10.7    | 10.7          | 10.7               |
|       | family survival          | 26        | 34.7    | 34.7          | 45.3               |
| Valid | family inherited business| 8         | 10.7    | 10.7          | 56.0               |
|       | less expensive           | 8         | 10.7    | 10.7          | 66.7               |
|       | None of the above        | 25        | 33.3    | 33.3          | 100.0              |
|       | Total                    | 75        | 100.0   | 100.0         |                    |

26 respondents that make up 34.7% of the total number of respondents said they are involved in bushmeat trading for family survival, 8% said they are involved just for pleasure, as family inherited business, because it is a less expensive venture respectively, and 25(33.3%) are involved based on reasons other than the listed reasons above.

**TABLE 13** Other business except bushmeat?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| | YES | 59 | 78.7 | 78.7 | 78.7 |
| Valid | NO | 16 | 21.3 | 21.3 | 100.0 |
| | Total | 75 | 100.0 | 100.0 | |

78.7% of respondent agreed to do other businesses other than bushmeat trade if given the opportunity, 21.3% said no in response to the question of readiness to engage in other businesses.

**TABLE 14** Reasons for Bushmeat consumption

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| | Food/Protein | 16 | 21.3 | 21.3 | 21.3 |
| | Medicinal | 8 | 10.7 | 10.7 | 32.0 |
| Valid | Cultural/traditional value | 8 | 10.7 | 10.7 | 42.7 |
| | a and c | 43 | 57.3 | 57.3 | 100.0 |
| | Total | 75 | 100.0 | 100.0 | |

When asked reasons for bushmeat consumption, 57.3% of respondents said they consume bushmeat because of the protein and medicinal values they derive from bushmeat, 21.3% of respondents said it's only for the food/protein values of bushmeat, 8% said it's for cultural/traditional values and medicinal values respectively.

**TABLE 15** Type of Supplies

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| | Buy from hunters | 59 | 78.7 | 78.7 | 78.7 |
| Valid | rear wildlife species | 8 | 10.7 | 10.7 | 89.3 |
| | hunt for wildlife | 8 | 10.7 | 10.7 | 100.0 |
| | Total | 75 | 100.0 | 100.0 | |

78.7% of respondents get their bushmeat supplies for sale from hunters, 10.7 said hunt for wildlife themselves and take to the expressway to sell, and 10.7% said the rear / domesticate wildlife species in which they take to the expressway to sell.

**TABLE 16** Presence of Hunter Associations

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | YES | 75 | 100.0 | 100.0 | 100.0 |

All respondents agreed that there exist hunters associations within their communities.

**TABLE 17** Managing Hunting in Communities

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| | Government | 8 | 10.7 | 10.7 | 10.7 |
| | Village Council | 25 | 33.3 | 33.3 | 44.0 |
| Valid | Hunter Associations | 25 | 33.3 | 33.3 | 77.3 |
| | Nobody | 17 | 22.7 | 22.7 | 100.0 |
| | Total | 75 | 100.0 | 100.0 | |

33.3% of respondents agreed hunting can only by regulated by hunter themselves, 33.3% said the village council can regulate the hunting activities, 22.7% agreed nobody can regulate and manage hunting activities in communities, 10.7% thinks government can regulate hunting activities.

**TABLE 18** Role of Government in controlling bushmeat trade

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| | nothing | 50 | 66.7 | 66.7 | 66.7 |
| Valid | I don't know | 25 | 33.3 | 33.3 | 100.0 |
| | Total | 75 | 100.0 | 100.0 | |

66.7% of respondents believe government has done nothing to control bushmeat trading, 33.3% don't know of any attempts or efforts by government to control bushmeat trade.

**TABLE 19** Bushmeat Monitoring

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Never | 75 | 100.0 | 100.0 | 100.0 |

100% of respondents agreed they have never been confronted by government officials for killing or selling certain species of wild animals.

**Possible Solution to Promote Sustainable Bushmeat Trade in the Study Area**

The study seeks to find possible solutions to promote sustainable bushmeat trading and consumption in the study area. The results of the suggested strategies of control are presented below.

**Table 20**

| | Cases | | | | | |
|---|---|---|---|---|---|---|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| $Bushmeat_Control[a] | 75 | 100.0% | 0 | 0.0% | 75 | 100.0% |

a. Dichotomy group tabulated at value 1.

**TABLE 21** Bushmeat_Control Frequencies

| | | Responses | | Percent of Cases |
|---|---|---|---|---|
| | | N | Percent | |
| Measures to control Bushmeat trade[a] | Awareness on Conservation | 67 | 13.5% | 89.3% |
| | Regulate Hunting | 41 | 8.2% | 54.7% |
| | Restrict Hunting | 41 | 8.2% | 54.7% |
| | Monitoring Bushmeat Trade | 41 | 8.2% | 54.7% |
| | Enforcement | 41 | 8.2% | 54.7% |
| | Substitute Food | 67 | 13.5% | 89.3% |
| | Protect Forest | 58 | 11.6% | 77.3% |
| | Increasing Preference for Domestic animals | 67 | 13.5% | 89.3% |
| | Alternative Income | 75 | 15.1% | 100.0% |
| Total | | 498 | 100.0% | 664.0% |
| a. Dichotomy group tabulated at value 1. | | | | |

89.3% of respondents agreed that awareness and education on wildlife conservation can help control the negative effects of bushmeat trade and consumption, 89.3% also agreed that substitute food will help control wildlife trade, 100% of respondents agreed that alternative sources of income if provided can help to control the business in wild animals, increasing preference for domestic animals 89.3% can also help to control wildlife trade, 54.7% of respondents agreed diligent enforcement and monitoring of activities of wildlife traders can help control the business. Others are forest protection and regulation of forest activities 11.6%, alternative sources of income 15.1%, regulating hunting 8.7%, and restricting hunting 8.7%.

**CONCLUSION AND RECOMMENDATION**

The results of this study provide some interesting insights into the role of bushmeat in biodiversity loss in forest locations/communities along Ibadan – Ife expressway. Contrary to perceived notions of continued existence of wildlife species, the study showed that there are significant changes in the fauna populations along these communities which are caused by the amount of bushmeat that is being sold and consumed thereby depleting the forest stock. While bushmeat provide valuable protein for many people in the study area, totally protected species also are being illegally hunted and thus becoming a major conservation issue. This study illustrates the need for a unified approach by the wildlife authorities, conservation agencies, academia and the public to generate data on and regulate bushmeat trade and consumption. It also shows the need for further research to determine the contribution of bushmeat to food security and its impact on protected species at the scale of Nigeria as the current study was based on few sampling areas and limited spatial coverage. Based on the results of the study, the following recommendations are imperative;

- Conservation education and awareness should be pursued and encouraged at all levels in the country;
- Improved techniques for domestication of suitable wildlife species should be promoted;
- Government should encourage the patronage of alternative sources of proteins to protect our wild species;
- Alternative sources of income should be provided for persons involved in wildlife trades; and
- There is need for improved monitoring, inspections and enforcement of relevant wildlife laws and regulations to control the activities of bushmeat trades.

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