

Assessing Bushmeat Trade in Bo, Southern Sierra Leone

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Abstract: *Bushmeat trade assessment was conducted in Bo town, southern Sierra Leone. Samples collected in five bush meat markets. Bush meat trade is cardinal in the lives of those in the trade. The decrease in wildlife population has been acknowledged as a major concern by conservationists and the locals. Structured questionnaire was the research instrument used. Strategies employed included: Focus group discussions and Observation (direct and participation). The sample size was fifty two respondents. Twenty – four species belonging to five taxa were recorded as bushmeat sold in Bo town. Six observed to be of Conservation Concern in IUCN Red list. Nationally they are protected also. Four methods identified in the harvesting of bushmeat. The prices of bushmeat vary within and between species. The most expensive is Leones 500,000 /US \$90 and the cheapest Le 5,000/ US \$ 0.7.*

Keywords: Bushmeat, Bo Town market, Conservation Concerns, IUCN REDLIST

1. Introduction

Bushmeat hunting, for subsistence and to generate income has been in practice from time immemorial all over the world. Besides food and income values, these resources are highly valued by some traditional societies for cultural reasons. There is a large trade in bushmeat throughout Sub-Saharan Africa. Despite their legal protection, the wildlife resources commonly known as the bushmeat or wild animal in West and Central Africa is very important to the livelihood of forest dwelling communities across the nation's territories(24).

In east Africa, the World Conservation (IUCN), Red list of threatened species, noted that many sub-Saharan wildlife species are in danger and 20% are experiencing declining populations from the trade of wild meat also called bush meat (25)

Though habitat loss is often cited as the primary threat to wild animal, bushmeat trade has become the most significant immediate threat to the future of wildlife in Africa and around the world. It has already resulted to in wide spread of local extinction in West Africa (10).

Over the years, a high demand for wildlife products has turned the bushmeat trade into a very lucrative business employing thousands of men and women of youth and adult ages (8).

In many communities, bushmeat account for a large proportion of the animals' protein intake. Bushmeat animals' protein being eaten makes up to 84% in some communities living near the rain forests in West African countries. There is wide spread demand, with many people preferring it to domestic meats, accompanied by the realization that many bush meat can supply the essential nutrients which may not be readily available from other sources (24).

The decrease in wildlife populations has been acknowledged as a major concern not only by conservationists but also by local inhabitants whose livelihoods are directly affected.

Bushmeat hunting is also considered a major threat to the persistence of biodiversity in tropical forests: in Central Africa alone annual wildlife harvest is estimated to be 1 to 3.4 million tons (6). This raises concern about the survival of hunted species, ecosystem functioning and thus, the future food security of rural communities, especially in the face of expanding human populations and decreasing habitat availability.

In Sierra Leone, bushmeat trade has compounded the problem facing wildlife. Most people engaged in the trade are unaware of the threats of their actions to wildlife, man and the ecosystem. All species of animals are hunted irrespective of their protection statuses. The amount and type of bush meat harvested is not normally documented.

Bushmeat trade continues to play a pivotal role in the lives of the citizenry of Bo town. It serves as a source of income for most bushmeat traders. In spite of the increase in harvest, supply has not coped with demand. The income generated from the sale of bush meat is been used to sustain their life.

It is therefore necessary to investigate this enterprise and with emphasis on the species hunted. The aim of this research is to investigate on the bushmeat trade in Bo town. The specific objectives are: the types of species sold and their conservation statuses, methods of hunting, and unit cost of hunted species.

2. Literature Review

Bushmeat Crisis

Wildlife exploitation is an integral part of human livelihood activities across West Africa, and hunting for bushmeat has been a major traditional practice among the local

populations in each country. The exploitation has, however, increasingly threatened wildlife species as their populations continue to decline. Major causes of the bushmeat crisis include increasing commercial trade associated with major market centers in most countries, increased human population and expansion of settlements, and lack of alternatives (economic and protein) in rural areas. The crisis is further exacerbated by lack of capacity to control hunting in protected areas, fragmentation of habitats resulting from agricultural practices such as slash-and-burn farming, and recent civil wars that have increased the number of highpowered arms used for hunting large mammals (5).

Throughout the region, many of the remaining forest fragments now exhibit a classic case of the “Empty Forests Syndrome”, where although the forest still stands, wildlife populations within them are depleted (5).

Community participation in wildlife management: the Mount Cameroon experience. He (1) noted that “wildlife has always been exploited in the Mount Cameroon region as a common property resource, although hunting is subject to certain regulations requiring permits, gun registration and the use of approved trapping equipment. Nevertheless, almost all hunting activities have been carried out illegally, i.e. without meeting these requirements (1).

Furthermore, traditionally, hunting and trapping involved the use of local equipment such as wooden spears and ropes made from vines, and the catch was mostly for household consumption. Over time, the traditional practices have gradually given way to more sophisticated techniques including the use of guns and wires. Individual hunters set as many as 300 animal traps, and fence traps are commonly used to increase chances of catch. Approximately 45 large and medium-sized (body weight greater than 3 kg) mammal species have been recorded around Mount Cameroon and form an important part of the ecosystem. Some of these animals are endemic to the region: the drill (*Mandrillus leucophaeus*), Preuss's guenon (*Cercopithecus preussi*), red-eared guenon (*Cercopithecus erythrotis*) and Mount Cameroon francolin (*Francolinus camerunensis*). Elephants and chimpanzees are rare and endangered. The carcasses of all of these animals together with some other common species are traded in the area for bushmeat. Monkeys and rodents are the most common (22).

Hunting of wild animals is an important component of household economies in the Congo Basin. Results from their studies among others show that: a) bushmeat remains the primary source of animal protein for the majority of Congo Basin families; b) bushmeat hunting can constitute a significant source of revenue for forest families; c) demand for bushmeat by growing numbers of urban consumers has created a substantial market for bushmeat that is resulting in a halo of defaunation around population centres, and may be driving unsustainable levels of hunting, even in relatively isolated regions; and d) large bodied animals with low reproductive rates are most susceptible to over-exploitation compared with more r-selected species that apparently can tolerate relatively intensive hunting (9)

As urban populations continue to grow and economies revitalize, unless action is taken to alter the demand for, and the supply of bushmeat, the forests of the Congo Basin will be progressively stripped of certain wildlife species, risking their extirpation or extinction, and the loss of values they confer to local economies (13).

A village offtake survey estimated over 10,000 animal hunted per year. (90% by trapping). In Equatorial Guinea, trapping is currently preferred to gun hunting due to low cost and relatively high returns. However, as the availability and affordability of guns and cartridges increases, and trapping successes decreases, hunters are switching to shooting arboreal prey. In the absences of alternative foods and rural livelihoods, and proper enforcement of protected areas, people will continue to hunt for the commercial bushmeat trade until many vulnerable species become at least locally extinct (12).

Overhunting ranks as a major problem for a third of the mammals and birds threatened with extinction, according to a recent analysis of the Red List, in which the International Union for Conservation of Nature and Natural Resources reports the degree of peril for plant and animal species worldwide. For 8 percent of mammals in greatest peril, overexploitation is the major threat.

The annual harvest of wild species for their meat is vast: estimates are 23,500 tonnes in Sarawak (7), 67,000 – 164,000 tonnes in the Brazilian Amazon (Robinson and Redford, 1999) and 1 – 5 million tonnes in Central Africa.

3. Materials and Methods

This research was conducted in Bo Town, Southern Province, Sierra Leone. The target population of this study include all bushmeat and “pepper soup” traders in Bo Township. The study area was divided into five research zones. Any bushmeat trading centre represented a zone. The five Markets studied were: Munkuh, Shenge, Shell Mingo, Toubu and Mattru Road markets all in Bo town ship. The sample size for this research is fifty – two respondents. The study used structured questionnaire and focus group discussion to get responses from bush meat and “pepper soup” sellers to identify the species of wildlife animals sold, methods of harvest and unit cost of hunted species.

Quantitative data was analyzed descriptively via frequencies and percentages. The results of analyzed data are presented using tables, graphs and charts.

Identification of Bushmeat Specimens

The Kingdon “Field Guide to African mammals” was used in the specimen identification (11). Identification was done on the spot for fresh specimens. For the smoked ones, the researchers relied on the bush meat or “pepper soup” traders for their common names. For those specimen that were difficult to be identified in the field, the digital camera proved very useful.

4. Results

Species of Animals Sold as Bushmeat in the Bo Town Markets.

Table 1: Species of animals sold as bushmeat in Bo town

Taxa	No. of species in the group	English Name of Species recorded	Scientific name of species recorded	%	Conservation status
Primates	4	Olive colobus	<i>Procolobusverus</i>	16.67	Near threatened
		Black and white colobus	<i>Colobusvellerosus</i>		Vulnerable
		Eastern Spot- nosed monkey	<i>Cercopithecuspetaurista</i>		Least concern
		Western Red Colobus	<i>Procolobusbadius</i>		Endangered
Rodents	6	Grass cutter	<i>Thryonomysswinderianus</i>	25.00	Least concern
		Stripped ground Squirrel	<i>Euxeruserythropus</i>		Least concern
		Red-legged sun squirrel	<i>Heliosciurusrufobrachium</i>		Least concern
		African giant squirrel	<i>Protoxerusstabgeri</i>		Least concern
		Brush - tailed porcupine	<i>Atharusafricanus</i>		Least concern
		Crested porcupine	<i>Hystrixcristata</i>		Least concern
Ungulates	Even-toed	6	Maxwell's duiker	25.00	Least concern
			Bush duiker		Least concern
			Zebra duiker		Vulnerable
			Bongo		Near threatened
			Jentink's duiker		Endangered
			Blue duiker		Least concern
	Odd-toed	2	Red river hog	8.33	Least concern
			African buffalo		Least concern
Cats	3	Wildcat	<i>Felissylvestris</i>	12.5	Least concern
		Serval cat	<i>Felis serval</i>		Least concern
		Caral	<i>Felis caracal</i>		Least concern
Herptiles	3	Monitor lizard	<i>Varanus species</i>	12.5	-
		West African bush Viper	<i>Atherischlorechis</i>		Least concern
		Boma	<i>Unidentified</i>		-
Total	24			100	

In Bo town, twenty –four species of animals were sold as bushmeat (table 1). These animals sold as bushmeat fell under five taxa (table1). Ungulates (even – toed and odd – toed) are the most common 33.33%. The cats and herptiles were the least 12.5% each. Most of these species are displayed in the open with the exception of those protected by law.

Of the twenty –four species of animals sold as bushmeat in Bo town, six are of Conservation Concern (table 1) (IUCN Red list). Olive colobus - *Procolobusverus* (Near threatened), Black and white Colobus - *Colobusvellerosus* (Vulnerable), Western Red Colobus - *Procolobusbadius* (Endangered), Zebra duiker - *Cephalopus zebra* (Vulnerable), Bongo - *Tragelaphuseurycerus* (Near threatened) and Jentink's duiker - *Cephalophusjentinki* (Endangered). These same species are also protected by the laws of Sierra Leone. This substantiates that the trade in these species is illegally contravening both international and national laws.

This finding is in agreement to some extent with Conservation International – Ghana 2002. “During the Annual Closed Season on hunting, almost all species are seen displayed openly in markets including endangered, rare and wholly protected species. Within a period of four months 1st August - 1st December, 2002, (Annual Closed Season) 47 species were recorded as bushmeat sold in Ghana. Fourteen of such species are wholly protected in Ghana (IUCN). Even those protected by tradition were not

spared. For instance, the Even Crested Porcupine – *Hystrixspp*, totem of Asantehene and Bufallo, *Synceruscaffer*, totem of the Ekoma Clan of Asanti.”

This is further agreed by (3). It stated that a total of 500 wild species are consumed in sub-Saharan Africa. They included invertebrates, amphibians, insects, fish, reptiles, birds and mammals are all targeted by the bushmeat trade.

The picture is the same in Central African countries. (15) found out that, visitors to many Central African cities like Kinshasa (Zaire-now the Democratic Republic of Congo), Brazzaville (Congo), Ouesso (Congo), Bangui (Central African Republic), Libreville (Gabon), and Yaoundé (Cameroon) can purchase the meat of virtually any forest animal, endangered or not, whether be it gorilla, chimpanzee, monkey, pangolin, duiker, antelope, forest cat, crocodile, flying fox, eagle, monitor lizard, elephant, turtle, hippo, snake, or civet.

Furthermore, (7) reported that “the rapid recent acceleration in losses of tropical forest species owing to unsustainable hunting occurred in Asian forests first; for example, within the past 40 years, 12 large vertebrate species have been extirpated in Vietnam largely because of hunting”.

(19) further underscores this. “The problem is now most acute in the bushmeat heartlands of West/Central Africa and, arguably, in the next 10–20 years, losses are likely to be recorded in even the remotest parts of Latin America.

Bushmeat consumption is driven by the desire for protein. It is widely believed that bushmeat is a good source of animal protein and other essential nutrients got from foraging by wild animals on a high variety of plants in the wild. Equally important driving force is availability of the bushmeat market within the Bo Township. Customers are readily available to buy bushmeat once brought to the market. Some customers even pre-pay for bushmeat so that once bushmeat is availability, they will be given preference.

(10) Butressed this as follows: “Bushmeat has significant impacts on the livelihoods of the rural poor, providing both an affordable source of animal protein, where alternatives are not available or expensive. Furthermore, in Gabon, it is reported that annual per capita consumption of bush meat may reach eight pounds annually (15).

The crux of this research is most of the bushmeat sold in Bo town are from Pujehun district where patches of tropical rainforest still exist. These patches of forest that remained have been declared a National Park. Since the exercise is illegal, the other pertinent concern is the harvest sustainable?

This is the same concern raised by (6), they said: “The current trade is having a negative impact on populations of vulnerable species, resulting in local extinctions that could ultimately lead to global extinctions”.

In Sierra Leone rodents are considered agricultural pests particularly cereals. Therefore, their harvest is mostly encouraged by the farmers. Even farmers set snares round their farms to trap them. Youths around communities organized themselves into groups to hunt them. This is also in agreement with (10), they noted that: “Some bushmeat species thrive in secondary forest and may be pest species”.

Ungulates were identified amongst the bushmeat sold in Bo town markets. Among the ungulates recorded three are of conservation importance by IUCN REDLIST (table 1). In Sierra Leone, ungulates are heavily hunted for their meats. There are no religious barriers towards their consumptions. If the rate at which they are harvested is not regulated, they may soon face local extinction.

(14) findings agree with my assumption, he found out that the mostly hunted and preferred species were duikers for the following associated reasons (palatability, abundance, cheapness, and religious acceptability).

Three species of cat were among the bush meat sold in Bo town markets. They are all least concern to conservation both locally and internationally. However, these are carnivores and they occupy the top trophic level of the pyramid of numbers. Occupiers of that level are naturally few. Illegal and unregulated harvesting of such species will mount additional pressure on their already threatened small populations. Reptiles, particularly snakes were not speared. The information regarding snakes needs further investigation. Three species of reptiles were claimed to be among the bushmeat sold in Bo town. One could not be identified due to the nature they were brought to the market. The two were of least concern to conservation.

Sources of Bushmeat Sold in Bo Town

Table 2: Sources of bush meat sold in Bo town

Area	Frequency	Percentage (%)
BO DISTRICT	07	13.43
PUJEHUN	45	86.57
OTHERS	-	-
TOTAL	52	100

Bushmeat sold in Bo is from two sources Bo and Pujehun districts (Table 2 figure 1). However, the bulk (86.57%) is from Pujehun district. These results are frustrating to say the least. The remaining patches of the tropical rainforest in Sierra Leone is found in Pujehun, Kenema districts and Western Area Peninsula. Tremendous efforts have been done to save these patches. Among which is the declaration of the patches in Pujehun and Kenema districts as a National Park – The Gola Forest National park. The most disturbing aspect is The Gola Forest Project has a huge presence in that part of the country yet bushmeat is still harvested from the park. These research covers Bo town only. Gola forest also shares border with Kenema district and the republic of Liberia. It is evident that the picture is the same if not worse. It is only hoped that some of these bushmeat sold in Bo are from the community forest.

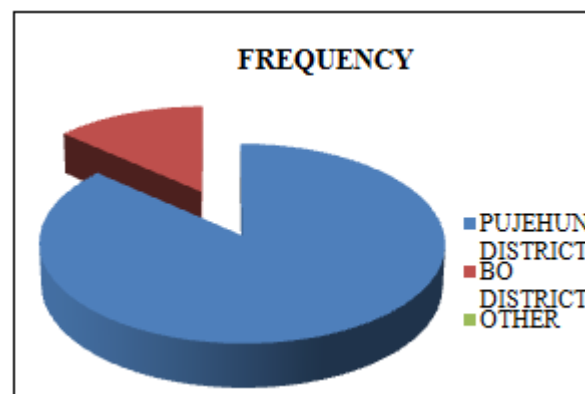


Figure 1: Sources of bushmeat sold in Bo town

Methods Used to Harvest Bushmeat Sold in Bo Town

Table 3: Methods used to harvest bushmeat sold in Bo town

Name	Frequency	Percentage (%)
Guns	7	13.06
Snares	49	94.23
Dogs and Netting	24	46.15
Netting	30	57.69

Four main methods recorded to be employed in the harvesting of bushmeat sold in Bo town (table 3, Figure 2): guns, snares, dogs and Nettings. The most widely used method snares (94.23%). Gola forest is protected by law, hunting using guns will alert the forest guards. Snares can be set at night and checked the following morning without being noticed. Net setting involved encircling an area with a net. Dogs are then release in the enclosure to scare the embattled animals. This enclosure is also surrounded by men armed with machetes or clubs to kill any animal attempting to escape. Hunting using guns (13.06%) was the least. Owning an automatic gun by civilians in Sierra Leone is crime these days. Those owning them are doing it under high secrecy. However, local made guns are common among

hunters. These methods are the same for most works consulted except for Ghana. In Ghana,(4)“six methods were identified to hunt bushmeat”. Fire is reported been used in some regions of Sierra Leone but it was not reported in this study. The difference came from the use of chemicals in Ghana which was not reported in Bo town. The scariest part

is the use of chemicals to hunt bushmeat. Molade 2000 stated that “organophosphate and organochlorine traces were noticed in the samples of bushmeat sold in markets. This attests to the use of such imported toxic chemicals for hunting in Ghana”. Traditionally prepared chemicals are also used in Ghana but not reported in Bo town.

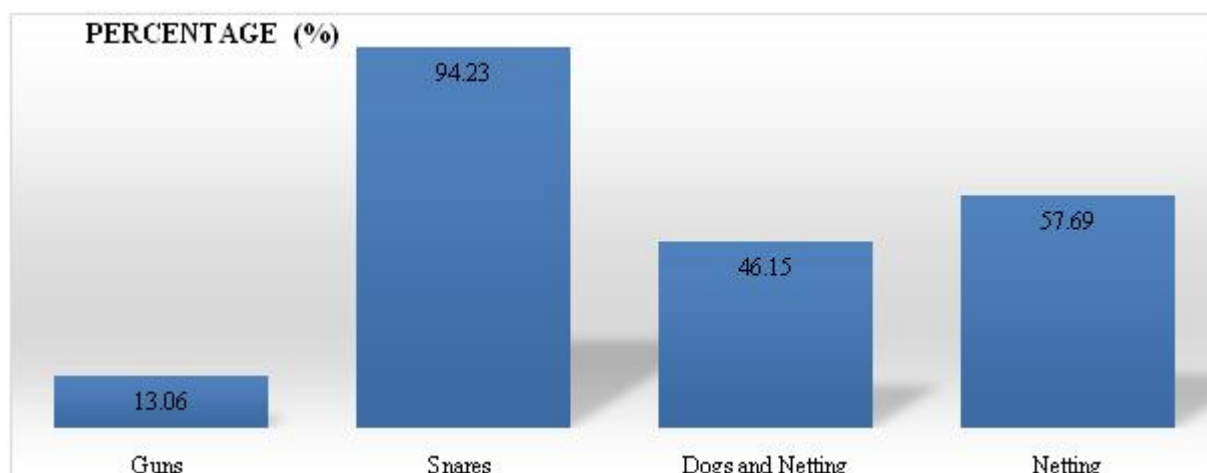


Figure 2: Methods used to harvest bushmeat sold in Bo Town

Unit Cost of Bushmeat Sold in Bo Town

Table 4: Unit cost of Bushmeat sold in Bo town

Common Name of Bush Meat Sold	Cost Of Bushmeat (US\$) - Wholesale
Olive colobus	55,000 (\$8)
Black and white Colobus	35,000 (\$5)
Eastern Spot- nosed monkey	45,000 (\$7)
Western Red Colobus	110,000 (\$20)
Marsh cane rat	22,500 (\$6)
Stripped ground Squirrel	15,000 (\$3)
Red-legged sun squirrel	15,000 (\$3)
African giant squirrel	17,000 (\$4)
Brush - tailed porcupine	15,000 (\$3)
Crested porcupine	15,000 (\$3)
Maxwell's duiker	45,000 (\$7)
Bush duiker	35,000 (\$5)
Zebra duiker	45,000 (\$7)
Bongo	250,000 (\$45)
Jentink's duiker	55,000 (\$8)
Blue duiker	50,000 (\$7.05)
Red river hog	250,000 (\$45)
African buffalo	500,000 (\$90)
Wildcat	35,000 (\$5)
Serval cat	15,000 (\$3)
Caral	15,000 (\$3)
Monitor lizard	25,000 (2.05)
West African bush Viper	5,000 (\$0.7)
Boma	35,000 (\$8)

The prices of bushmeat sold in Bo town vary considerably within and between species. The determining factors are size of the animal, taste and to some extent culture and traditions. The biggest and most expensive of all the bushmeats is African buffalo (Le 500,000/\$90) (table 4). Between species, prices also vary. For example, between primates, the Western Red colobus is the most expensive (Le 110,000/\$20) principally due to size of the mature one. The black and white colobus (Le 35,000/\$7 is the least.

Bushmeat trade is open business in Bo town but divulging statistics of the catch proved difficult by traders. The fact that people take bushmeat trade a fulltime occupation in Bo town speaks volume. Literature on financial reward from bushmeat rings bell too: (18) estimated that the total volume of bushmeat traded in Ghana annually estimated as 384,000 metric tons worth \$350 million dollars. The picture in Sierra Leone may not be too far from what Ntiamoah – Baidu recorded in Ghana.

5. Conclusion and Recommendations

Bushmeat trade is a very lucrative enterprise in Bo town. Every species is sold irrespective of protection level. A means of employment, source of food, tradition and culture came out glaringly as reasons behind the seeming booming nature of bushmenat trade in Bo town.

The followings are therefore recommended: Protected species be spared in this trade; aggressive sensitization be embarked upon by relevant ministries and agencies, law enforcement personnel to undertake regular unannounced visits to these markets and a detailed nationwide study be undertaken.

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Appendices



Fresh bushmeat displayed in Bo town



Smoked monkey for sale in Bo Town



Infant Bongo pet in Bo Market



Pepper soup pot in Bo town