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Full Length Research Paper

Survey of Wildlife Species Killed as Bush Meat in Otuocha and Environs, Anambra State, Nigeria.

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Abstract

A survey of wildlife species killed as bush meat in Otuocha and environs was carried out for four weeks (April to May) 2012. The following parameters were recorded: sexes of the animals, body length of the animals and the total number of each species. Photographs were also taken. Data was sourced through information from hunters and result shows that a total of 1630 animals belonging to different species were recorded during the study period and they include: grasscutter (*Thyronomys swinderianus*), civet cat (*Vivera civita*),brush tailed porcupine (*Atherurus africanus*), bush buck (*Tragelaphus scriptus*), guinea fowl (*Numida meleargris*), Maxwell duicker (*Cephalophus maxwelli*), African giant rat (*Cricetomys gambianus*), Mona monkey (*Cercopithecus mona*) and bush pig (*Potamochoerus porcus)*. The total number of female bush meat caught was 848 and the number of male bushmeat was 782. Grasscutter had the highest abundance with a total of 936 and a relative abundance of 57.1% while mona monkey and guinea fowl occurred least with a total number of two and relative abundance of 0.5% respectively. The species with the highest average length was the bush buck with an average length of 108cm followed by the Maxwell duiker, bush pig and mona monkey with an average length of 78.2cm, 68.5cm and 62.4cm respectively. The species with the least average length is the guinea fowl with an average length of 24.4cm while the African giant rat had an average length of 33.4cm respectively.

Keywords: Wildlife, bush meat, Otuocha

Introduction

Bush meat is generally referred to as meat from wildlife or undomesticated animals which are normally consumed in place of meat from domestic or livestock origin. It is the flesh of wild and undomesticated animals (Nest, 1991).The supply of bush meat from wild sources serves as the only possible measure to bridge the gap between livestock production and human population growth in terms of animal protein supply (Ayodele *et al,* 1999). Wild animals of various species form part of the diets of people across the globe (Udo, 1999). In sub-Saharan Africa, the proportion of wild animal's meat in total animal protein supply is exceptionally high and forest mammals accounted for between 20% and 90% protein consumed. (Ajayi, 1994). Wild animals are captured by indigenous people for income and subsistence (Cowlishaw *et al,* 2004). Communities living near rainforest in Nigeria obtained 84% of their animal protein requirements from bush meat (Udo, 1999). Bush meat contains less fat than domestic meat with potentials to supply iron, vitamins A and B (Udo, 1999). Wildlife hunting is encouraged by high pricing of these animals, which have led hunters to maintain supply from ever decreasing wildlife populations, in a number of west and central African countries, commercial hunters meet the increasing demand for this traditional item, and traders supply urban marketers for profit. Markets in towns and cities are thus the main point of sale for a large volume of species extracted from natural areas; these sale points can offer valuable insights into the demand and supply of bush meat in human population centers. In some cases, these data can be used to assess the effect of hunting on the bush meat species.

The importance and value attached to wildlife varies from one country to another, the most generally recognized value is the economic contribution of wildlife species to meat, hides

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and by products, but it is their immediate market value that has at times threatened them with extinction and today justifies the special efforts made for their conservation. In many countries wildlife has other economic and higher value. Recreational and aesthetic value, its role in promoting tourist trade etc.

The Nigerian vegetation is favourable to many wildlife species however; a good number of species that were abundant in the past are now rare; this is as a result of human activities like hunting, clearing of the forest for industrial and agricultural purposes, road construction and activities of the oil companies. Unsustainable bush meat hunting is a serious problem in West Africa; there have been records of local extinction (Milner and Akacaye, 2001). Sustainability assessment was recently published for 66 hunted species, 29 of which were found to be exploited unsustainably (Robbinson and Bennett, 2000). The objectives of the present study is to determine different species of wildlife used as bushmeat and also to determine the abundance of the species, gender and length of species mostly used as bush meat in Otuocha and environs.

Materials and Methods

Study area

The study was carried out in Otuocha, Nigeria and the coordinate of the study area is giving thus: 6◦20'07.09"N and 6◦51'11.29"E

Capture methods

Information sourced from hunters and sellers indicated that most of the animals were caught by shooting, especially the larger ones and some small species. Traps were also uses and they include: foot traps, wire traps and snares.

Data collection

The collection of data was done at the study sites (outlet of sale). The collection was done on a daily basis (7am- 12pm). Head count at sight of animals that were caught by hunters was made. The following parameters were recorded: sexes of the animals, body length of the animal and the total number of each species on daily basis. Other information about wild animals were also obtained from the hunters and sellers by oral interview. The animals were identified using the detailed keys of Happold (1987) and photographs of the different species were also taken.

The body lengths of the captured animals were measured using a meter tape calibrated in centimetres (cm). In all cases, the dead animals were placed on a table and the body length measured from the snout to the tail region and recorded to the nearest 0.01 cm. The average body length measurement was determined species by species. The sex of the animals was determined by placing the ventral side of the animals upwards in such a way that the genital region could be seen without discomfort. The following were observed for the sexes- presence of mammary gland and the difference in the external genitalia. These were used for differentiating the sex of all wildlife species since they are all mammals except Guinea fowl which is an ave. The sex of the Guinea fowl was differentiated with the aid of the helmet on the top of the head which is larger and triangular in males and smaller and pointed in females. The wattles were also larger and rounded in males but flat and smaller in females.

Statistical analysis

Shannon weiner diversity index was used to statistically analyse the result.

Result

The different wildlife species recorded in four weeks are presented in table 1. A total of ten different species of wildlife was observed throughout the study period, nine belonging to class mammals and one belonging to class aves (table 1). The distribution of the sex of all wildlife species is presented in table 2. The number of females recorded (848) is higher than the number of recorded males (779) (table 2). Grasscutter (*Thryonomys swinderianus*) had the highest relative abundance while the least abundance was recorded for both *Vivera civita* and *Cercopithecus mona* (table 3).

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Table 1: Wildlife species recorded in four weeks (April to May) 2012

S/N	Family	Scientific name	Common name	Local name
1	Thyronmidae	*Thyronomys swinderianus*	Grasscutter	Nchi
2	Hystrcidae	*Atherurus africanus*	Bush-tailed porcupine	Ebi ogwu
3	Muridae	*Cricetomys gambianus*	African giant rat	Ewi
4	Bovidae	*Cephalophus maxwelli*	Maxwell duiker	Mgbada
5	Bovidae	*Tragelaphus scriptus*	Bush buck	Ele
6	Cercopithecidae	*Cercopithecus mona*	Mona monkey	Enwe
7	Suidae	*Potamochoerus porcus*	Bush pig	Ezi
8	Numididae	*Numida meleargris*	Helmeted guinea fowl	Okwa
9	Viverridae	*Vivera civita*	African civet cat	Edi
10	Protoxeridae	*Protoxerus strangeri*	Geoffroy's ground squirrel	Nkwukwa

Table 2: Weekly survey of wildlife species found in Otuocha and environs

S/n	Names of animals	Week 1			Week 2			Week 3			Week 4			Total number of each species
		M	**F**	**Total**	**M**	**F**	**Total**	**M**	**F**	**Total**	**M**	**F**	**Total**	
1	*Thyronomys swinderianus*	125	237	**362**	74	35	**109**	101	80	**181**	215	65	280	**932**
2	*Vivera civita*	-	2	**2**	-	-	-	-	-	-	-	-	-	**2**
3	*Cricetomys gambianus*	9	18	**27**	9	21	**30**	-	-	-	4	17	**21**	**78**
4	*Cephalophus maxwelli*	4	31	**35**	11	11	**22**	14	9	**23**	-	15	**15**	**95**
5	*Tragelaphus scriptus*	1	2	**3**	-	4	**4**	2	-	**2**	1	1	**2**	**11**
6	*Cercopithecus Mona*	-	2	**2**	-	-	-	-	-	-	-	-	-	**2**
7	*Potamochoerus porcus*	3	3	**6**	-	3	**3**	-	5	**8**	1	-	**1**	**18**
8	*Numida meleargris*	1	-	**1**	-	2	**2**	-	2	**2**	-	2	**2**	**7**
9	*Atherurus africanus*	12	18	**30**	18	20	**38**	16	35	**51**	7	3	**10**	**129**
10	*Protoxerus strangeri*	93	113	**206**	32	56	**88**	16	10	**26**	10	25	**35**	**355**
	TOTAL	248	426	**675**	144	152	**296**	149	141	**293**	238	128	**366**	**1630**

*Total number of females = 848
*Total number of males = 779

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Table 3:Relative abundance and average length (cm) of each species of the animal caught during the study period

S/n	Name of species	Relative abundance	Average length (cm)
1	*Thyronomys swinderianus*	57.1	45
2	*Atherurus africanus*	7.9	40.4
3	*Cricetomys gambianus*	4.7	33.4
4	*Cephalophus maxwelli*	5.8	62.4
5	*Tragelaphus scriptus*	0.67	108.7
6	*Cercopithecus mona*	0.1	68.5
7	*Potamochoerus porcus*	1.1	78.2
8	*Numida meleargris*	0.4	24.4
9	*Vivera civita*	0.1	53.3
10	*Protoxerus strangeri*	21.8	32.3

Table 4: Shannon Wiener Index for the wild species found at Otuocha

$H^{/} = -\sum(ni/N \ln ni/N)$	**1.166**
Hmax = lnS	**2.303**
$E = H^{/} / Hmax$	**0.510**

Discussion

A total of 1630 animals of ten different species were caught; nine species belonging to the class mammalia and one species belonging to the class aves. The number of females (848) was higher than that of males (782); information from hunters showed that females have high parental care since they go out to get food for their young ones and this explains why they are easily captured by hunters. The study shows a reduced number of Mona monkey, civet cat and guinea fowl. This is in line with Happold (1987) who mentioned that higher number of carcasses, in the dry season than in the rainy season, was apparently related to seasonal variation in harvesting effort. The highest species caught was the grasscutter; this is attributed to their behaviour since they move in groups and have restricted home range. This is supported by the findings of Kuchikura (1988) who indicated that their abundance is due to their sociality. Restricted home range increases their susceptibility to hunting since they are conspicuous and it makes their movement more predictable. There were less number of brush tailed porcupine, compared to those of their close relatives, the grasscutter. This could be attributed to their low reproductive rate with a gestation period of 100-110 days and litter size of 1-2 as shown by Cowlishaw *et al* (2004). It attains maturity in two months unlike the grasscutter that attains maturity in 5 months. It is also likely that intense hunting had impact on the numbers of the brush tailed porcupine listed on schedule 1 of Nigerian Endangered Species Decree II, 1985. The demand for this rodent has increased; and this has spurred hunters to intensify efforts in killing them by more sophisticated method. The reduced number of bush buck, Maxwell duiker and bush pig could be as a result of habitat destruction and excess hunting. They are listed in schedule 2 of the Nigerian Endangered species Decree list. The captured animals were mainly adults as shown by the average length of each species. This observation does not correspond with the findings of Hill and Padoc, (2005) who reported that young animals are vulnerable to hunting since they are inexperienced feeders and are inexperienced in escaping from predators. The Diversity Index of 0.51 shows a moderate distribution of the wildlife species and an even spread of the species. This could be attributed to the type of habitat present in Otuocha. A richer habitat would support more wildlife species and hence the diversity index would tend to move towards 0ne (1).

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