

# **The Wildlife Conservation Society**

## **A Reconnaissance Survey of the Bushmeat Trade in Eight Border Communities of South-East Nigeria, September-October 2009**



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## 1.0 Summary

This report presents the result of a reconnaissance bushmeat survey from September to October 2009 at eight markets in the trans-boundary area between Cameroon and Nigeria, specifically in the communities bordering Cross River National Park in Nigeria and Korup National Park and Takamanda National Park in Cameroon. During this survey, all bushmeat carcasses displayed in the markets were counted. The aim of the survey was to assess the volume and component of bushmeat traded in the study area as well as gathering information on source, quantity and possible trends in the trade.

In the southern part of Cross River State (Calabar axis) participatory observation and interview methods were used to collect data at four sites by Emmanuel Bassey. In northern Cross River State (Ikom axis) four local reporters were trained in bushmeat identification and data collection and engaged to collect data from four bushmeat markets, supervised by Louis Nkonyu.

Bushmeat carcass counts were conducted on a total of **48** days from **8** sampling sites. The largest quantities of bushmeat were found in markets at Amana, Aningeje and Ikom. Altogether **2,961** carcasses belonging to at least **30** different animal species were traded as bushmeat within the survey period. Mammals represented 99% of all the bushmeat sold. Small mammals represented approximately 47% of the total bushmeat traded with porcupine alone contributing 845 carcasses, or 29% of the total number of carcasses traded. Most of the meat sold in markets situated in the *Calabar axis* was reported to be transported for onward sale in markets in Calabar, Uyo, Eket, Ikot Ekpene and Port Harcourt. This meat is believed to be mainly harvested from within Nigeria with lesser amounts from Cameroon. However, in the Okwangwo/Takamanda area (the *Ikom axis*) the vast majority of the total bushmeat traded is thought to originate from neighboring Cameroon communities.

Within the survey period, the value of the bushmeat traded amounted to some **N9,765,600 – approximately \$65,000 per month**. The survey also revealed that a number of endangered and fully protected species are being openly traded at some of these markets including gorilla, chimpanzee, drill, monkeys, otter, water chevrotain, buffalo, pangolin, crocodile, python and elephant.

## Acknowledgement

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## 2.0 Introduction

The harvesting of tropical forest wildlife as “bushmeat” for food is an age long practice, however consumption has increased dramatically in recent years and this has led to the loss of some species due to unsustainable hunting practices and to the so-called ‘empty forest’ syndrome.

Bushmeat is defined as the carcass of any non-domesticated terrestrial mammal, bird, reptile or amphibian harvested for the purpose of food (Nasi *et al* 2008). Whilst it is important to note that invertebrates such as snails, insects, crustaceans etc are useful and important protein sources; it is vertebrates which make up the main source of terrestrial wild animals consumed by humans. Hunting is defined as the extraction of any wildlife from the wild by whatever means, such as guns, trapping, poisoning etc, for food, trophies, medicines and other traditional uses as well as for pets (Nasi *et al* 2008). However hunting for food and sale are the most common reasons for hunting in tropical forest areas such as Nigeria.

## 3.0 Goal and Objectives

This study was conducted to update our knowledge of the scale and extent of the bushmeat trade in the trans-boundary region.

### ***Specific Objectives:***

1. Identify all bushmeat markets in the trans-boundary area.
2. Confirm organization of the bushmeat markets at each of these sites.
3. What is the level of awareness of the bushmeat traders?
4. How has the availability of bushmeat changed over time.

## 4.0 Methods

Eight bushmeat markets were selected for the study (see Figure 1 and Figure 2). A preliminary visit was made to each market to identify the traders and to establish trust by posing as a research student working on the “*economic importance of bushmeat*”. Free access to the carcasses was provided which greatly helped in making proper species identification without necessarily depending on information from the traders themselves. Traders were interviewed at the close of sale each day with discussions based on observations made during the day’s proceedings. In the various bars, sales attendants provided information on type, quantity and origin of the meat. Four trained local reporters were recruited, one for each locality at Abo-Ogbagante, Ikom, Amana and Danare. Each of these reporters collected data during each weekly market under the supervision of WCS coordinator Louis Nkonyu. In Aningeje, Akansoko, Watt Market and Atimbo area data was collected by WCS intern Emmanuel Bassey.

In the 'Calabar axis' we made 5 separate visits to weekly markets at Aningeje and Akansoko as well as 15 visits to urban markets within Calabar comprising Watt Market and the Atimbo area. In the 'Ikom axis' (Abo Ogbagante, Ikom, Amana and Danare) we also made 5 separate visits to each of the markets. Data was collected on a total of **48** days from **8** sampling sites. All surveys were completed during September-October 2009.

#### 4.1 Study area

This survey was carried out in seven different Local Government Areas of Cross River State and included five local markets, two urban markets and a selected drinking spot in Calabar where bushmeat is consumed in large quantities. All markets are located in close proximity to either the Oban Division or the Okwangwo Division of Cross River National Park. The area is a recognized biodiversity hotspot (Oates et al, 2004) and despite high levels of hunting and habitat loss there are still extensive areas of rain forest with small populations of the Cross river gorilla (*Gorilla gorilla diehli*), chimpanzee (*Pan troglodytes ellioti*), and forest elephants (*Loxodonta cyclotis*) remaining.

#### 4.2 Sampling sites

Most of the bushmeat sold in weekly markets such as the ones at Amana, Aningeje and Akansoko usually occurs during the very early hours of the morning. Traders carrying bushmeat from surrounding villages arrive as early as 6 am while most of the urban buyers arrive the day before the market day, especially those coming from distant cities such as Uyo, Eket and Port Harcourt. By 9am most of the bushmeat has already been sold.

**Table 1:** Eight Sites used for the Survey

	Site	No. visits	No. species	No. carcasses
1	Aningeje	5	12	581
2	Akansoko	5	11	497
3	Watt Market (Calabar)	10	7	208
4	Atimbo	8	8	146
5	Abo-Ogbagante	5	12	232
6	Ikom	5	21	566
7	Danare	5	7	39
8	Amana	5	18	692

##### 4.2.1 Aningeje market:

Aningeje is located along the road between Calabar and Oban in Akamkpa Local Government Area. The town is sandwiched between the Oban west and Oban east blocks of Cross River National Park – the boundaries of which are located only 1-2 kms from the town. Aningeje is only 25 kms west of Korup National Park in Cameroon, and is one of the largest local markets for bushmeat in the area. The market is held every Saturday.

#### **4.2.2 Akansoko market:**

Akansoko market is also located along the road between Calabar and Oban but is situated in Akpabuyo Local Government Area. Akansoko connects many other smaller hunting villages; and the market is very accessible and popular. The market operates on Tuesdays and Fridays.

#### **4.2.3 Watt Market:**

Located in the heart of Calabar South Local Government Area, Watt Market is the only market in Calabar where bushmeat is sold daily. There is also a single bushmeat trader in Marian Market in Calabar Municipal Local Government Area.

#### **4.2.4 Atimbo Road/Swamp:**

Atimbo is located along the Calabar to Ikom road in Calabar Municipal Local Government Area. Around 25 small bars serve bushmeat, plantain and palm wine. It is a popular place where people go for lunch and to cool off in the evenings after work.

#### **4.2.5 Abo Ogbagante market:**

Located in Boki Local Government Area along the Ikom to Obudu highway. Abo Ogbagante is also connected via an earth road with Bashu and Obonyi II in Cameroon, one of the villages surrounding Takamanda National Park. The market is located only 5 km from the edge of Cross River National Park and 15 km from the edge of Takamanda National Park.

#### **4.2.6 Ikom:**

The city of Ikom is situated about 215 kilometers north of Calabar on the banks of the Cross River and only 20 kms west of a major border crossing point with Cameroon at Mfum. The bushmeat trade at Ikom is conducted by women only on a daily basis with a larger weekly market held every Monday.

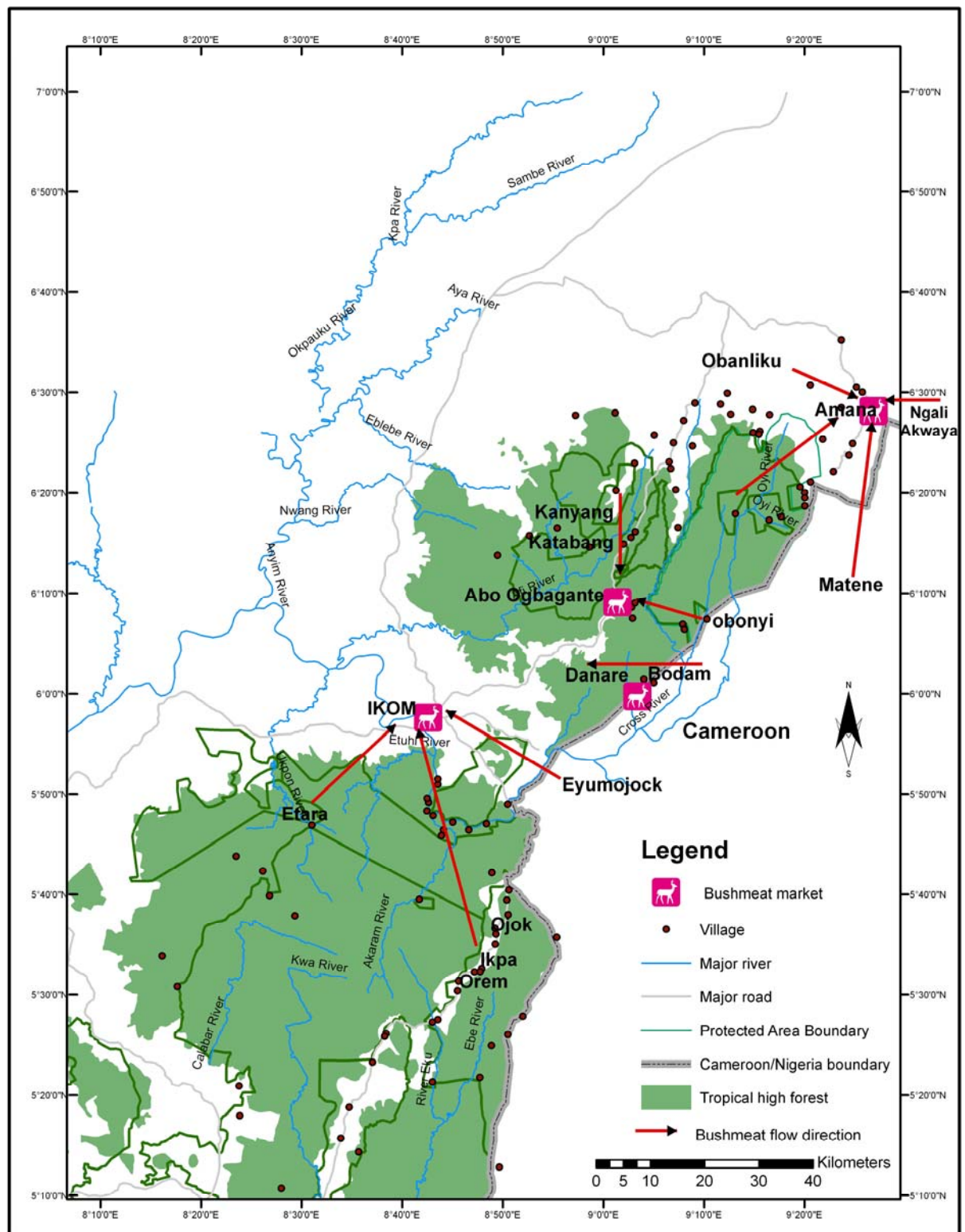
#### **4.2.7 Amana:**

The market is located at the foot of Obudu Plateau along the road linking Obudu town with the Obudu Cattle Ranch. Amana is located only 2-3 km west of the boundary with Cameroon. Most of the bushmeat sold here is brought from Cameroon each week.

#### **4.2.8 Danare:**

Danare is located approximately 12 km south of the Okwangwo Division Cross River National Park and is linked via a footpath to the Cameroon village of Bodam. Danare is about 20 km from the Obudu-Ikom highway via an earth road.

**Figure 1: Map of main bushmeat trade routes and the four bushmeat markets in the 'Ikom axis' surveyed as part of this study**



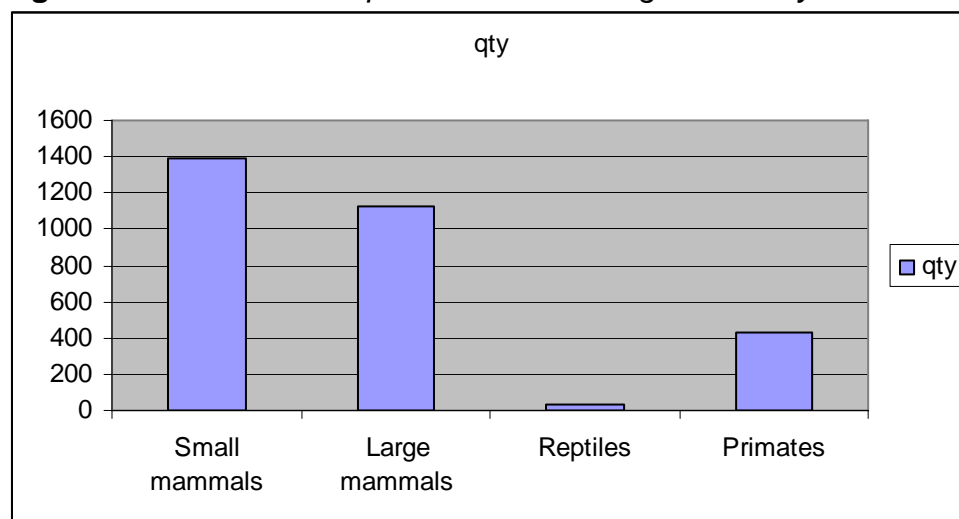
## 5.0 Results

Altogether **2,961** carcasses belonging to at least **30** animal species were traded as bushmeat within the survey period. The quantity and component of bushmeat recorded during the survey is shown in Table 2.

Within the period, the value of the bushmeat traded amounts to some **N9,765,600**. Results show that porcupine is the most commonly available species in the market followed by duikers and monkeys. The survey also revealed that a number of endangered and fully protected species are being openly traded at some of these markets including gorilla, chimpanzee, drill, otter, crocodile and elephant.

Much of the bushmeat traded in Abo-Ogbagante, Ikom, Amana and Danare was reported to originate from the neighboring Cameroon communities of Obonyi II, Bodam, Dadi, Bajie and Ngali. See Figure 1.

**Figure 2:** *Distribution of species traded during the survey*



### 5.1 Aningeje

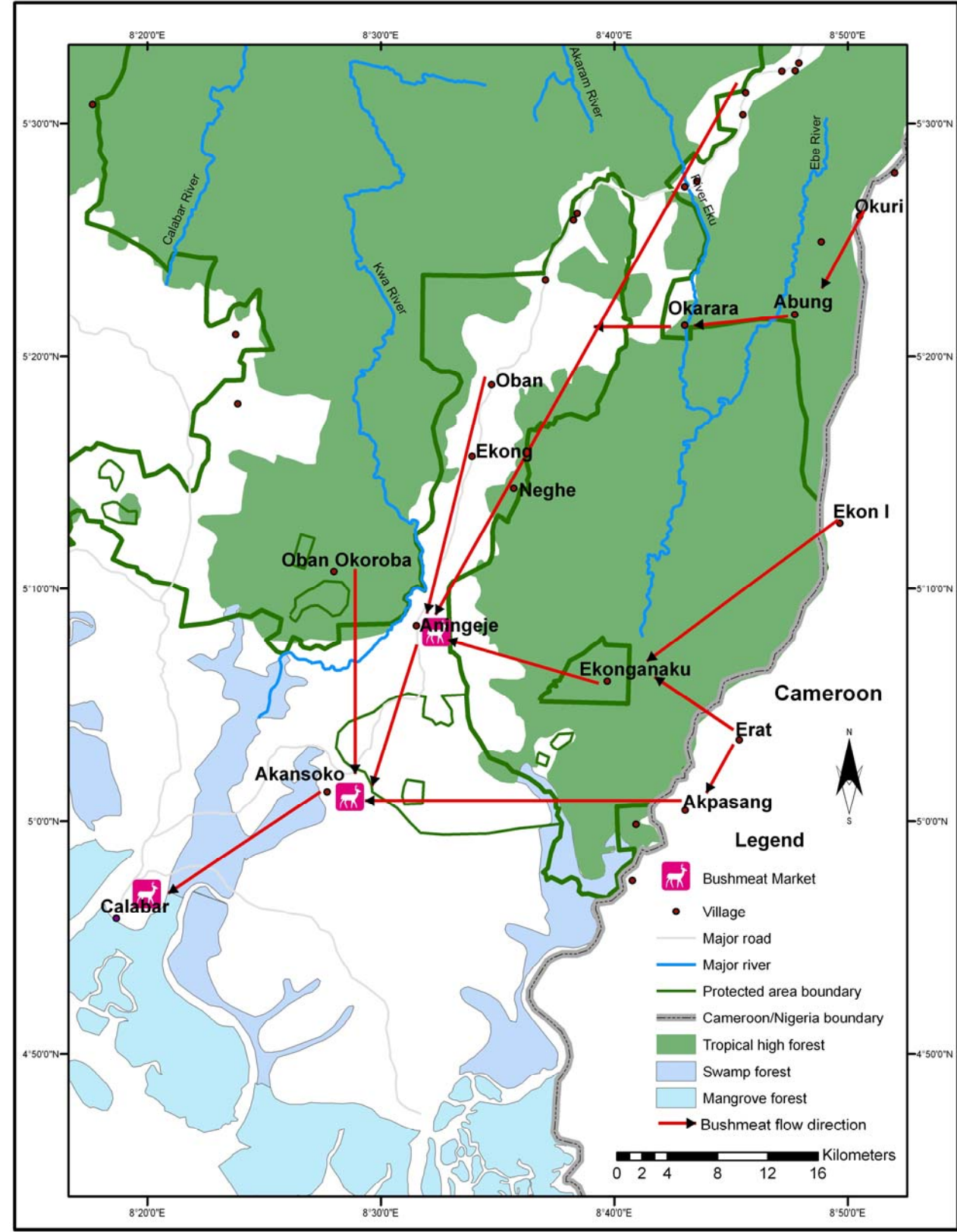
This market contributed the highest quantities of bushmeat recorded in the Calabar axis during the survey period, 581 carcasses representing about 20% of all the bushmeat recorded during the survey. Table 3 presents data compiled from 5 visits to the market at Aningeje.

**Table 2:** *Quantity of bushmeat traded during the survey period*

<b>SPECIES</b>	<b>Aningeje</b>	<b>Akansoko</b>	<b>Watt</b>	<b>Atimbo</b>	<b>Abo</b>	<b>Ikom</b>	<b>Amana</b>	<b>Danare</b>	<b>Total</b>
<b>No of visits</b>	<b>5</b>	<b>5</b>	<b>10</b>	<b>8</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>-</b>
Porcupine	188	179	64	53	91	85	174	11	<b>845</b>
Cane rat	19	13	12	4	7	18	16	4	<b>93</b>
Pangolin	8	8	1		1	1	44		<b>63</b>
Palm civet	5			2		1	13	2	<b>23</b>
Hare							43		<b>43</b>
Hyrax							47		<b>47</b>
Mongoose							57		<b>57</b>
Giant rat						4	32		<b>36</b>
Otter						1			<b>1</b>
Civet					1	1	1		<b>3</b>
Squirrel						1			<b>1</b>
Bat						140			<b>140</b>
Potto					4				<b>4</b>
Genet	13	15							<b>28</b>
Bushpig	16	9	8	4	12	11	7		<b>67</b>
Blue duiker	158	119	68	39	86	134	27	18	<b>649</b>
Red duikers	99	75	51	40	14	75	39	1	<b>394</b>
Buffalo						1	4		<b>5</b>
Elephant						1			<b>1</b>
Bushbuck					2				<b>2</b>
Chevrotain					1	1			<b>2</b>
Drill	20	12				3			<b>35</b>
Monkey	46	60	4	2	12	78	152	2	<b>356</b>
Chimpanzee						2	4		<b>6</b>
Gorilla							2		<b>2</b>
Baboon							29		<b>29</b>
Crocodile	4	4			1	3			<b>12</b>
Monitor lizard	5	3		2		4		1	<b>15</b>
Python						1			<b>1</b>
Tortoise							1		<b>1</b>
<b>Total</b>	<b>581</b>	<b>497</b>	<b>208</b>	<b>146</b>	<b>232</b>	<b>566</b>	<b>692</b>	<b>39</b>	<b>2,961</b>



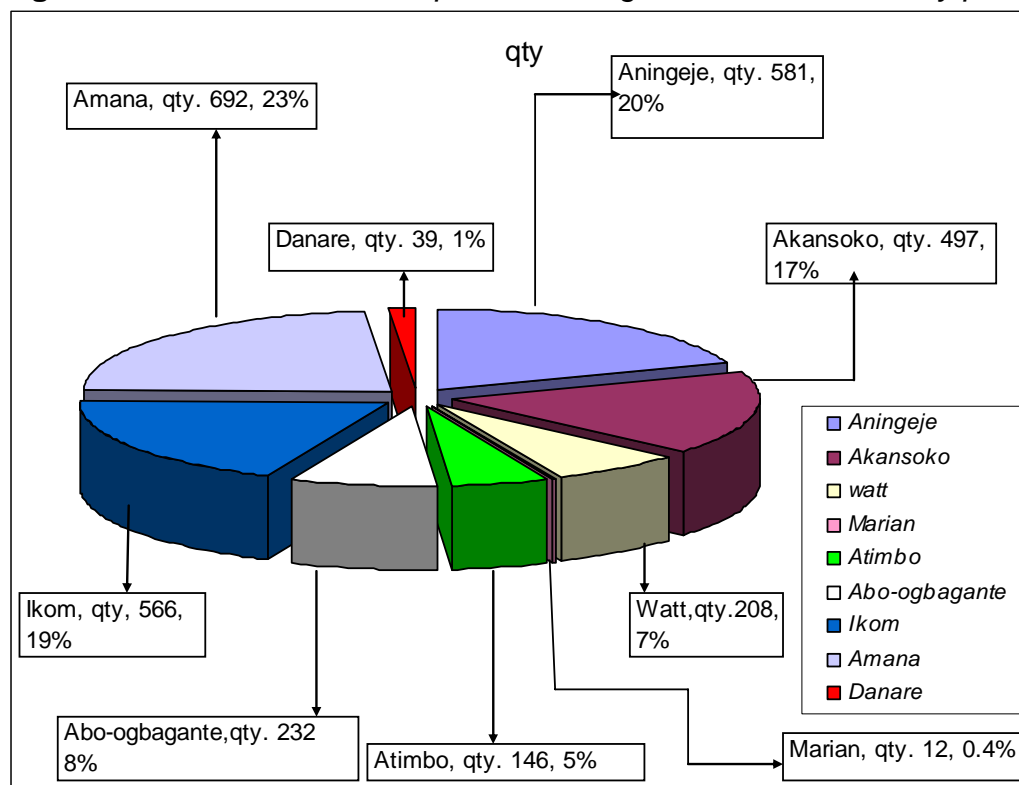
**Figure 3: Map of main bushmeat trade routes and the three bushmeat markets in the 'Calabar axis' surveyed as part of this study**



**Table 3:** Quantity of bushmeat traded in Aningeje market during 5 visits in September-October 2009

<b>SPECIES</b>	<b>No.</b>	<b>%</b>
Porcupine	188	32%
Cane rat	19	3%
Pangolin	8	1%
Palm civet	5	1%
Genet	13	2%
Bushpig	16	3%
Blue duiker	158	27%
Other duikers	99	17%
Drill	20	4%
Monkeys	46	8%
Crocodile	4	1%
Monitor lizard	5	1%
<b>Total</b>	<b>581</b>	<b>100%</b>

**Figure 4:** Bushmeat recorded per site during the one month survey period.



## 5.2 Akansoko

497 carcasses of different species were counted and recorded in this market during this survey. This figure represents about 17% of all bushmeat

recorded in this report. Table 4 shows data collected on 5 market days within the survey period.

**Table 4: Quantity of bushmeat traded in Akansoko market during 5 visits in September-October 2009**

<b>SPECIES</b>	<b>No.</b>	<b>%</b>
Porcupine	179	36%
Cane rat	13	2%
Pangolin	8	2%
Genet	15	3%
Bushpig	9	2%
Blue duiker	119	24%
Other duikers	75	15%
Drill	12	2%
Monkeys	60	12%
Crocodile	4	1%
Monitor lizard	3	1%
<b>Total</b>	<b>497</b>	<b>100%</b>

### 5.3 Watt Market

This market has about 8 members of the Calabar Branch of the “*The Bushmeat Traders Association*”, it contributed about 7% of all the meat recorded during the entire survey. Watt Market was visited on 10 separate days during the survey.

**Table 5: Quantity of bushmeat traded in Watt Market during 10 visits in September-October 2009**

<b>SPECIES</b>	<b>No.</b>	<b>%</b>
Porcupine	64	31%
Cane rat	12	6%
Pangolin	1	1%
Bushpig	8	4%
Blue duiker	68	32%
Other duikers	51	24%
Monkeys	4	2%
<b>Total</b>	<b>208</b>	<b>100%</b>

### 5.4 Marian Market (Calabar)

Table 6 presents data for a single visit to Marian Market. Only one dealer trades in bushmeat in this market. Duikers are the preferred species contributing about 83% of meat counted in this market.

**Table 6:** *Quantity of bushmeat traded in Marian Market (Calabar) during one visit in September-October 2009*

<b>SPECIES</b>	<b>No.</b>	<b>%</b>
Porcupine	2	17%
Blue duiker	4	33%
Other duikers	6	50%
<b>Total</b>	<b>12</b>	<b>100%</b>

### 5.5 Atimbo Road (Calabar)

Data was collected during 8 visits to the area. The trend shows that ungulates (duikers) are the most commonly consumed species (approximately 54% of bushmeat recorded in the area).

**Table 7:** *Quantity of bushmeat traded in Atimbo Road/ Swamp during 8 visits in September-October 2009*

<b>SPECIES</b>	<b>No.</b>	<b>%</b>
Porcupine	53	36%
Cane rat	4	3%
Palm civet	2	1%
Bushpig	4	3%
Blue duiker	39	26%
Other duikers	40	27%
Monkeys	2	1%
Monitor lizard	2	1%
<b>Total</b>	<b>146</b>	<b>100%</b>

### 5.6 Abo-Ogbagante

Data was collected during 5 visits to the market, a total of 232 carcasses of 12 difference species were recorded, making up 8% of all the bushmeat counted during the survey.

**Table 8:** *Quantity of bushmeat traded through Abo-Ogbagante, Boki LGA during 5 visits in September-October 2009*

<b>Species</b>	<b>No</b>	<b>%</b>
Potto	4	2%
Cane rat	7	3%
Pangolin	1	<1%
African civet	1	<1%
Porcupine	91	39%
Blue duiker	86	37%
Other duikers	14	6%

Water chevrotain	1	<1%
Bushpig	12	5%
Bushbuck	2	1%
Crocodile	1	<1%
Monkeys	12	5%
<b>TOTAL</b>	<b>232</b>	<b>100%</b>

### 5.7 Ikom

Though operates daily, data were collected only on 5 occasions, the market provided a wide range of different species contributing 19% of the bushmeat recorded. Large numbers of bats were present in the market including a number of endangered species: elephant, chimpanzee, drill and otter.

**Table 9:** *Quantity of bushmeat traded through Ikom market during 5 visits in September-October 2009*

<b>SPECIES</b>	<b>No.</b>	<b>%</b>
Porcupine	85	15%
Cane rat	18	3%
Giant rat	4	<1%
African civet	1	<1%
Palm civet	1	<1%
Squirrel	1	<1%
Otter	1	<1%
Pangolin	1	<1%
Bat	140	25%
Blue duiker	134	24%
Other duiker	75	13%
Bushpig	11	2%
Buffalo	1	<1%
Water chevrotain	1	<1%
Forest elephant	1	<1%
Monkeys	78	14%
Chimpanzee	2	<1%
Drill	3	<1%
Monitor lizard	4	<1%
Crocodile	3	<1%
Python	1	<1%
<b>TOTAL</b>	<b>566</b>	<b>100%</b>

### 5.8 Amana and Utanga

This market, which takes place every 5 days, was visited 5 times. It contributed the highest number of bush recorded meat during the survey (23%). Although porcupine and monkeys were the most common species

recorded a number of endangered species were also recorded including gorilla and chimpanzee.

**Table 10:** *Quantity of bushmeat traded in Amana and Utanga markets during 5 visits in September-October 2009*

<b>SPECIES</b>	<b>Quantity</b>	<b>%</b>
Porcupine	174	25
Cane rat	16	2
Hare	43	6
Pangolin	44	6
Rock hyrax	47	7
Palm civet	13	2
Giant rat	32	5
Mongoose	57	8
African civet	1	<1%
Blue duiker	27	4
Other duiker	39	6
Red river hog	7	1
Buffalo	4	<1%
Monkeys	152	22
Baboon	29	4
Chimpanzee	4	<1%
Gorilla	2	<1%
Tortoise	1	<1%
<b>TOTAL</b>	<b>692</b>	<b>100%</b>

### 5.9 Danare

Given its location close to the border with Cameroon it is somewhat surprising that relatively little bushmeat was traded in this market. Blue duiker and porcupine were the most commonly recorded species.

**Table 11:** *Quantity of bushmeat traded in Danare during 5 visits in September-October 2009*

<b>SPECIES</b>	<b>No.</b>	<b>%</b>
Cane rat	4	10%
Porcupine	11	28%
Palm civet	2	5%
Blue duiker	18	46%
Other duiker	1	3%
Monkeys	2	5%
Monitor Lizard	1	3%
<b>TOTAL</b>	<b>39</b>	<b>100%</b>

**Table 12:** *Income from sale of bushmeat for all study sites.*

<b>SPECIES</b>	<b>QTY.</b>	<b>AVERAGE UNIT PRICE</b>	<b>TOTAL PRICE</b>
Porcupine	847	2,800	2,371,600
Cane rat	93	2,700	129,600
Pangolin	63	1,200	75,600
Palm civet	23	1,000	23,000
Hare	43	500	21,500
Hyrax	47	2400	112,800
Mongoose	57	500	28,500
Otter	1	200	200
Civet	3	3000	9,000
Genet	28	1,300	36,400
Giant rat	36	300	10,800
Squirrel	1	100	100
Potto	4	150	600
Bat	140	100	14,000
Red river hog	67	12,500	837,500
Blue duiker	653	3,500	2,285,500
Red duikers	400	6,000	2,400,000
Buffalo	5	35,000	175,000
Bushbuck	2	5000	10,000
Water chevrotain	2	6500	13,000
Elephant	1 (30 pieces)	1,200	36,000
Drill	35	3,800	133,000
Monkey	356	2,300	818,800
Chimpanzee	6	6,500	39,000
Gorilla	2	10,000	20,000
Baboon	29	3,500	116,000
Forest crocodile	12	2,000	24,000
Monitor lizard	15	1,500	22,500
Python	1	1,200	1,200
Tortoise	1	400	400
<b>Total</b>			<b>N9,765,600</b>

## 6.0 Discussion

The presence of so many endangered and fully protected species being openly traded at some of these markets is alarming. The trade in great apes: gorilla and chimpanzee is of particular concern. Other endangered species for sale included drill, monkeys, otter, water chevrotain, buffalo, pangolin, crocodile, python and elephant.

Bushmeat is sold on a daily basis for local consumption in almost all villages of the Oban Division of Cross River National Park. These villages include Ekonganaku, Iko Esai, Ifumkpa, Mfamosing, Old Ekuri and Old Ndebiji (Fa *et al*, 2006). However, most of the bushmeat is processed and transported to larger markets in Aningeje, Akansoko, Ilom or Calabar where it can be sold for a higher price. In many of the local markets there is a well organized bushmeat traders union. The majority of the bushmeat traders are women, and very few are men. Traders purchase bushmeat either fresh or smoked direct from the hunters and in most cases do the final smoking before the bushmeat is brought to the market. Traders in Watt Market (Calabar) also buy directly from the hunters, or in situations where they cannot go to the hunting villages, they buy from Aningeje and Akansoko markets. In Ikom market some of the bushmeat traders reported that they supply food and cartridges to hunters and in return the hunter supplies the trader with bushmeat. Traders come from cities of Calabar, Uyo, Ikot Ekpene, Eket and Port Harcourt to buy bushmeat from local markets in Cross River State for sale in larger urban markets or to supply city-based hotels, restaurants and bars.

From discussion with some of the traders, it is believed that the majority of the bushmeat originates from Nigeria and most likely from Cross River National Park. According to one dealer some of the meat also comes from the community forests around Obung, Ekong, Osomba, Ekonganaku and Okarara. However, when there is a scarcity of bushmeat, traders also travel to nearby Cameroonian villages such as Erat and Ekon I to source for the commodity. The traders also explain that many of the Nigerian hunters venture far into the forests of Cameroon to hunt presumably since most of the wildlife has already been hunted out of Nigeria's forests.

The average price of different bushmeat species is presented in Table 12. The price of bushmeat is influenced by a number of factors such as demand, size, and age or condition of the carcass. Freshly smoked meat is usually preferred compared to an old and decaying one. All the species have a fairly uniform price depending on size, tho prices increase during periods of high demand. The price of bushmeat has increased dramatically over the last ten years, in many cases doubling in price. For instance, the price of a porcupine (*Atherurus africanus*) has increased from N800-N1,000 in 2000 (Eniang 2000) to N2,800 in 2009 (this study); and that of a bushpig (*Potamochoerus porcus*) from N6,000-N6,500 in 2000 (Eniang 2000) to N12,000 (this study).



The majority of bushmeat traders are aware that certain species are protected, and that trade in primates is illegal. However, most were not able to list any other animal which is protected by law apart other than primates. This partly explains why there were very few records of primates in urban markets (see tables 5, 6, 7 & 9). During the survey it was observed that urban traders hardly buy primate carcasses. They are also aware of the presence of Cross River National Park, which is why most bushmeat sales are done in the morning hours. One of the traders in Aningeje and Akansoko market confirmed that protected species are sold in the market periodically, and that she sold the carcass of chimpanzee (*Pan troglodytes ellioti*) in August 2009.

76% of the carcasses traded were, in descending order, the brush-tailed porcupine (*Atherurus africanus*), blue duiker (*Philantomba monticola*), red duikers (*Cephalophus dorsalis* and *Cephalophus ogilbyi*) and 'monkeys' (*Cercopithecus* spp).

It is not certain from the data if there has been any change in the volumes of bushmeat traded. A total of 6,528 carcasses were counted during 40? weekly visits to the Aningeje market from December 1999 to October 2000 (Eniang, 2000) compared to 581 carcasses counted during 5 visits to the same market in September-October 2009. The average number of carcasses per weekly market in 2000 was 163 whilst the average number of carcasses per weekly market in 2009 was 116. However volumes of bushmeat traded are not constant throughout the year and there is generally a peak in the wet season when hunters are more active. Table 13 compares the changes in proportions of different species encountered at Aningeje market from 2000 to 2009.

It appears that there has been a huge decline in the proportion of cane rats in the market (from 20% in 2000 to only 3% in 2009) and at the same time an increase in the proportion of porcupines (from 22% in 2000 to 32% in 2009). However it is possible that this has occurred as a result of mis-identifying cane rats as porcupines by untrained observers. It does seem certain that the proportion of primates has declined from 31% in 2000 to only 12% in 2009 and at the same time there was an increase in the proportion of duikers from 21% in 2000 to 44% in 2009.

Throughout the survey no live animal was recorded, though some of the traders revealed that certain hunters do keep young primates as pets or for sale.

**Table 13:** *change in the proportion of species recorded in the Aningeje bushmeat market from 2000 to 2009*

<b>SPECIES</b>	<b>% 2000</b>	<b>% 2009</b>
Red duikers	10	17
Blue duiker	11	27
Buffalo	2	0
Drill	14	4
Chimpanzee	<1	0
Guenons	15	8
Mangabeys	2	0
Colobus	<1	0
Cane rat	20	3
Porcupine	22	32
Gambian giant rat	<1	0
Mongoose	<1	0
Bushpig	<1	<b>3</b>
Crocodile	<1	1
Monitor lizard	<1	1
Python	<1	0
Pangolin	4	1
Elephant	<1	0
Civet	<1	0
Turtle	<1	0
Tortoise	<1	0
Genet	0	2
Palm civet	0	1

## **7. Recommendations**

- To reduce the trans-boundary trade in wildlife there is an urgent need for more effective law enforcement in Cross River National Park, Takamanda National Park and Korup National Park in Cameroon.
- Improve levels of collaboration between Cross River National Park and the Cross River State Forestry Commission.
- Target the sale of protected species in local bushmeat markets, using law enforcement officers of Cross River State Forestry Commission.
- Routine inspection of all markets required.
- Permits required by all bushmeat traders who should be registered with the Cross River State Forestry Commission.
- All firearms should be licensed.
- All hunters should be licensed.
- There should be a law developed regulating the sale and use of shotgun cartridges.
- Awareness campaign should be organized for hunters and local traders to educate them on the new state forestry laws and animals protected by law and the consequences for breaking these laws.
- Improve levels of communication and the sharing of information between PA authorities in Nigeria and Cameroon.
- Provide alternative protein sources and training for hunters.

**Appendix 1: species recorded for sale as bushmeat during the study**

<b>Species</b>	<b>Scientific Name(s)</b>
Monkey	<i>Cercopithecus</i> spp.
Drill	<i>Mandrillus leucophaeus</i>
Baboon	<i>Papio anubis</i>
Cross River gorilla	<i>Gorilla gorilla diehli</i>
Chimpanzee	<i>Pan troglodytes ellioti</i>
Red river hog	<i>Potamochoerus porcus</i>
Blue duiker	<i>Philantomba monticola</i>
'red' duikers	<i>Cephalophus dorsalis</i> ; <i>Cephalophus ogilbyi</i>
Water Chevrotain	<i>Hyemoschus aquaticus</i>
Bushbuck	<i>Tragelaphus scriptus</i>
Porcupine	<i>Atherurus africanus</i>
Rock hyrax	<i>Procavia capensis</i>
Cane rat	<i>Thryonomys swinderianus</i>
Palm civet	<i>Nandinia binotata</i>
Pangolin	<i>Manis</i> spp.
Civet	<i>Viverra civetta</i>
Mongoose	<i>Herpestes</i> sp.; <i>Bdeogale</i> sp.; <i>Atilax paludinosus</i> , <i>Crossarchus platycephalus</i>
Genet	<i>Genetta</i> spp.
Giant rat	<i>Cricetomys</i> sp.
Squirrel	<i>Epixerus</i> sp.; <i>Protoxerus</i> sp.
Crocodile	<i>Osteolaemus tetraspis</i> ; <i>Crocodylus niloticus</i> ; <i>Crocodylus cataphractus</i>
Python	<i>Python sebae</i>
Monitor lizard	<i>Varanus niloticus</i>
Tortoise	<i>Kinixys</i> spp.
Elephant	<i>Loxodonta cyclotis</i>
buffalo	<i>Syncerus caffer</i>
Hare	<i>Lepus saxatilis</i>
Otter	<i>Lutra maculicollis</i> ; <i>Aonyx</i> spp.
Potto	<i>Perodicticus potto</i> ; <i>Arctocebus aureus</i>

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