



# Elephant Meat Trade in Central Africa

Cameroon Case Study

Shannon Randolph and Daniel Stiles

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The AfESG is a group of technical experts focusing on the conservation and management of African elephants. The broad aim of the AfESG is to promote the long-term conservation of Africa's elephants and, where possible, the recovery of their population to viable levels. Led by a volunteer Chair (currently Dr. Holly Dublin), the group consists of some 45 volunteer members drawn from all parts of the continent. All members are actively

The group meets approximately every one to two years to review status and trends of elephant populations and to discuss progress in specific areas related to conservation of the species. Since it was first convened in the mid 1970's, the AfESG has considerably grown in size and complexity. The AfESG Secretariat, based in Nairobi (Kenya), houses full-time staff to facilitate the work of the group and to better serve the members' needs.

The challenge of the group is to find workable solutions to country and regional problems in an open-minded atmosphere devoid of deliberate controversies. To meet this challenge, the AfESG has provided technical expertise and advice by helping to facilitate the development of national and sub-regional conservation strategies. The group has helped in the development of the Convention on International Trade in Endangered Species (CITES) system for monitoring the illegal killing of elephants (MIKE).

In addition, the AfESG has assisted in the organisation, facilitation and technical preparation of the Range States Dialogue process and more recently, the annual African Elephant meetings together with the CITES secretariat. This process has been instrumental in moving towards regional consensus on controversial elephant issues.

## **CITES MIKE**

Monitoring the Illegal Killing of Elephants (MIKE) is a programme established by a resolution of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

MIKE is a monitoring system put in place across the entire range of the African and Asian elephants to provide information needed for elephant range States to make appropriate management and enforcement decisions, and to build institutional capacity within the range States for the long-term management of their elephant populations.

It is also intended that this monitoring system would assist the dialogue among Parties and facilitate the decision-making by the Conference of the Parties regarding the protected status of elephants by providing reliable information on levels and trends in the illegal hunting of elephants; to determine changes in these trends over time; and to determine the factors associated with such changes and to assess to what extent observed trends are related to CITES changes in listings or ivory trade resummptions.

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# Acronyms

AfESG	African Elephant Specialist Group
BBNP	Boumba-Bek National Park
BIR	<i>Bataillon d'intervention rapide</i> (Rapid Intervention Battalion)
CAR	Central African Republic
CARPE	Central African Regional Programme for the Environment
CAWFI	Central Africa World Heritage Forest Initiative
CIB	<i>Congolaise Industrielle des Bois</i> (Congolese Industrial Timber)
CIFOR	Centre for International Forestry Research
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
COVAREF	<i>Comité de Valorisation des Ressources Fauniques</i> (Committee to Increase Value of Wildlife Resources)
DRC	Democratic Republic of Congo
FCFA	Franc of the Central African Financial Community
IFO	<i>Industrielle Forestière d'Ouessou</i> (Industrial Forestry of Ouessou)
GIZ	German Company for Technical Cooperation
IUCN	International Union for Conservation of Nature
LAB	<i>Lutte Anti-Braconnage</i> (Anti-Poaching Battle, Cameroonian government initiative)
MIKE	Monitoring the Illegal Killing of Elephants
MINFOF	Ministry of Forestry and Fauna (of Cameroon)
NP	National park
RDS	Respondent-driven sampling
ROC	Republic of Congo
SEBAC	<i>Société d'Exploitation de Bois Africains du Cameroun</i> (African Timber Utilization Company of Cameroon)
SEFAC	<i>Société d'Exploitation Forestière et Agricole du Cameroun</i> (Forestry Utilization and Agricultural Company of Cameroon)
SOLET	<i>Société Littoral d'Exploitation et de Transport</i> (Coastal Utilization and Transport Company)
TAT	Transport Atlantic
TJK	Transport Jean Kloury
TOK	Transport Oman Kasen
TRAFFIC	The wildlife trade monitoring network, a joint programme of WWF and IUCN
TRSAF	<i>Transport Africain</i>
UNF	United Nations Foundation
UTA	United Transport Africa
UFA	<i>Unité Forestière d'Aménagement</i> (Forest Management Unit, FMU)
USAID	United States Agency for International Development
WWF	World Wildlife Fund-USA/Canada and Worldwide Fund for Nature
ZICGC	<i>Zones d'Intérêts Cynégétiques à Gestion Communautaire</i> (Community Hunting Zone)
ZIC	<i>Zones d'Intérêts Cynégétiques</i> (Hunting Zone)

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# Introduction

## Background

The pilot study presented in this report is part of an International Union for Conservation of Nature (IUCN) African Elephant Specialist Group (AfESG) project initiated by the Monitoring the Illegal Killing of Elephants (MIKE) programme of the Convention on International Trade in Endangered Species (CITES). The project aims to improve understanding of the impact of elephant meat trade on elephant populations in Central Africa. Case studies were carried out in Cameroon, Central African Republic (CAR), Republic of Congo (ROC) and Democratic Republic of Congo (DRC).

This Cameroon case study elaborates on bushmeat research already undertaken in the south-eastern Cameroon region by a number of individuals and institutions, but will focus on the African elephant. No studies have ever been carried out that concentrate specifically on elephant bushmeat, and most general bushmeat studies either do not include elephant meat, or treat it differently from other bushmeats because of the atypical aspects associated with elephant hunting and product trade; thus this study hopes to be of particular value to elephant conservation.

While subsistence hunting is a long established practice for many rural communities in tropical environments, commercial hunting has greatly increased in recent times (Fa & Brown, 2009). Food security is also central to the African bushmeat issue since bushmeat represents a vital protein source for many people (Wilkie & Carpenter, 1999; Nasi, et al., 2008). It is also an easy and significant revenue source given that it is highly transportable, is preserved at low cost, has a high weight ratio value and stores easily when smoked. However, at current extraction rates, wildlife protein supply would drop by 81% in all Congo Basin countries in less than 50 years (Fa, et al., 2003).

In Central Africa, the African forest elephant (*Loxodonta africana cyclotis*) has been widely hunted for its tusks and more recently for its meat, threatening its future survival (Blake, et al., 2007; Martin & Stiles, 2000). At present the primary factors and dynamics in the illegal offtake of elephants in Central Africa and the use, commercial or otherwise, of not only ivory but also meat, are assumed but not well understood. A better knowledge of the scale and extent of the killing and how the ivory and meat

markets are interlinked is urgently needed. At the same time, other species are also being lost as a part of these same dynamics, although the scale and extent of this bushmeat trade has not yet been fully assessed (Fa & Brown, 2009). Therefore, gaining a greater understanding of these trade dynamics could help to ascertain the key drivers behind the loss of elephants and other species and to improve our understanding of the role of law enforcement capacity and governance processes.

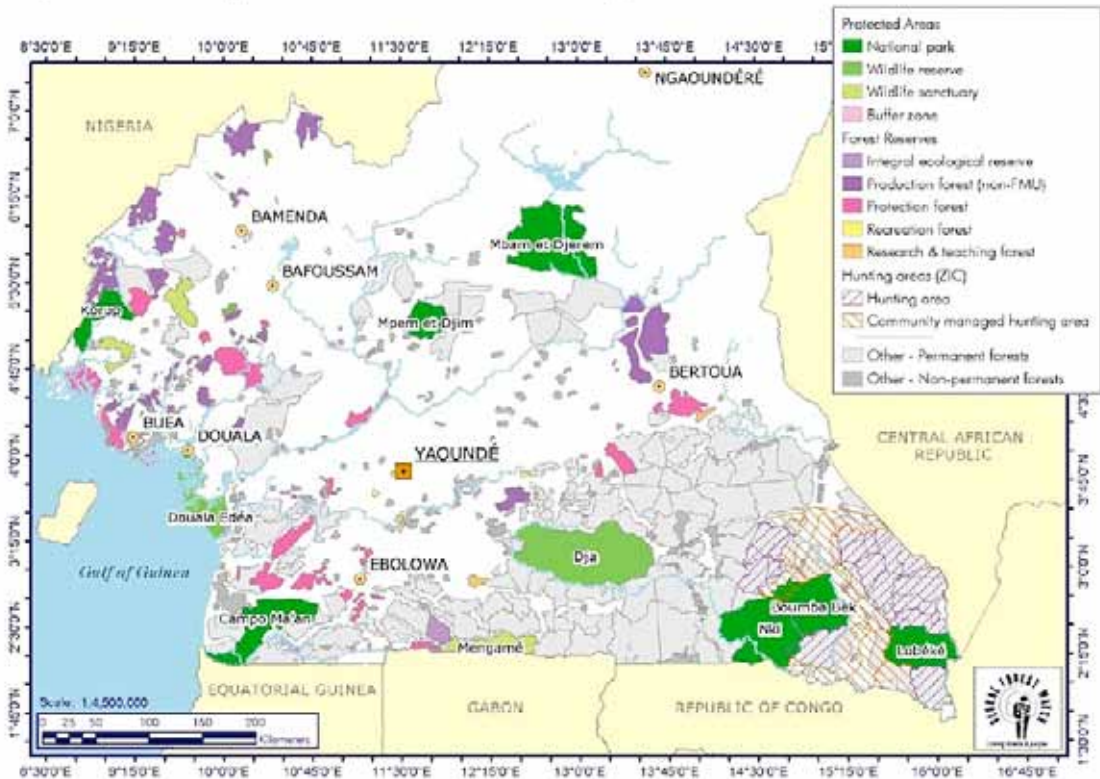
The pilot study was carried out in Yaoundé and south-eastern Cameroon from 24 May to 10 August, 2010, focusing on the elephant meat trade in and around the MIKE monitoring site of Boumba-Bek National Park (BBNP) in south-eastern Cameroon and marketing of meat and ivory in Yaoundé, the capital. It also includes a review of the previous literature on bushmeat and ivory studies in Cameroon. The report describes the objectives, methodologies used, and relevant national laws in Cameroon, followed by a presentation of the results, a discussion of the social actors and transport routes involved and, finally, policy recommendations that could be taken to reduce illegal elephant and other wildlife killing. This study presents a preliminary analysis of the state of elephant meat as a motivating factor in elephant killing and data reported should be considered with caution given the potential for representing only limited aspects and actors in this trade, given the relatively short field work period (10 weeks). A longer-term study is recommended to evaluate the quantitative, temporal, seasonal and social aspects of this trade.

## Objectives

This pilot study aims to build on the IUCN and Central African governments' collaborative regional elephant conservation strategy (AfESG, 2005) to achieve the following:

1. Identify and test the quantitative and qualitative methodological tools necessary to investigate the impact of elephant meat trade on elephant populations in Cameroon.
2. Elaborate on bushmeat research already undertaken throughout the region by a number of institutions, focusing on the African forest elephant.
3. Conduct a preliminary examination of the trade in elephant meat as a factor in illegal killing of elephants, relative to the ivory trade, by collecting sample data relating to:

Figure 1. The study area in south-eastern Cameroon and Yaoundé showing land use zones (Source: Global Forest Watch, 2005).



- those involved in killing elephants for meat and ivory respectively;
  - the methods and work effort of those involved;
  - the source locations, transport methods and routes used for trafficking meat and ivory;
  - the economics of the trade: prices of meat and ivory, income generated, etc.
  - the final destination of meat and ivory and identification of the consumers;
  - the commodity chain of meat and ivory respectively and the social networks involved; and
  - attitudes and motivation related to killing elephants of those involved in the trade: the hunters, transporters/middlemen, vendors and consumers.
4. Examine the linkages between multiple resource extraction (timber, minerals) and the levels of elephant meat trade and consumption at the source area, village, city and regional level.

## Study Sites

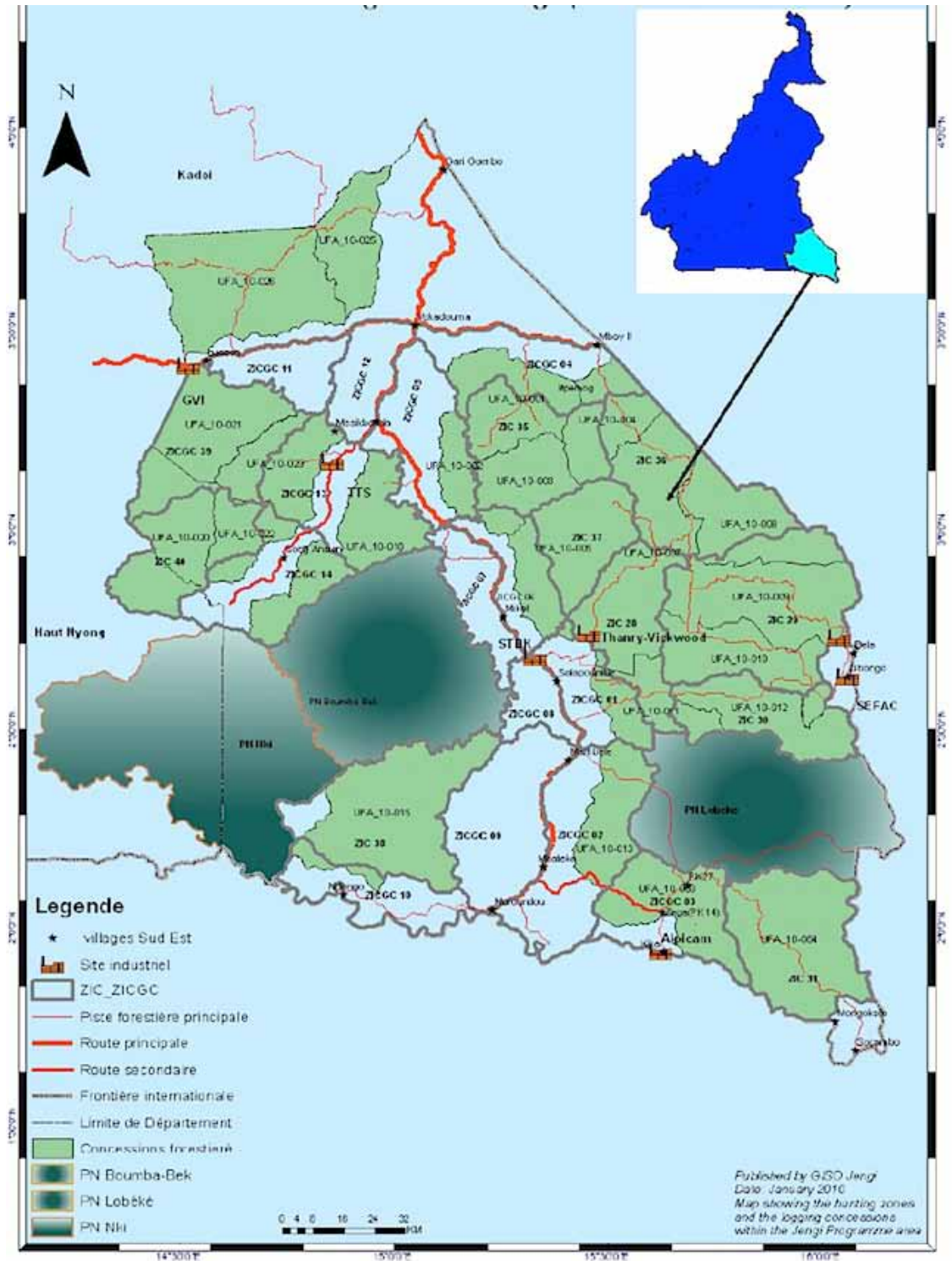
### Study site context

The Boumba-Bek National Park (BBNP) was selected as the case study elephant source locality because it is

a MIKE monitoring site with a relatively high density of elephants and a certain amount of previously collected data that can be used in this study. It is located in the south-eastern humid forested zone of Cameroon, which covers more than 2.7 million hectares (ha) made up of metamorphic formations of Precambrian age. The landscape is undulating to mountainous and characterized by a dense dendritical drainage system in the Boumba-Bek and Nki region (altitude 500 - 1,100 m) while it is relatively flat with some hills in the Lobéké region (altitude 300 - 700 m). The climate is equatorial with four seasons: two rainy seasons interspersed with dry seasons. The annual rainfall is about 1,500 mm per annum. The climate is tropical equatorial with temperatures around 23-25°C.

Forests in Cameroon are almost entirely in state ownership and the Government controls forest management activities. The forest area is classified in Permanent Forest Domain (PFD) and Non-permanent Forest Domain. By law, the Permanent Forest Domain must cover at least 30 per cent of the national territory and is further divided into community forests (*Forêts Communales*) and state forests (*Forêts Domaniales*),

Figure 2. The study area in south-eastern Cameroon showing protected areas, forestry concessions and hunting zones (ZICs) (Source: Tamungang, in press)





**A bai dominated by Graminae in Boumba-Bek National Park** (Photo: WWF)

the latter of which include protected areas and logging concessions. In 2004 the PFD comprised 8.9 million ha, which included 2.6 million ha of protected areas, 300,000 ha under community management, and 6 million ha classified as Forest Management Units (FMU). Each Forest Management Unit must have a management plan within the first three years of operation (under a “Provisional Convention”), and the felling cycle is set at 30 years. The Non-permanent Forest Domain includes the remaining forests, which may be converted to non-forest land. The law provides for community forests, which are designed to promote village-based forest resource management. To this end, the government is supposed to provide communities with free technical assistance (Bikié, et al., 2000; Amareiei, 2005). It is within the FMUs created in Non-permanent Forest Domains that Community Hunting Zones (ZICGCs) and Sport Hunting Zones (ZICs) operate. **Figure 1** shows that BBNP is surrounded on three sides by hunting zones and PFDs, with Nki National Park (NP) on the western side.

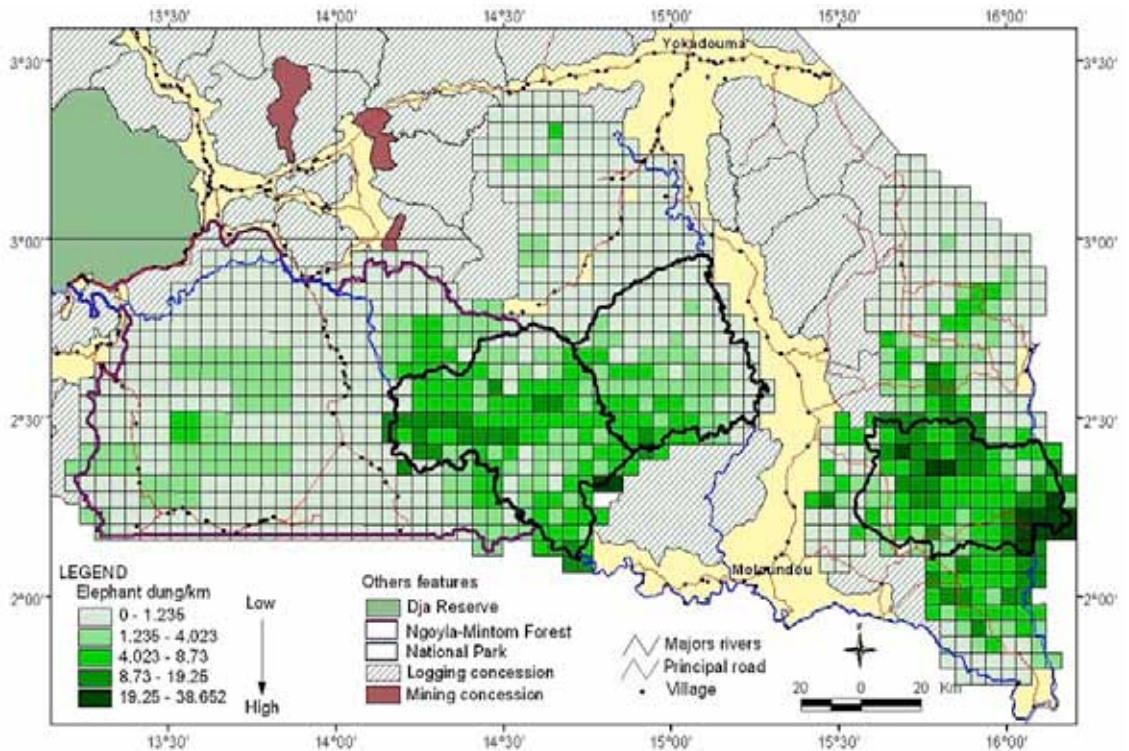
The study area is composed of unallocated State land, wildlife hunting zones, forest and mining concessions, a community agroforestry zone, as well as three national parks: Boumba-Bek (238,255 ha), Nki (309,362 ha) and Lobéké (217,854 ha) (**Figure 2**). The Dja Reserve (526,000 ha) lies to the north-west of BBNP and Nki.

Lobéké National Park was established in 2001. Nki and the key MIKE site, Boumba-Bek National Park (BBNP), were gazetted in October 2005. All three parks lie in virtually the same ecological zone, although there are localized variations.

BBNP (latitude 2°08' – 2°58' North and longitude 14°43' to 15°16' East) is located in the Boumba-and-Ngoko Division of the Eastern Region. The closest regional towns are Yokadouma to the north and Moloundou to the south on the border with ROC. The P4 regional road links Moloundou with Yokadouma and runs to the east of BBNP. The park is buffered by several hunting areas including: to the north, the *Zone d'Intérêt Cynégétique à Gestion Communautaire* (ZICGC) (Community Hunting Zone) No. 14, located in the FMU (UFA on map) 10\_018; to the south, the Sport Hunting Zone (ZIC) 38 in UFA 10\_015; and finally to the east the Community Hunting Zones (ZICGC) Nos. 07, 08 and 09. ZIC 38 is a hunting block particularly active with foreign sport hunters (Global Hunting Safaris, 2011).

BBNP contains mainly semi-deciduous forest (98%) and *Raphia* wetlands (2%) (Letouzey, 1985). The park is rich in biodiversity with 831 identified plant species that measure 10 cm in diameter or more at chest-high level (Ekobo, 1998). The Boumba-Bek forest varies from semi-

Figure 3. Synthesis of elephant distribution in south-eastern Cameroon (Source: Nzooh, 2009)



deciduous primary forest in the east to evergreen primary forest in the west. Elephant activity has fragmented the canopy in places. Some areas are dominated by a single tree species, *Gilbertiodendron dewevrei* (Letouzey, 1985). There are 16 forest clearings or *bais*, in which large mammals congregate, of which four are currently monitored for large mammal activities. These *bais* are typically formed on schist and *Graminae* species dominate, which attract the large herbivores.

There are more than 30 large land mammals in BBNP (Ekobo, 1998). The wildlife species include the African forest elephant (*Loxodonta africana cyclotis*), forest buffalo (*Syncerus caffer nanus*), leopard (*Panthera pardus*), bongo antelope (*Tragelaphus euryceros*), primates (*Gorilla g. gorilla*, *Pan troglodytes*, *Cercopithecus* spp., *Colobus* spp. etc.), reptiles (*Crocodylus* spp., *Kinixys* spp., *Bitis gabonica* and *Dendroaspis viridis*), forest duikers (*Cephalophus* spp.) and rodents (grasscutters and porcupines) (Ekobo, 1998; Madzou & Ebanega, 2004).

Estimates for elephant population size within the park range from 318 in 2004 (Blake, 2005) to 800-1,000 in 2009 (Nzooh, 2009), though these estimates are not precise and error limits are so large that comparisons are tenuous. Improved accuracy in elephant population

estimations, more consistent elephant monitoring, the inception of park patrolling and fluctuating population due to elephant migration could also contribute to this difference.

According to Blake (2005) and Nzooh (2009), elephant population densities and numbers vary considerably in the region. The densest elephant populations were estimated to be in Lobéké NP, where animals are known to migrate between Lobéké and the contiguous Dzanga Sangha NP in CAR (Figure 2). WWF bio-monitoring results estimate around 1,775 elephants in Lobéké, 1,300 in Nki and 800 to 1,000 in BBNP (Nzooh, 2009). Satellite tracking has shown clearly that elephant populations shift as elephants migrate between parks and even across international borders. However, Blake (2005) recognized that “poor measurement of the perpendicular distance of dung piles from the transect centre line (a pre-requisite of line-transect methodology), made dung density estimation highly unreliable.” Methodological and analysis difficulties also rendered the Nzooh (2009) estimates less than reliable (Luhunu, pers. comm., 2011). Therefore, these estimates should be considered with a note of caution. Figure 3 shows the distribution of elephant dung across the three parks, with the highest concentration in Lobéké, followed by Nki and then Boumba-Bek.

South-eastern Cameroon is inhabited by about 150,000 people. The Bantus, whose best known ethnic groups in the area are the Kounabembe, Bangando, Bakwele and Ndjem, form the majority. About 40,000 Baka pygmies are living in the south-east of Cameroon. They are undergoing a process of sedentarization and they are now increasingly occupied with farming like the Bantus, but they continue to practise hunting, fishing and gathering on a seasonal basis. Approximately 33,200 people live immediately around BBNP. The non-local population of logging company workers live in logging towns. Muslim merchants from northern Cameroon, neighbouring countries and Mauritania also inhabit the towns of the region.

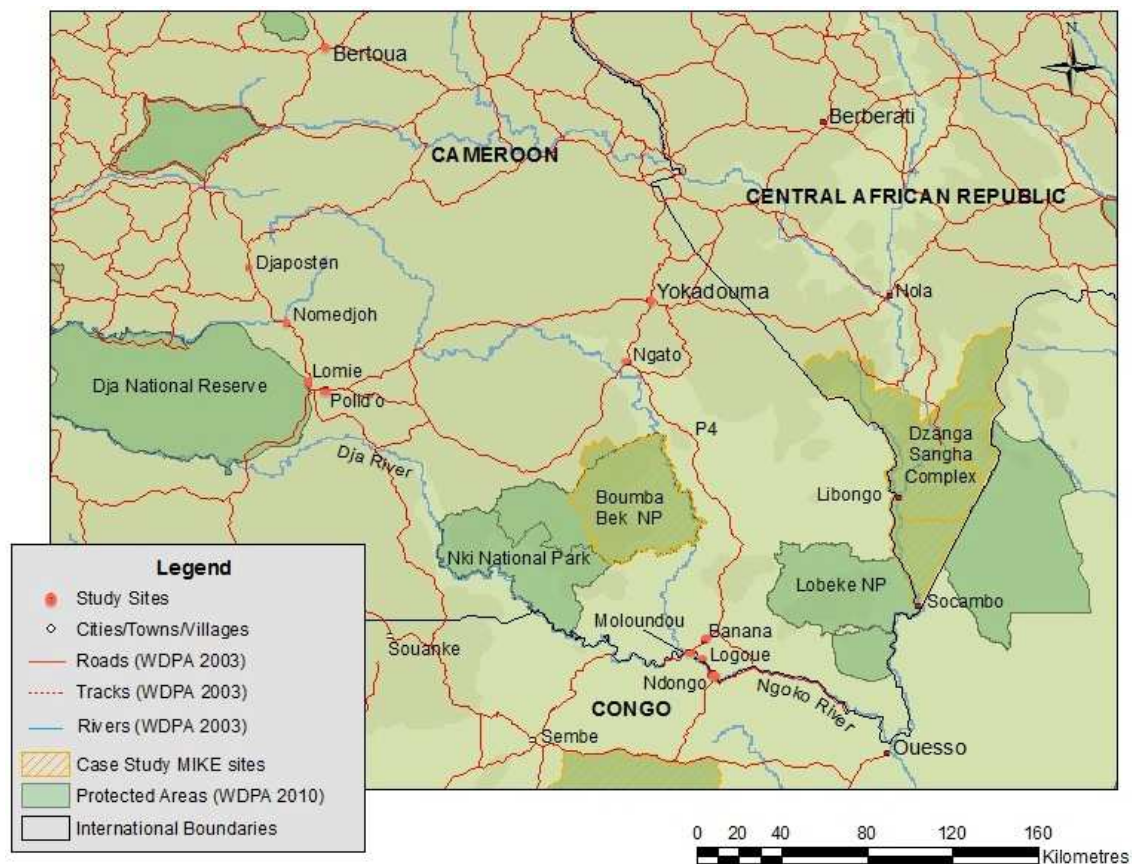
Although logging and cocoa are the main economic activities in the south-east at present, the region is gearing up to become a major mining area as well, which will have profound negative impacts on biodiversity and elephants (Anon., 2009; WWF-CARPO, 2009). Several mining permits have been issued for a locality near Lomié (east of Dja Reserve), for an area on the northern periphery of BBNP and Nki, for places actually inside

parts of BBNP and Lobéké NP and in various logging concessions (Anon., 2009; WWF-CARPO, 2009). More than 2,000 feasibility test pits made by mining companies already are beginning to create hazards for wildlife. One of the main interventions to threaten biodiversity currently is the Geo Cam cobalt-nickel-manganese project at Nkamouna, in which mineral reserves were projected to be 54.7 million tonnes, requiring 20 years of mining to extract (Anon., 2011). Another major hazard is the C&K Mining Mobilong diamond mine, that announced that it would provide 1,500 direct and 5,000 indirect jobs, as well as build roads, schools, hospitals, etc. (Musa, 2010). Artisanal mining in diamond-bearing alluvial deposits is already destroying forest and facilitating poaching (Anon., 2009).

## Study Sites

A sample of rural villages, regional towns and city sites located at ever-increasing distances from the BBNP were chosen based upon identified sale points and axes of transit for elephant meat (**Figure 4**). Given the time constraints, representative samples of all actor groups could not be gathered for each site type. Investigations were carried out in the following twelve sites:

Figure 4. Study sites in south-east Cameroon





## Yaoundé

Yaoundé (1.3 million inhabitants) is the country's capital and the second largest city in Cameroon, after Douala. Yaoundé concentrates much of the cultural and linguistic diversity of the country with five major ethnic groups represented in and around the city (the Beti clan of the Ewondo tribe predominates). It is on the only train line in the country and is a central transit and trading point for agricultural, wild meat, non-timber and timber products from the forest and savannah zones.

## Bertoua

Bertoua (population ca. 90,000), 250 km east of Yaoundé, is the largest city in south-eastern Cameroon and is the capital of the East Region. It is a main transit point on the National Route 10 linking Yokadouma to Yaoundé.

## Yokadouma

Yokadouma (population 13,300) is an important logging town in the East Region of Cameroon and is a transit point for travellers from neighbouring countries, namely CAR and Congo. It lies on the Provincial Route 4 (P4) that links Moloundou on the ROC border with the National Route 10 to Yaoundé. Located about 50 km from the border with CAR, it is the closest town to BBNP and is known to be a central transit and trading point for elephant products extracted from the park. Local Bantu (Mpo, Mpoman), Baka and numerous immigrant tribes, including Hausa from northern Cameroon and West Africa, make up the population.

## Moloundou

Moloundou is the principal town in Moloundou District. The Moloundou District has about 22,900 inhabitants, with the Moloundou town estimated at 3,200 (Defo, 2007). The town lies approximately 280 km south of Yokadouma, on the border with ROC. The Dja River flows from the Dja Reserve and through the Nki NP, then forms the border of Cameroon, where it is known as the Ngoko River, passing Moloundou to flow into the Sangha River at Ouessou, ROC. The Dja River is a major transport route used for ivory, meat and wildlife products. The population of Moloundou is comprised of Bantu and indigenous Baka from Cameroon and neighbouring countries, including

a substantial non-local Bantu population of logging employees. This frontier town is an important trading and launching point for elephant poachers.

## Ngato

Ngato village, lying 40 km south on the P4 from Yokadouma, is the headquarters for BBNP and an important transit point for elephant hunters and traders (BBNP park assistant, pers. comm., 2009). It proved a difficult site for this study. Given the established presence and regular patrols of WWF and the Cameroonian Ministry of Forests and Fauna (MINFOF) staff, the local population was reluctant to discuss illegal wildlife matters. Given a longer study period, investigation at this site would be possible and important for understanding the elephant products and meat trading actors and system.

In addition to the sites described above, seven other secondary study sites, selected with the assistance of the BBNP park assistant to represent the village types around the park were included in the study (**Figure 3**).

## Douala

In addition, brief investigations were carried out on ivory trading in Douala, the commercial capital and largest city in Cameroon. Elephant meat was not investigated.

## Previous Research on Bushmeat and Ivory in Cameroon

Published data on bushmeat extraction and trade for Cameroon was reviewed from international conservation organizations, government reports and academic studies to understand the current situation in the trade of wild game meat and parts in south-eastern Cameroon. Ten bushmeat studies have been carried out in Cameroon since 1996, with three recent studies on the extent of the bushmeat trade and its relationship to the forestry industry (Madzou & Ebanega, 2004; Makazi, 2004; Tieghuong & Zwolinski, 2009). Unpublished reports from WWF and MINFOF and MIKE data from 2002 to 2010 were also reviewed. Additional studies of international ivory laws as they relate to the south-eastern Cameroon scenario are discussed. Out of ten bushmeat market studies reviewed, only one detected elephant meat in hunter harvest counts and market counts.

Several studies investigated bushmeat trade in Cameroon from 1995 to 2009 (Njiforti, 1996; Delvingt, 1997; Wilkie

**Table 1. Additional Study Sites**

Name	Type	Location
Logoue	Village (Baka/Bantu)	SE of BBNP, near Moloundou
Banana	Village (Baka)	SE of BBNP, near Moloundou
Ndongo	Village (Bantu, Baka)	SE of BBNP, near Moloundou
Lomié	Regional Town	West of BBNP
Djaposten	Village (Baka/Bantu)	West of BBNP, near Lomié
Polido'o	Village (Baka/Bantu)	West of BBNP, near Lomié
Nomedjoh	Village (Baka/Bantu)	West of BBNP, near Lomié

& Carpenter, 1999; Ayeni, et al., 2001a and 2001b; Bahuchet & loveva-Baillon, 1999; Fa, et al., 2003; Fa, et al., 2006; Willcox & Nambu, 2007; Abugiche, 2008; Tieguhong & Zwolinski, 2009; Wright & Priston, 2010). Seven of these studies ranked the most hunted and marketed species (in numbers of animals and/or quantity of biomass) for the specific geographical areas studied. These studies are broadly representative of different lowland humid forest zones of Cameroon. According to the 1994 Cameroonian law, protected species (Class A and B, see definitions below) account for 42% of the animals most hunted. Although many of the studies were not done in south-eastern Cameroon, basic habitat and economic and social conditions are similar throughout the southern part of the country; thus the data are relevant to this study.

Fa, et al. (2009) calculated that most mammal species (70%) hunted in Central Africa for bushmeat are not threatened or endangered species in the Red List (IUCN, 2010). Fast reproducing animals are at less risk of extinction but also suffer from the highest rate of predation. Blue duikers were the most commonly traded single species. Rodents and ungulates were the most commonly (25%) traded groups, followed by primates and carnivores. Endangered and vulnerable species, including eight primate species and elephants, are extracted less (12%) for bushmeat. Elephants and great apes are sought after for the much more lucrative ivory and pet trade as well.

Madzou & Ebanega (2004) investigated the hunting pressure of subsistence 'village' hunters and year-round 'commercial' hunters in six villages and one logging camp, *Société Industrielle des Bois Africains* (SIBAF), zone 10-018 north of Boumba-Bek National Park. During the six-month study period (July - Aug 2003, Nov - Dec 2003, Mar - Apr 2004), village hunters harvested 450 animals (weighing ca. 5,025 tonnes), mostly comprising ungulates and primates, representing more than 88% of the total. About 63% of the village hunters' meat arrived in the village fresh, indicating the short distance travelled to obtain most meat. Twenty six percent of village hunters' catch was sold whereas most (74%) was consumed and shared for social gain, indicating the significant local and subsistence use of wild meat by village hunters and their families. Primates represented 49% of sales. An average village hunter made FCFA 30,000 (ca. US\$ 60), with a range of FCFA 10,000 - 100,000 (US\$ 20 - 200) during the study period from hunting.

Commercial hunters operated year round in order to regularly supply bushmeat to urban households and

extractive company employees. During the same period, commercial hunters caught 347 animals (ca. 5,294 tonnes) out of which 70% was sold, 94% of which was smoked. Antelopes and other hoofed animals comprised the greatest proportion of game (98% of the biomass). Commercial hunters were forced to smoke the game given the longer distance between their kill and sale points. Of the animals captured, commercial hunters sold 70%, while village hunters sold only 17%. The commercial hunters, aided by a network of several bushmeat agents, were able to earn 19 times the amount made by the villager hunters.

According to several local and regional studies (e.g. Makazi, 2004; Wilkie, et al., 1992; Zhang, et al., 2006), logging companies in towns like Libongo, on the border with CAR, and Socambo, near the border with ROC, attract thousands of non-local workers. The sudden increase in human population, both employed and unemployed, poses a serious threat to park wildlife and natural resources, as bushmeat hunting is a low-risk, high return option for gaining additional income and obtaining nutritional wild meat for consumption.

Inadequate protection of protected areas, paired with increased road networks across Central Africa, has had a noticeable impact on wild animal abundance in the region (Hart, 2000; Noss, 2000; Nasi, et al., 2008). Proximity to human settlements and roads had a significant negative impact on large mammal populations near Dzanga-Ndoki NP, with particular evidence of reduced elephant populations near roads and human settlements (Blom, et al., 2004; Blake et al., 2008). Another study measured bushmeat traded in about one hundred sites in the Cross-Sanaga region in Nigeria and Cameroon. Results showed a positive correlation between proximity to two national parks (Korup in Cameroon and Cross River in Nigeria) and numbers of animals traded (Fa, et al., 2006). National parks were serving as primary source points for local and regional bushmeat demands.

An analysis of road construction across Central Africa from 1976 to 2003 measured 51,916 km of new logging roads across the forested region (Laporte, et al. 2007).<sup>1</sup> Twelve per cent of the forested region was protected, while 600,000 km<sup>2</sup> (30%) of forest was logging concessions. Cameroon and Equatorial Guinea had the highest road densities (0.09 km<sup>2</sup>) in the region. However, the most rapidly transforming area was in northern ROC, where the rate of road construction increased from 156

<sup>1</sup>This was a conservative estimate given that not all areas had recent cloud-free satellite images. Furthermore, logging roads are often converted to public roads where population density is high.

km per year between 1976 and 1990 to over 660 km per year after 2000. Minnemeyer (2002) concluded that, at most, 35% of Central African forests remained in large, low-access forest that had yet to be allocated for logging. Unmapped logging roads were offering access for hunters to many areas of forest that had previously been considered as 'low-access'. Her estimate was based on data that dated to more than ten years previous to this report; thus the situation is even worse today.

Immigrant populations working for logging companies in the region number in the thousands, but there is no census of how many employees in total there are. In 2005, SEBAC<sup>2</sup> documented 4,659 workers and related family members at their work sites (Camp SEBAC, Bela and Libongo) (SEFAC Group, 2005). This represented a 211% increase in the logging camp population from 1987 to 2005. One six-year study covering logging sites in north-western ROC, adjacent to south-eastern Cameroon, found that industrial logging operations led to a 69% increase in the population of logging towns and a 64% increase in bushmeat supply, thereby benefiting immigrants to the detriment of indigenous peoples. Immigrants used primarily wire snares and hunted 72% of the bushmeat harvested (Poulsen, et al., 2009). Since livestock are rare in humid forest areas, logging camp workers depend mostly on bushmeat for their protein needs.

Near the SIBAF logging concession, north of BBNP, illegal hunting of large mammals was coordinated and carried out by forestry employees, unemployed immigrants and natives returning to villages after failing to find employment in the city (Madzou & Ebanega, 2004). Ivory and wildlife craft dealers of popular items such as bongo (*Tragelaphus euryceros*), leopard (*Panthera pardus*) and crocodile skin sometimes employed young unemployed immigrant men to coordinate hunts and transport these goods to urban areas. The bad state of the public road running parallel to the northern border of Boumba-Bek and Nki NPs from Yokadouma through Ngato village to Lomié had largely contributed to the conservation of forest diversity in the region prior to 2000. Construction began in 2000 to extend the road between Lomié and Ngato village and provide access for timber extraction, which in turn created the possibility of providing wild game to immigrant workers at industrial sites and urban demand from Yokadouma (Madzou & Ebanega, 2004). No studies of previous extraction rates in the area were available for this report.

<sup>2</sup>SEFAC Group encompasses SEBAC, which has worked in SE Cameroon since 1968. Its current five FMUs 10-009 (SEBAC), 10-008, 10-010, 10-012 SEFAC and 10-064 (Filière Bois) cover a total area of 405,927 ha.

A recent study (Tieguhong & Zwolinski, 2009) in two logging towns north of Lobéké National Park indicated that elephant meat did not factor into the local diet or economy, although bushmeat hunting was a major source of income. More than 60% of the hunted animals were sold for cash, while 38% were consumed by the hunters and their families. Average commercial hunting income was twice as high as the income of a junior technician and roughly the same as a senior technician working at the *Société d'Exploitations Forestières et Agricoles du Cameroun* (SEFAC) logging company. The authors argued that the degree of economic incentives for hunting and trading in wildlife products pointed clearly to the continued failure to address and control bushmeat hunting given the presence of large immigrant logging town populations.

The lucrative and largely unchecked nature of bushmeat hunting around Libongo, on the border with CAR and just north of Lobéké NP, makes it a very appealing job for many young males. An estimated 484 tonnes of bushmeat was produced by 99 hunters surveyed each year in two border populations, resulting in an annual gross income of FCFA 234,058,548 (US\$ 469,120) (Tieguhong & Zwolinski, 2009). Elephant meat was not mentioned by any of the hunters. The authors mention that the hunters' omission of birds, reptiles and elephants killed for bushmeat could indicate an underestimation in the reporting. Given the heightened awareness of conservation efforts directly adjacent to the villages, it is likely that elephant hunters withheld information on elephant kills and returns. The lack of correlation of hunters' selection of animals captured with those providing the highest economic returns suggests that they were hunting opportunistically.

Animals hunted were mostly sold (62%) or consumed by the hunting household or given as gifts (32%). The authors mention the importance of considering trophy parts (such as bongo horns) in the motivation for animal kills. Meat's value per kilogramme decreased with increased body mass. Perhaps this was in part due to the need to sell large mammal meat quickly in villages due to decomposition problems or risk of detection if smoked meat was stored. But the lower price per kilogramme for the rarest meats would also indicate that rarity of meat does not confer prestige in rural settings where it seems that meat has a more utilitarian value for sale and consumption than any social capital value. It could also indicate that relative to the high value of the trophy part, the meat is less valuable. Sometimes the large-bodied species, such as bongo, were valued for both meat and trophy items. It was noted that the price of bushmeat

had increased with the creation of roads and the establishment of the timber company, which had raised demand (Tieguhong & Zwolinski, 2009).

Makazi's (2004) rapid three-week evaluation of the channels of commercial bushmeat trade focused around Socambo, situated at the south-eastern border with Lobéké, on the Sangha River, across from both ROC and CAR. Makazi (2004) revealed territorial conflicts between poachers and sport hunting zone owners, as well as collaborative relationships between poachers, middlemen and logging truck drivers working for the *Congolaise Industrielle des Bois* (CIB) and *Industrielle Forestière d'Ouessou* (IFO) (Forest Stewardship Council certified companies). The drivers supplied food, firearms and snares to the hunters. The conflicts were based on disputes over hunting territories and high-value species of animals being hunted for sport. The report did not specify which high-value species were disputed.

Around Socambo, hunters in charge of elephant hunting teams were the Bimo, Bakwele, Bakpélé, Mvovo, Bangando and a few Baka (Makazi, 2004). They were largely young, unmarried males between the ages of 20 and 30, school dropouts and former workers of various timber companies (85%). After losing their timber company jobs, they began commercially hunting and trading.

Lobéké possesses numerous logging roads traversing the forest, which facilitate commercial bushmeat trade. Particularly around Lobéké NP, near the two major logging towns of Socambo and Libongo, logging truck drivers often doubled as suppliers of food, firearms and snares to poachers. Truck drivers regularly transported both buyers and meat to and from major cities and towns in the region: Douala, Yaoundé, Belabo, Yokadouma, Ouessou, Kabo, Pokola, Ngombi and Brazzaville, the latter five in ROC.

Makazi (2004) found that truck drivers with CIB played an important role in facilitating bushmeat transportation in the area. UTA, TOK, TAT, TRSAF, SOLET and TJK transport companies (see Acronyms) also played a secondary role as transporters. Often middlemen develop a legal business, such as a store or mobile trading business, through which they can develop contacts and operate an illegal meat or ivory trading business. For example, one middleman informant in Socambo owned a bar frequented by hunters, which he used as a central location to connect Congolese dealers and hunters. There were fewer middlemen involved there given the short distance between the source and Socambo (maximum 50

km) and Socambo to Ouessou market (8 km). Congolese women and men were the principal buyers of bushmeat in the market. Given the study's focus on meat, it was unclear whether meat middlemen also traded in ivory.

During the three-week study, an estimated total of 300 animals (27 species) were observed in the Socambo market. Ungulates, mainly *Cephalophus*, accounted for 80% of all bushmeat on sale, followed by primates (10%), rodents (8%) and carnivores (2%). Among the meat for sale were one gorilla carcass, one chimpanzee carcass and 60 pieces (approximately 180 kg) of forest elephant meat. The average approximate sale price of elephant meat was reported to be US\$ 1.33/kg for hunters in Socambo, US\$ 1.67/kg for middlemen in Socambo and US\$ 3.33/kg for vendors in the Ouessou market.

The Zoological Society of London's (ZSL) Wildlife Wood Project<sup>3</sup>, WWF, WCS, among other groups, are currently working with certain timber companies to help them manage their concessions in a 'wildlife friendly' way through the adoption of low-impact logging practices and the application of innovative, practical and cost effective measures for managing wildlife.

Apart from the Makazi (2004) study, the Cameroon bushmeat studies did not detect elephant meat as a traded wild meat, which points to perhaps the issue that the meat of endangered species is not accounted for in market studies or, possibly, the scarcity of elephant meat on the market due to stricter law enforcement, low demand or project design.

### **The Urban Bushmeat Trade**

A few studies in Yaoundé investigated the sources and sale points of wild meat (Bahuchet & loveva-Baillon, 1998; Edderaï & Dame, 2006; Randolph, in preparation). Bahuchet's study presented data collected on households, restaurants and markets from 1994 to 1996. Hotels, restaurants and street vendors sold mostly rodents, monkeys, snakes and other common species, but occasionally also elephant and gorilla. By 2009, when Randolph conducted her study (and during this study), elephant and other known protected species were no longer openly sold. Despite increased law enforcement and seizure rates of wildlife products, the number of documented bushmeat sale points actually increased from 2006 to 2009 (Edderaï & Dame, 2006; Randolph, unpublished). Rare meats sold included crocodile, giant pangolin, gorilla, chimpanzee and elephant meats. Large quantities of bushmeat are transported from the east by

<sup>3</sup>Wildlife Wood Project of the Zoological Society of London; [www.zsl.org/conservation/regions/africa/wildlife-wood-project](http://www.zsl.org/conservation/regions/africa/wildlife-wood-project).

rail to Yaoundé (Cameroon Environmental Watch, 2000). Preliminary ethnographic research (Randolph, unpublished) conducted from September 2008 to April 2010 in Yaoundé indicated that urban immigrants with forest origins consumed most of the bushmeat while elites were the primary consumers of rare wild meat in the capital. Women with ethnic ties to wild meat source points comprised 86% of urban wild meat traders in the most utilized bushmeat market. Live wild animals, particularly crocodiles, were popular as gift items for Muslim elites, given their religious meat restrictions. Halal (ritually clean) meat must be obtained from animals despatched by throat-slitting, preferably accompanied by Koranic verses, a feat not easy to achieve with elephants. Elephant meat was preferred by non-Muslim elites from forested regions, such as government and business workers.

### **Ivory studies in SE Cameroon**

The first survey of Cameroon's ivory market was carried out by the Ivory Trade Review Group (ITRG) in 1988-1989 in preparation for the Seventh Conference of the Parties of CITES. They concluded that, 'Cameroon has a significant position in international ivory trading in western and central Africa.' They found that Cameroon acted as an *entrepôt* for tusks smuggled in from neighbouring countries and exported to Nigeria, Europe, the Middle East and Asia (Cobb, 1989).

Cameroon ivory export records in the decade preceding the CITES ivory trade ban are incomplete, but importing countries record receiving 36.7 tonnes of tusks between 1979 and 1988, a relatively small quantity compared to other African countries (Cobb, 1989). It is likely that much more than this was smuggled out and therefore not in the records.

The number of elephants poached annually in the country could not be determined with certainty in 1989, but Allaway (1989) reported that an estimated 3,400 elephants died between 1977 and 1987, approximately two-thirds (2,275) from poaching. Cameroon was estimated to have 22,000 elephants in 1989, so the poached number is significant (Cobb, 1989). In late 1987, 186 tusks weighing a total of 806.4 kg were seized in Yokadouma in the study area of this project. The tusk weights ranged from 0.5 to 25 kg with an average weight of 4.3 kg. The fact that so many tusks were of relatively small size indicates that the hunting was indiscriminate and not focused on ivory hunting alone, suggesting that meat could have been an important objective of the poachers.

Prior to 1990 and the imposition of the international ivory trade ban, seized ivory was commonly auctioned off by

the Government. Records are sparse, but one sale for <5 kg tusks in 1988 went for an average of FCFA 8,134/kg (US\$ 26.25/kg at 1 US\$ = FCFA 310). In Yaoundé, ivory carvers reportedly paid to middlemen FCFA 13,000-15,000/kg (~US\$ 42-48)/kg for small tusks (<5 kg) and FCFA 18,000-20,000 (~US\$ 58-64.50)/kg for large tusks (>10 kg) (Allaway, 1989).

In addition, ivory working and trading went on virtually unsupervised, even though local laws required that various documents and permits be obtained (Allaway, 1989). About 50 outlets were found in Douala selling ivory in 1989, mostly in the crafts market, in street stalls near tourist hotels and in airport shops, totalling an estimated 880 kg of ivory. Allaway also found a minimum of seven ivory workshops in Douala. He found 15 outlets in Yaoundé selling about 610 kg of worked ivory, most of them in the crafts market, but also in tourist shops and the showrooms of three workshops. Ivory was being worked and sold in Garoua and Maroua and other towns while carved ivory was being exported to other African countries and to Europe and North America.

WWF carried out a review of post-ivory trade ban conditions in a few countries, including Cameroon, between May and September 1991 to assess what effect the ban may have had on elephants and ivory trade (Dublin & Jachmann, 1992). The IUCN/SSC AfESG (Dublin, et al., 1995) repeated the exercise in 1994. These studies found that elephant poaching continued at rates nearly as high as prior to the ban in Cameroon, but that the internal worked ivory market had declined considerably due to decreased demand from consumers and increased risks of seizures in receiving countries. In 1991, tusk prices actually increased from 1989 in the northern savannah zone, but dropped in the southern forested zone, although tusk weights were not given, making an accurate assessment impossible (Dublin & Jachmann, 1992).

Martin & Stiles (2000) conducted an ivory survey in 1999 that covered 17 cities in 13 African countries – including Gabon, Democratic Republic of Congo (DRC), Central African Republic (CAR) and Cameroon. The study revealed a moderate illicit movement of tusks from DRC, CAR, Cameroon and Gabon westwards to ivory carving centres in Abidjan, Lagos and Dakar, and from CAR and DRC northwards to Egypt and Sudan. Some Kenyan and Sudanese tusks were smuggled to Addis Ababa. Raw ivory was also transported to China. Hunting of elephants for transnational meat trade was documented in DRC, CAR, Gabon and Cameroon (all of the Central African countries surveyed in this 2010 IUCN study). Meat was

at least one of the motivating factors around Minkébé Reserve (Gabon), where Baka, led by Fang villagers, poached elephants, and in south-eastern CAR, where Sudanese poached elephants for ivory and meat to sell back in Sudan. In Douala, Cameroon, poachers also reported relying on both ivory and elephant meat for their income. They concluded in regard to Central Africa, 'This study has also picked up strong evidence that some elephant populations are being killed primarily for their meat. Of course, the tusks are removed for eventual sale, but the bushmeat trade largely drives these hunters.'

## National Laws and Activities Relevant to Elephants

Cameroon acceded to CITES on 5 June, 1981. The main laws that govern wildlife are:

- *Law No. 94/01 of 20 January 1994* to lay down Forestry, Wildlife and Fisheries Regulations;
- *Decree No. 95/466/PM of 20 July 1995* to lay down the conditions for the implementation of Wildlife Regulations;
- *Order No. 0648/MINFOF of 18 December 2006* to set the list of animals of classes A, B and C; and
- *Order N° 0649/MINFOF* to lay down the distribution of animal species whose killing is authorized as well as the latitude of killing per type of sports hunting permit.

The 1994 Forestry Law regulates the hunting and sale of forest animals, collectively referred to as 'bushmeat' in much of sub-Saharan Africa. The areas in which hunting may take place in Cameroon are termed 'hunting zones' in Section 24(1) and are further categorized into game reserves, hunting areas and game ranches. Section 78 of the Forestry Law addresses the Protection of Wildlife and Biodiversity, with section 78(1) classifying all animal species in Cameroon into three classes (A, B and C), with conditions for their exploitation.

Class A species are totally protected and may not be killed (except as provided for in section 82 and 83 of this law). Their capture or captivity is subject to authorization by the wildlife ministry. Class B species are partially protected and may be hunted, captured or killed subject to the grant of a hunting permit. Class C species are also 'partially protected' according to the law but variable; negotiable application of the law regarding Class C species is common across Cameroon. Section 76 of the law states that any person found in any place, at any time, in possession of a whole or partial class A or B protected animal, is considered to have captured or killed the animal. For certain class A trophy animals, a

certificate of origin specifying specific characteristics of the animals and the registration number of the trophies is required to enable the identification of animal products. Export of wild animal products and meat requires a certificate of origin and export permit.

Cameroon forest elephants (*Loxodonta africana cyclotis*) and savannah elephants (*Loxodonta africana africana*) both fall under a unique classification according to *Order 0648/MINFOF of 18 December 2006*. It classifies elephants' protected status according to the weight of their tusks. Elephants with tusks weighing more than 5 kg are classed as Class B species (partially protected) while elephants with tusks weighing less than 5 kg are Class A species (fully protected). Generally speaking, according to this classification, many females and young males are fully protected, whereas males over about ten years of age and most adult females are permissibly hunted with the appropriate hunting permit.

Class A 'trophy animals' are also distinguished from Class A 'bushmeat' products within the law, as permits for trophy sport hunting of Class A species are provided to specialist, large game 'tourist' hunters, while local hunters are not permitted to hunt Class A species. Cameroon has an annual CITES export quota for elephant trophies of 160 tusks (80 elephants). Cameroon was given a quota of 160 tusks (80 elephants) in 2010; all 80 were allocated to sport hunting operators.

Hunting permits cost approximately US\$ 600 and can be issued for January to June (the designated hunting season) for certain areas, by region. There are quotas for each permit. CITES gives the quota annually for endangered species. The Ministry of Territorial Administration is in charge of controlling the illegal circulation of arms, working in collaboration with BIR/LAB, while MINFOF is responsible for controlling ivory, bushmeat and wildlife products.

Section 9(2) of the 1994 law states that certain forest products, such as ebony, ivory and other forest products of particular interest, shall be classified as special. Section 9(3) states that extraction of special products shall be laid down by decree. Section 100 states that a license is required to transform ivory into local crafts and to store processed ivory. If anyone is found in possession of processed ivory, it is up to that person to prove, if need be, that the elephant concerned had tusks that each weighed more than 5 kg.

*Decree No. 95/466/PM* issued 20 July 1995 by the Prime Minister laid down the conditions for the implementation of wildlife regulations, which included regulations on

protected area management, environmental impact surveys that should accompany any mining, agro-pastoral or industrial project near protected areas, as well as quotas for various wildlife species authorized for hunting. Under this decree, hunting and fishing are forbidden within national parks, with the exception of park management operations. Local populations using traditional collection, trapping and hunting techniques have user rights to hunt class C species in permitted zones (i.e. community forests, communal or private forests) outside of integral ecological reserves, national parks and sport hunting zones (referred to as game ranches in this document). By law, the public must be informed of zoning 30 days prior to zoning, but they are often informed well in advance of 30 days (Njiforti, pers. comm., 2011).

Section 45 of the decree states that citizens or residents can obtain collection licenses from the MINFOF allowing them to collect and commercially utilize carcasses and ivory of Class B species (i.e. elephants with tusks >5 kg). The license is valid for one hunting season. The trading of elephant meat and ivory is therefore legal if the trader can obtain a 'collection license'.

Section 58 states that hunters with permits must declare any meat or trophies still in their possession to the MINFOF after the expiration of the permit, or



the possession will be deemed illegal. It would seem therefore, that legal hunters may possess bushmeat and ivory indefinitely with a simple declaration.

Section 62(1) states that meat from animals killed during official battues or for safety reasons shall belong, in part, to the affected population and, in part, to the volunteer hunters.

62(2) states that the trophies of the animals referred to in Section 62(1) above shall belong to the services in charge of wildlife. However, if the animals are killed by a voluntary hunter with a hunting permit, he is allowed to own the trophies on condition that he pays the related fees.

Cameroonian law, therefore, permits both the hunting of older elephants and the selling of their meat and trophies, as long as the required permits and licenses have been obtained.

## Ivory and Meat Trade Law Enforcement

TRAFFIC (2002, 2004), based on the 1999 ivory survey conducted by Martin & Stiles (2000), signalled that Cameroon possessed the largest unregulated domestic ivory market in Central Africa and was an important illicit international ivory trade centre. As a result, and following a draft Action Plan for the Control of the Trade in African Elephant Ivory adopted at the 13<sup>th</sup> meeting of the Conference of the Parties to CITES (Decision 13.26 (CITES, 2004)), Cameroon began a programme to stem the illegal ivory and wildlife products trade. With the support of the Last Great Ape Organization (LAGA), which is a wildlife law enforcement NGO based in Yaoundé, the government began to stem the illegal ivory and wildlife products trade. Since its inception in 2003 through August 2010, LAGA has instigated 198 arrests for rare wildlife trafficking, including over 5 tonnes of ivory seizures, the arrest of an Italian logging company manager and parrot, lion and great ape traffickers plus the seizures of bushmeat (LAGA, 2009, 2010).



**Examples of ivory seized by LAGA operations in Cameroon** (Photos: LAGA)

LAGA exposed an illegal ivory workshop after observing its activities for a month. The workshop was processing large amounts of fresh elephant tusks into chopsticks and other articles for the Chinese market. The police seized 256.3 pounds of ivory with an estimated value of US\$12,000. Two major dealers were prosecuted in the bust. In August 2009, three wildlife dealers were arrested in Abong Mbang in south-eastern Cameroon while illegally selling elephant products and meat from an industrial refrigerator. A senior government official, the Senior Divisional Officer in Yokadouma in the East Region, was quoted as being part of the network. In

December 2009, a network of four ivory traffickers and elephant poachers was broken up in Meyomessala, South Region. They were arrested for poaching and illegally trading in ivory and elephant meat. One member of the network was an ecoguard working with the Dja National Reserve. He was responsible for the acquisition of the gun and ammunition used for hunting and responsible for the sale of the ivory. Another member of the network was of Malian nationality. They were arrested with a military gun and ammunition and investigations are being carried out to find the military person responsible for the supply of the gun (LAGA, 2009). In February 2010 an ivory dealer in Yaoundé was sentenced to eight months in prison and a stiff fine and in March an ivory trafficker in Abong Mbang was arrested with tusks weighing <5 kg (i.e. Class A specimens). Also in March 2010, two men were sentenced in Douala to one year of imprisonment and a fine of US\$ 116,500 for being caught with one tonne of ivory ready for export (LAGA, 2010).

Despite these measures, meat and ivory demand coupled with endemic corruption continue to pose a threat to elephant populations (CITES, 2010; Milliken, et al., 2009). One detailed LAGA Case Tracking System report serves as a good example of how accused wildlife offenders can subvert justice by bribing judges (LAGA, 2004).

In early 2010 the Cameroon government prohibited the transport of bushmeat to markets on trains, timber trucks and public transportation. The Minister of MINFOF announced that bushmeat should only be sold in markets or public places that have been designated by local authorities. Ecoguards would monitor markets to ensure that bushmeat is only sold in designated markets. The bushmeat that can be sold legally consists of species that are not endangered or protected by Cameroonian law. The government will penalize anyone who sells meat from elephants and other protected animals (Ntaryike, 2010).

### **MINFOF-WWF: *Lutte Anti-Braconnage* (LAB, Anti-Poaching Battle)**

In south-eastern Cameroon, the MINFOF conducts bio-monitoring within protected areas with its partner organization, WWF. WWF has been working in the area since the mid 1990s to address biodiversity loss and deforestation in the Congo Basin. BBNP is part of the WWF-TRIDOM landscape, a collaborative conservation effort between Gabon, Congo and Cameroon, covering seven protected areas in the three countries. The landscape covers the region including Dja National Reserve, Boumba-Bek, Nki and Kom national parks, Mengambe gorilla sanctuary and Ngoyla Mintom

conservation block in Cameroon; Minkébé, Ivindo and M'Wagne national parks in Gabon; and Odzala-Koukoua National Park in ROC. In Cameroon, WWF-TRIDOM is based in Yokadouma.

Monitoring in this programme focuses on the number and distribution of large mammals and human use and conflicts regarding wildlife. WWF-TRIDOM and Cameroon government activities are also part of the Central Africa World Heritage Forest Initiative (CAWFI), funded by the United Nations Foundation (UNF), WWF-Netherlands, GIZ (formerly GTZ), CARPE-USAID, US Fish and Wildlife Service, Johnson & Johnson Foundation and the European Union. The MINFOF-WWF programme has also been establishing agreements with logging companies and hunting zone users for sustainable utilization of natural resources and promoting alternative livelihood activities such as fish farming and community forestry. In addition, a public awareness campaign has been underway for the last ten years in which posters of Class A and B species are posted in restaurants and hotels and community forums are held periodically to brief communities on wildlife laws and discuss conservation matters.

WWF has initiated a hunter informant programme, whereby they establish a rapport with cooperative community members across the landscape to act as informants reporting illegal wildlife and forestry activities. Hunter informants are sometimes part of hunting parties and inform on other members and locations of hunts, which sometimes leads to seizure of products, arrests, fining and/or imprisonment of offenders. Other informants will provide information on illegal sales and trading of products. Nine village committees, *Comités de valorisation des Ressources Fauniques* (COVAREF), around BBNP are active as informants. This is linked to the agreement between COVAREFs (as managers of Community Hunting Zones) and WWF/MINFOF to participate in the fight against poaching in the region.

Operational since July 2007, the LAB programme organized by MINFOF and WWF has conducted raids to address poaching and illegal timber-cutting operations within the south-eastern region communities and FMUs. Their teams combine *gendarmes* and the *Battalion d'Intervention Rapide* (Rapid Intervention Battalion (BIR)), a law enforcement branch created originally in 1999 to secure the northern borders and since then employed to protect national security through activities such as illegal weapon seizure campaigns. In the south-east, they target places known for illegal forestry and hunting activities, where illegal weapons proliferate.





WWF-TRIDOM conducts education and public awareness campaigns in south-eastern Cameroon (Photo: WWF)

**Table 2** presents ivory seized in the south-east and documented in the semester reports for BBNP. Despite the accounts of high levels of poaching during this period, only 57 tusks were reported seized overall in the south-east region from 2001 to 2004 (Dandjouma, 2001, 2002, 2004, 2005; Bene Bene & Nzoooh, 2005). There was a gap in reporting for two years (2005-2006) while BBNP was being established, after which the figures represent seizures within BBNP alone. A total of 37 tusks were reportedly seized in BB from 2007 to 2009 (Fouda, 2008a, 2008b, 2009b, 2010). Note the sizeable proportion of tusks weighing less than 5 kg (90% (2002), 80% (2003) and 64% (2004)), potentially indicating over-hunting, imbalanced hunting pressure on females and juveniles, and/or the failure to arrest the dealers in large elephant tusks.

Individual national park conservators also report bi-annually to the MINFOF on biodiversity management actions, including hunter arrests, wildlife product seizures and wild meat auction sales, where seized meat is auctioned to local villagers at significantly reduced prices. For example, in 2007, 39 patrols were made in BBNP that seized six tusks and 1,793 animal carcasses, and burned 159 hunting camps (Fouda, 2007a and b; LAB, 2009). In 2008, 142 camps were destroyed, 35 pieces of elephant meat seized (Fouda 2008a and b, 2009a and b) and 22 tusks were seized (Zacharie Nzoooh, Scientific Officer, South-east WWF, pers. comm., 2010). In 2009, 35 pieces of elephant meat were seized and 57 camps destroyed in areas surrounding Boumba-Bek, Nki and Lobéké national parks (Oumarou & Abana, 2010). From year to year, the number of patrols varies depending on the amount of funds allocated, which has a direct impact on the potential

**Table 2. Ivory seized in SE Cameroon NPs**

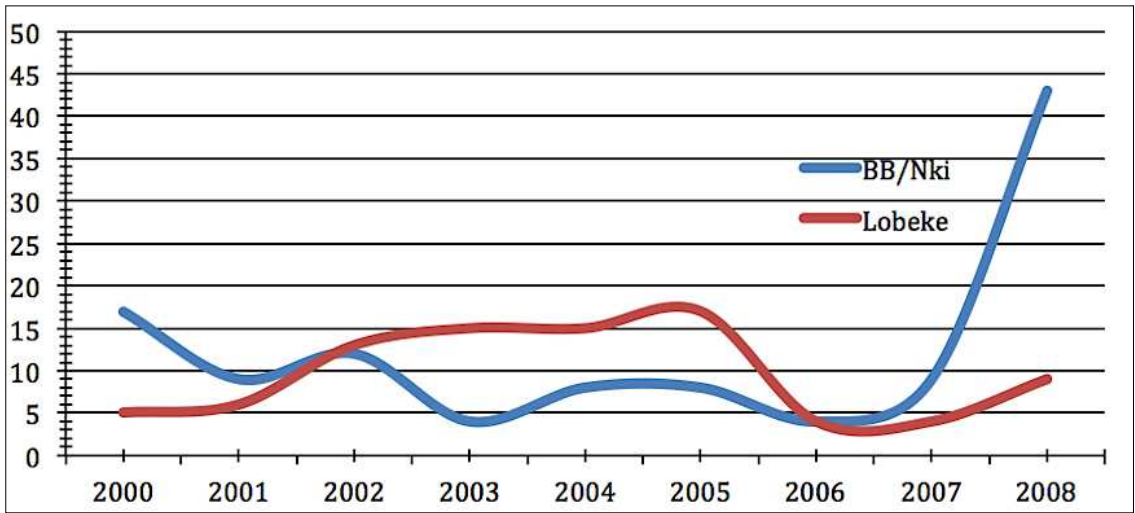
Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total
Ivory > 5kg	4	2	3	4	-	-	11	22	6	52
Ivory < 5kg	3	19	12	7	-	-	0	0	0	41
Total	7	21	15	11	-	-	11	22	6	93

2001-2004 data from Lobeke, Nki and Boumba-Bek NPs

2006-2009 data from Boumba-Bek NP

Sources: Dandjouma, 2001, 2002, 2004, 2005; Fouda, 2009a, 2009b; LAB, 2008, 2009; Mefire & Mouna, 2010.

Figure 5. Ivory seizures in Boumba-Bek/Nki and Lobéké NPs from 2000 to 2008 (Extracted data from Pandong Ebwel, et al., 2009)



number of seizures, arrests and camp raids. In addition, the reporting structure and items reported (e.g. wild meat auctions, camps found, animals seized) varies from year to year. These factors render comparative analysis of trends in poaching pressure and illicit trade difficult. Several reports specifically noted that elephants were increasingly being targeted for meat (Dandjouma, 2001, 2002, 2004, 2005).

Figures 5 and 6 show the impact of LAB and park management in recent years. Between 2006 and 2007, the ivory seizure rate in Boumba-Bek and Nki rose by more than 350%. These tusks represent ivory from the region, not necessarily from within the parks, as middlemen can move between different zones to collect ivory. Nevertheless, based on interviews with park officials and ecoguards, increased patrols have resulted

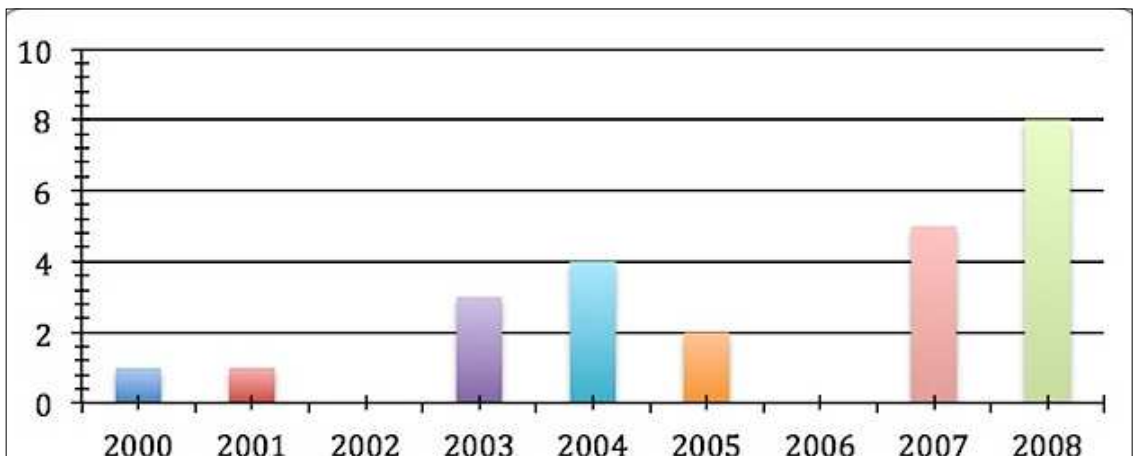
in increased seizures in these parks. Lobéké's lower capture rate in recent years could also be attributed, in part, to the movement of poachers into different parks.

Hunter arrests, although still relatively low, have also risen significantly since 2007, when LAB was initiated. Arrests of middlemen and vendors were not reported.

#### MIKE programme

The Monitoring the Illegal Killing of Elephants (MIKE) programme was established by CITES in 1997 as a result of *Resolution Conf. 10.10* to monitor what effects, if any, legal international ivory sales would have on levels of elephant poaching. Its main objective is to measure levels and trends of illegal hunting of elephants in Africa and Asia (CITES, 1997). MIKE has established over 50 monitoring sites in elephant Range States in Africa,

Figure 6. Hunters prosecuted from south-eastern Cameroon (Data extracted from Pandong Ebwel, et al., 2009)



**Table 3. MIKE elephant kill data, 2002-2010**

Date found/v	Sector	Location	Age of Carcass	Animal Age Class	Sex	Cause of Death	Motives
5/4/03	BBNP east	ZIC 38	1-3 mo	adult	male	natural/mgt	none
5/4/03	BBNP south	ZIC 38	1-3 mo	adult	male	natural/mgt	NA
20/5/03	BBNP west	Mintom	1-2 yrs	adult	unknown	unknown	ivory
14/6/03	BBNP west	Mintom	1-2 yrs	juvenile	unknown	poaching	meat
7/8/03	BBNP north	UFA 10021	4-6 mo	adult	unknown	poaching	ivory, meat
9/8/03	BBNP north	UFA 10021	4-6 mo	adult	unknown	poaching	ivory, meat
13/4/06	BBNP south	ZIC 38	4-6 mo	adult	male	sports hunting	Sports hunting
6/7/06	BBNP east	ZIC 28	4-6 mo	adult	male	sports hunting	sports hunting
12/10/06	BBNP north	ZIC 40	1-3 mo	adult	unknown	unknown	
24//1109	BBNP south	ZIC 38	4-6 mo	adult	unknown	sports hunting	Sports hunting
21/12/09	BBNP north-east	ZIC GC 07	1-3 mo	adult	unknown	poaching	poaching
1/10	BBNP	BBNP		juvenile		unknown	
1/10	BBNP	BBNP		adult	unknown	unknown	
1/10	BBNP	BBNP		adult	male	unknown	
2/10	BBNP	BBNP		adult	unknown	poaching	poaching
2/10	BBNP	BBNP		adult	male	poaching	poaching

which consist largely of protected areas (CITES, 2010). Collaborating agencies on the ground that collect monitoring data are the national wildlife management authorities, which in the case of Cameroon is MINFOF, assisted by WWF. MIKE organized training for MINFOF ecoguards in GPS marking and elephant kill surveying, documenting the location of hunter camps and elephant kills and assessing the cause of death and motive for the kill. MIKE calculates the Proportion of Illegally Killed Elephants (PIKE) encountered on ecoguard patrols as an indicator of the severity of elephant poaching. The programme does not, however, aim to compile a complete record of all elephant kills.

In the MIKE database for south-eastern Cameroon from 2002 to 2009, 16 elephant carcasses were documented for the Boumba-Bek area (**Table 3**) and 28 for Lobéké. MIKE representatives stated that a portion of the data was lost when there was a computer system failure (Luhunu, pers. comm., 2010). Therefore, these data do not present a complete picture of elephant kills and mortality in the region. Ivory, meat, sport hunting, natural death or problem elephant control were all listed as motives or causes for elephant deaths. Given the small sample size, it is not possible to articulate a baseline

understanding of the temporal trends and motives in elephant kills.

Comparing the two parks, 24 (86%) of the documented carcasses in Lobéké were illegally killed elephants while only six (38%) were definite poaching cases in BBNP, along with three (19%) cases of illegal sport hunting. A larger, more representative sample is needed to draw conclusions on distinct types and degrees of pressure on elephants near the CAR border and logging concession centres (Lobéké) versus the situation of elephants buffered from bordering countries by other parks (BBNP). While logging concessions and international borders are threats, the artificial salt pans near park borders and sport hunting kills within park boundaries also point to the need to work more closely with sport hunting operations to ensure that they respect park boundaries and place their artificial salt pans a specified safe distance from park borders. Two sport hunting zones buffer the park, one to the north (ZICGC 018) and one to the south (ZIC 015) (see **Figure 2**).

# Methods

## Personnel, Data Collection Sites and Dates

The country case study for Cameroon was led by Shannon Randolph, a Stanford PhD candidate currently writing a dissertation on the *Socio-Cultural Motives for Urban Wild Meat Consumption in Yaoundé, Cameroon*, assisted by three research assistants (RAs) experienced in bushmeat and ivory studies, Manfred Mesumbe (RA1), Ivo Ngome (RA2) and Limson Tangie (RA3). They collected primary information from elephant meat and ivory hunting and commerce participants in two urban (Yaoundé, Bertoua) and three regional towns (Yokadouma, Lomié, Moloundou) and seven rural villages (Ngato, Banana, Ndongo, Logoue, Nomedjoh, Djaposten and Polido'o). A total of 57 informants contributed to the preliminary data presented in this report. These data should be evaluated as provisional given the short duration of the study and the small sample size.

The case study leader worked in Cameroon from 10 June to 7 August 2010 to prepare data collection tools and materials, identify RAs and other key interviewees with the MINFOF, law enforcement and WWF, refine the study design provided by IUCN and test methods for the longer-term phase of the study. Data collection was carried out in the south-east from 23 June to 13 August 2010, and all data was finally collated from the final Yaoundé RA by 29 August 2010. Data was then analyzed between 1 and 18 September 2010.

Daniel Stiles, IUCN Project Consultant, visited bushmeat markets and supermarkets in Yaoundé to collect price and other information and visited crafts markets, hotels and tourist shops in Yaoundé and Douala to survey for ivory and collect price and other quantitative data. He also consulted with the case study leader and RAs, and MIKE, WWF, LAGA, ZSL, WCS and MINFOF staff to collect information and brief them on the project. Stiles visited Cameroon between 24 May and 3 June and between 3 and 10 August 2010.

## Sampling and Data Collection

Given the legally sensitive nature of this topic and in an attempt to be a non-threatening observer and participant in the study sites, the research team used opportunity and respondent-driven sampling (RDS) to identify informants. RDS has been shown to work well with hidden populations (Heckathorn, 1997, 2002). Through

RDS, the research team recruited hunter, middleman/ transporter and market vendor informants. Participant identity was protected to promote the formation of trusting relationships and to improve the percentage of truthful responses. Anonymity was ensured through the use of a secure data source and code-identification system for raw data.

The coding system was as follows: informants were identified with a letter indicating their location, a second letter indicating their role in the trade and a number distinguishing them from other informants, as follows:

Below, is a list of definitions and explanations of the actors in the elephant trade:

RAs also used cover stories appropriate for the situation (e.g. university student studying elephant meat trade, elephant meat dealer, tour guide, etc.) to allay suspicion and elicit more honest information from informants given the very short time period available. Most interactions with informants spanned two hours to a few days. Data was periodically cross-checked with more than one informant to verify and adjust responses.

The data on most variables were collected through informal interviews and observations based on questionnaires in French for each informant category provided by the IUCN AfESG Project Consultant (**Appendix 1**). Informal interviews were conducted in natural settings, including markets, homes, restaurants and elephant meat and ivory sale points. RAs, trained in study questions, then utilized memory recall to ask particular questions during informal interviews. These were systematically recorded on hand-held voice recorders whenever possible. Unfortunately, malfunctioning surveillance equipment (hidden video cameras) rendered it impossible to reliably collect visual data, so the case study leader modified the methodology to use voice recorders, which proved to be quite useful for subsequent data analysis.

The case study leader conducted interviews with key informants, namely a south-eastern Cameroon biodiversity expert (Zacharie Nzoo, WWF), the WWF BBNP Park Assistant (Expedit Bernard Fouda), MINFOF Conservator for BBNP (Achille Mengamenya) and the BBNP MIKE site Deputy Officer (Nasser Bariga, also a MINFOF ecoguard). The background data collection through interviews and report reviews focused on the

Code Type	Coding Scheme	Example	Explanation
Interviewee	PlaceActorName	YM3	Yokadouma Middleman #3
<p>Actors were identified as follows: H = hunter, T = transporter, M = middleman, V = vendor</p> <p>Research sites were identified by their place name as follows: Y = Yokadouma, N = Ngato,</p>		<p>M = Moloundou, Nd = Ndongo, L = Logoué, B = Bertoua, Lo = Lomié, Ba = Banana, A = Abong Mbang, N = Ngato, No = Nomedjoh, D = Djaposten, P = Polido'o, Ya = Yaoundé</p>	
<p><b>Definition and Explanation of Actors in the Wildlife Trade</b></p> <p><b>Vendor</b> Vendors are individuals selling elephant products in markets, shops, restaurants, hidden locations, personal homes and on the roadside. Vendors generally proliferate in regional towns and large cities, where a large consumer base exists. In the past in Cameroon, ivory vendors operated openly in crafts markets, ivory workshop showrooms and in street stalls, but ivory is no longer sold overtly due to a government crackdown on illegal ivory trading, although surreptitious ivory vendors exist.</p> <p><b>Middleman</b> Middlemen are traders acting as intermediaries between hunters, other middlemen and vendors of elephant products. They travel to source points or rural sale points to purchase products directly from hunters, local traders or local markets, then return to urban and semi-urban areas to resell to higher</p>		<p>level middlemen or vendors. Middlemen often organize, arm and finance hunting expeditions to obtain certain items ordered by a dealer, for example certain quantities of ivory or wild meat. For the purpose of this study, all intermediary actors who buy and subsequently sell meat and/or ivory will be classified as middlemen.</p> <p><b>Transporter</b> Transporters move elephant products from point to point on hire by hunters or middlemen. Transporters do not sell meat or ivory, which distinguishes them from middlemen.</p> <p><b>Hunter</b> Hunters are individuals hunting wildlife, in this case, elephants.</p> <p>When informants for this study played more than one of the above roles, their primary role was used to identify them. For example, a hunter who also transported and sold meat and/or ivory was classified as a hunter.</p>	

history of elephant hunting and human-elephant conflicts in south-eastern Cameroon as well as the meat and ivory trade from south-eastern Cameroon and specifically from the research site.

## Data Analysis

Quantitative data was entered into a Microsoft Excel spreadsheet, categorized according to key variables for each respondent type (i.e., hunter, middleman, transporter and vendor). The case study leader worked with RA1 and RA2 to develop this tool to fit the needs of the study during the first phase of research. Given that RA1 and RA2 were well versed in Excel and had access to a personal laptop computer, they entered data into Excel in the course of field work. RA3 collected price, vendor and consumer data in Yaoundé restaurants and markets and the lead consultant entered this data into the established system. Qualitative data in the form of daily reports of interviews, observations and comments was entered into a Microsoft Word file periodically.

Basic statistical analysis was performed on price, work effort and other quantitative variables to obtain summary



Photo: Shannon Randolph

data. Price data was converted to United States dollars (at the rate of FCFA 500 : US\$ 1) and averaged for each variable.

# Results

## Hunters

Interviews with hunters in Yokadouma, Moloundou and villages in the south-east revealed that lead hunters, usually on the command of a middleman, organize an elephant hunting party of two to 15 individuals, including hunters, porters and sometimes meat and/or ivory middlemen. The hunt normally takes from four days to a couple of weeks but can be as short as two days or as long as a month. Experienced ivory hunters harvest tusks and the shoulder meat in 20 to 30 minutes. A hunter or middleman then takes the amount of meat desired for him and his *commanditaire* (person who ordered the kill) and delivers the tusks promptly to the *commanditaire*.<sup>4</sup> Sometimes, dealers provide their head hunter with satellite phones to call and arrange a pickup location. These hunters are far better equipped than any ecoguard. Elephants killed near the road are more likely to be harvested for their meat by neighbouring villages. In a case where the elephant is killed less than 50 km from the road, the majority of the hunting party may remain with the carcass for two days harvesting and smoking much of the elephant meat for multiple purposes, such as sale, home consumption and sharing among villagers. The BBNP Conservator and WWF Park Assistant concurred that elephant hunts were done primarily on the command of non-local elites from urban centres, such as Yaoundé, organized by middlemen in regional towns and urban centres and carried out by local hunters using guns provided by the commanding elites, delivered by the middlemen (e.g., YH4 and BH1 hunters who were working for local authorities and business people. NdH1 worked for an unidentified middleman in the regional town).

**Table 4. Types of elephant hunters interviewed**

Type	Number	Full time	Part time	Works for self	Works on command
Commercial	11	2	9	1	10
Subsistence	0	0	0	0	0
Total	11	2	9	1	10

Most of the hunters interviewed – ten out of 11 in six locations – hunted ivory on command. Only two of the 11 hunters claimed to work as full-time elephant hunters. Most gained income through small game hunting, cocoa farming and subsistence agriculture (**Table 4**).

<sup>4</sup> Those financing poaching are referred to in Cameroon as 'braconniers à col blanc' – 'white collar poachers'.



**Meat-smoking takes at least two days, increasing the chances of being apprehended by the authorities.**

(Photo: Karl Amman)

In the past, as recently as 2005, hunting parties more often hunted for both ivory and meat. The number of porters would be directly proportional to the amount of meat they were able to harvest, given the distance to the road and risk factors. Sometimes, additional porters would be called from the nearest village to carry more

meat once the elephant was killed. Since the advent of anti-poaching raids and increased patrolling of forests, poachers do not spend time harvesting the meat for fear that meat-smoking could alert the authorities. Up to five years ago, the head hunter or middleman might have allowed the hunters to harvest the meat, but now they fear the team members might betray the team to law enforcers and so often limit the hunting party to about

four members. Even so, some hunters organize portage of meat with local villagers, without the knowledge of the middleman, especially with kills within one day's (<30 km) walking distance to a village. It was not possible to identify specific kill sites with hunters beyond the general hunting region or go to kill sites with hunters to mark GPS points due to the time constraints and general wariness of hunters.

Hunter informants identified Lobéké, Nki, BBNP and surrounding areas as primary hunting areas. Hunters said that while Lobéké was the richest of the three in elephant populations, patrolling made it also the riskiest hunting site. As mentioned in the Introduction,

Lobéké had the highest and most rapidly growing elephant population of the three parks.

Hunting pressure for elephants is generated by a variety of actors: employees of FMUs bordering the park on the north and south (in particular, UFA 10-015 south of the park and UFA 10-018 north of the park), villagers (from Mikel, Bangué and Mimbo Mimbo villages) along the road north of the park, villagers and non-local poachers along the eastern P4 road and non-local poachers along the park's southern border (MINFOF Conservator BBNP, MIKE coordinator, WWF Park Assistant BBNP, pers. comm., June 2010). Non-local poachers are immigrant Cameroonians, Congolese and Central Africans (from CAR).

**Table 5. Work effort of elephant kills**

Ele kill	Code	Motive	Location	Sale Location	A	B	C	D	E	F	G	Total hours
1	YH1	I, M	Momboue	Yaoundé	9		96		3	48	48	195
2	YH2	I, M	Lobéké	Yoka, Yaoundé	9		72		24	48	48	192
3	YH3	M, I	BB, Nki	Yoka, Yaoundé	15		408 <sup>1</sup>				408	816
4	YH4	I, M								48		
5	BH1				2							
6	LH1		Safari hunting zones near Moloundou	Safari company headquarters	3	7						
7	LH2		Sports hunting zones near Moloundou	Sports company	3							
8 <sup>1</sup>	NdH1		Nki, Congo across Dja River	Moloundou	3							
9	NdH2				4							
10	NoH1	I	Nomedjoh forest	Nomedjoh	5		168				168	336
11 <sup>2</sup>	MH1	I, M	Nki, Lobéké, Sports hunting zones, ROC	Moloundou	6		168					

A - Number of people in hunting party

B - Total distance travelled (km)

C - Time to find elephant(hrs)

D - Time to kill elephant (hrs)

E - Time to butcher elephant (hrs)

F - Time to smoke meat (hrs)

G - Time to carry products to destination (hrs)

I - Ivory

M - Meat

<sup>1</sup> Indicates the minimum time necessary to find an elephant during his hunts. Given the reduced number of large male elephants with corresponding larger tusks, the search time to find an appropriate elephant for the kill is longer than five years ago.

<sup>2</sup> Hunters 8 and 11 did not recall specific kill data but rather gave general kill data. Thus, the several source points mentioned do not indicate the hunting location for one outing but their normal hunting locations.

They reside in border towns, where guns are sourced from CAR (border town, Libongo) and ROC (border towns, Moloundou and Socambo), and go on hunts when ordered by a *commanditaire*.

Hunters wait for elephants to enter clearings and then kill them there or in the adjacent forest, particularly in the south-western region of BBNP bordering Nki National Park, where elephants and other large mammal species congregate. In 2003, only two elephants were observed in three clearings due to poaching (Bene Bene & Nzooh, 2005). The following year, the BBNP MINFOF conservator established a bio-monitoring site and a deterrent for poachers at Oboul 1 clearing (north-western sector BBNP). As of 2010, three additional bio-monitoring sites have been established in BBNP.

Other poaching pressure for ivory is generated by sport hunting activities. Along the southern border of BBNP, sport hunters sometimes 'mistakenly' cross into the park, killing an elephant within park boundaries, despite the artificial salt pans created for their hunting within the sport hunting zone (MIKE officer BBNP, pers. comm., June 2010). Opportunistic elephant poacher gangs from ROC, Cameroon and CAR are well aware of the utility of these artificial salt pans, particularly one located just south of the park in FMU 10-015, for their poaching activities.

The work effort necessary to complete different tasks during the hunting process is shown in **Table 5**. Many hunters had a difficult time remembering their last kill given the length of time that had passed (more than six months to a year prior to the interview). The first three kills listed represent data from the last recalled specific kill. All other kills documented below represent general trends as each hunter recalled them.

Note the small hunting party size of two to three persons in over a third of the reported numbers. As explained by our informants, reduced hunting party size indicates ivory-exclusive hunting in response to increased law enforcement and hunting party member betrayal, when hunters act as informants to WWF or law enforcers. BIR and LAB were highly criticized by hunters as unnecessarily brutal and were a source of fear for communities. Under the current trend, hunting parties sometimes kill multiple elephants on one outing in order to make more money and avoid potential capture by law enforcers, abandoning the carcasses and meat to rot after retrieving the tusks.

All but two of the 11 hunters interviewed reportedly left at least 75% of the elephant meat on the elephant carcass normally, during hunts recalled during the previous two years (**Table 6**). The two safari hunters interviewed (LH1

**Table 6. Apportionment of meat from last known elephant kills**

Elephant kill	Code	Location	Details of Kills	% eaten	% carried away fresh	% carried smoked	% left at kill site
1	YH1	Momboue	4/year normally	2%	10% (1 leg)	50%	38%
2	YH2	Lobéké	4 in last year	2%	0%	60%	38%
3	YH3	BB/Nki	0 in last year, 3 per year normally	5%	0%	60%	35%
4	YH4	Outside Yokadouma		5%	0%	10%	85%
5	BH1	Outside Moloundou		0-5%	0%	0%	95-100%
6	LH1	Safari hunting zone, near Moloundou		0%	0%	25%	75%
7	LH2	Safari hunting zone, near Moloundou		0%	0%	25%	75%
8	NdH1	Nki, ROC across Dja River		0%	0%	0%	100%
9	NdH2			0%	0%	0%	100%
10	NoH1			0%	0%	0%	100%
11	MH1			0%	0%	0%	100%



and LH2) reported that if an elephant was killed close to a village, safari hunting parties and nearby villagers were permitted to harvest a portion of the meat, usually about 25%. But, if the elephant was killed a long distance from a village, only very small portions of meat or no meat at all would be harvested to take to the village. Depending on the quantity of elephant meat collected, the meat was eaten only within the safari camp or distributed to the closest communities and local politicians. If the elephant was killed very near a village, villagers were called to collect as much meat as they could after the safari company collected their share as well as the most important parts such as the ivory, trunk and tail.

YH2 explained that a maximum of about 60% of the meat is carried out due to the massive size of elephants. While YH1 and YH2 both said that they could get US\$ 400-600 for a portion of meat (weight unspecified), other hunters informed us that if the entire elephant is harvested, it could potentially yield US\$ 3,000 gross income.

Hunter informants found it difficult to give approximate kilogramme amounts of meat collected for different purposes, especially for kills that had occurred several months to a year in the past. They could more readily give a rough idea of the percentage or portion of the elephant meat that was harvested. The percentages in **Table 7** reflect these rough estimates. Listings in this table of '%' refer to the respondent giving an answer of 'part' of an elephant being used for the indicated purpose. To convert to weight, one can assume that the average adult forest elephant weighs 3 tonnes. Hunters normally target adults as they are after the largest tusks that they can find.

About 1.5 tonnes of meat could be harvested in total. About a third of the weight is lost in smoking (Fargeot, 2008), leaving one tonne of smoked meat as the maximum potential harvestable. Therefore, the amount of meat sold indicated in the table would be 600 kg for YH2, 200 kg for YH3 and 100 kg for YH4.

Informants were asked to rank the top three reasons for hunting elephants (**Table 8**). Orders to hunt ivory were listed as one of the top two reasons by all of the informants. Meat for sale was listed as a primary motive by only one informant and as a secondary motive by 36% of informants. Three informants (27%) listed meat for home consumption as a third motive. All three (27%) meat sellers said they sold only smoked meat. The apparent discrepancy may be due to hunters reporting motives they have had in the past or even motives they still have, if conditions would permit easier and safer meat harvesting.

Sport hunting, hunting for orders and poverty were each listed by 18% (two out of 11). This points to two significant factors to add to the list of hunters' motives for killing elephants: hunting within sport hunting zones and poverty. Poverty as a motivation underlies the direct motives of A through F in **Table 8**, as these represent economic motives. Villagers were angered by the regulations that allowed foreign tourists to hunt elephants while they had to do so clandestinely. Some cited this injustice as a motive for increased local villagers' hunting of elephants. According to the law, locals could legally hunt Class B elephants, but the permit costs and trophy fees are well beyond the means of rural villagers.

**Table 7. Disposing of the meat**

Ele kill	Code	A	B	C	D	E	F
1	YH1	1 leg	0%	0%	N/A	0%	
2	YH2	5%	0%	0%	US\$/1	60% of elephant	US\$ 600 for meat
3	YH3	5%	40%	0%	US\$/2-3	20%	US\$ 400 to 600
4	YH4	0%	10%	0%	N/A	10%	
5	BH1	0%	0-10%	0%	N/A	0%	
6	LH1	0%	25%	0%	N/A	0%	
7	LH2	0%	25%	0%	N/A	0%	
8	NdH1	0%	0%	0%	N/A	0%	
9	NdH2	0%	0%	0%	N/A	0%	
10	NoH1	0%	0%	0%	N/A	0%	
11	MH1	0%	0%	0%	N/A	0%	

A - Kg fresh meat for personal use

B - Kg smoked meat for personal/shared use

C - Kg fresh meat sold

D- price/kg

E- % smoked meat sold

F- income

**Table 8. Hunters' motives for killing elephants**

Informant Code	A	B	C	D	E	F	G	H
YH1		2			1			
YH2		2			1			
YH3		1			2			
YH4		2			1			
BH1		2			1			3 (poverty)
LH1	3				2 (safari takes ivory)			1 (safari)
LH2 <sup>1</sup>	3				2			1 (safari)
NdH1					1	2		3 (poverty)
NdH2								
NoH1								
MH1	3				1			2 (ele. tail sale)

A - Meat for self, family

B - Sell meat for self

C - Sell meat on command

D - Sell ivory for self

E - Orders to hunt for ivory

F - Protect crops, property or life (HEC)

G - Cultural reason

H - Other

Ranking: 1 (most important) to 8 (least important)

<sup>1</sup> LH2 said he sold a liquid taken from the head. This liquid is most likely the musth secretion from the temporal gland. A bull does not begin secreting musth until 25 years of age (Balfour, et al., 2007), thus this particular bull was at least that old.

No informant listed orders for meat as a motive for hunting elephants, although many recounted stories about how ivory dealers would sometimes allow meat dealers and porters to accompany hunting parties in the past to harvest and transport the meat, while the primary hunter delivered the ivory to the dealer. Many respondents who used to trade in elephant meat have ceased to do so due to the increased legal risk.

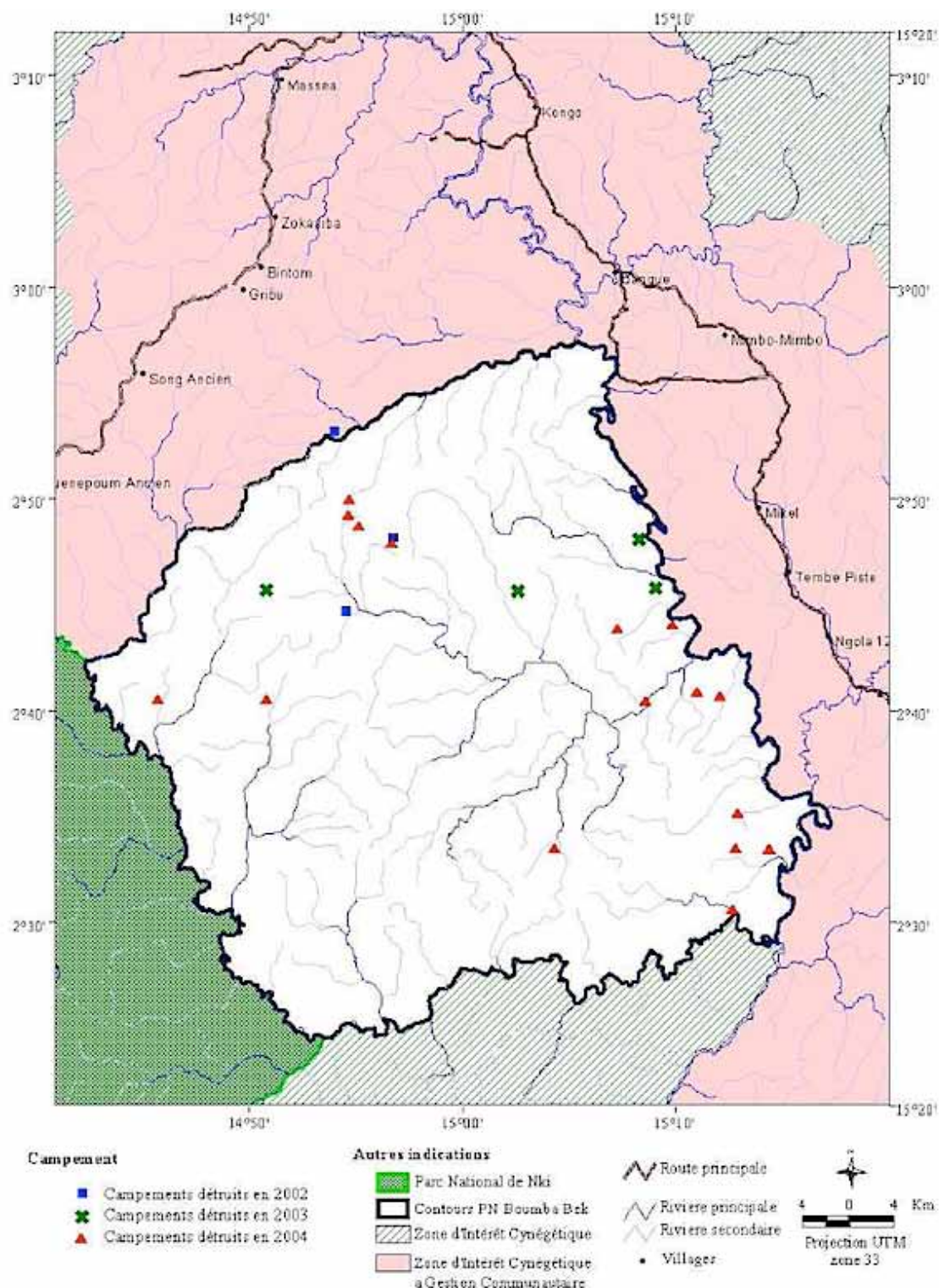
The sale of other elephant parts (e.g. musth secretion and elephant tail) was also listed as a motive by 18% of informants. Skin was not listed by hunters as a motivation, though skin is traded at traditional medicine stands scattered across Yaoundé and Bertoua. Elephant skin buyers believe that it offers protection against crop failure if planted on the edge of one's farm. It sells for approximately one US\$ per five cm<sup>2</sup> piece in Yaoundé. Only one informant for elephant kills listed crop protection as a motive.

The two hunters employed by sport hunting companies expressed the most negative sentiments towards this industry. They cited underpayment of hunting guides and trackers and government preferential treatment of foreigners to hunt rare, large mammals legally, using artificial salt pans to attract animals, as the primary reasons for their frustrations. In fact, one of them had recently quit his job and the other said that he was planning to quit. Sport hunting companies were also blamed by other informants for the decline in elephant

populations, which points to villagers' lack of perception of any positive economic or other outcome for villagers from sport hunting activities.

Another indirect motivating factor cited for increased elephant killing was human rights issues related to gun seizures and law enforcement. In nearly half of the villages visited during this study, LAB law enforcers (referred to as 'BIR' by informants) had recently swept through the region to seize unauthorized arms. During these raids, the hunters implicated were also arrested and, in certain cases, beaten or imprisoned in Nkondengui Prison in Yaoundé, where some subsequently died from various causes. One ecoguard near the Dja Reserve reported that in the weeks following a law enforcement gun seizure sweep, ecoguard patrol teams found 300% more elephant carcasses than in the month preceding the raid. Even if this figure is an exaggeration, an increase in the use of illegal arms and illegal poaching immediately following gun seizures clearly suggests that current law enforcement efforts could be defeating their intended purpose. Rapid intervention tactics by BIR to seize illegal arms, which include force coupled with little to no communication with communities to explain the rationale behind gun seizures, could have an unintended backlash on wildlife populations. Most AK-47 seizures, however, have been a result of village informant networks (COVAREF) (Njiforti, pers. comm., 2011).

Figure 7. Location of hunter camps in BBNP burned 2002 – 2004 (Source: Bene Bene & Nzooh, 2005)



## Locations of hunting camps

**Figure 7** shows hunter camps in the BBNP destroyed in 2002, 2003 and 2004 by park ecoguard patrol missions (Bene Bene & Nzoo, 2005). Hunter campsites shown reflect the easy access to the park from the south-eastern and north-western corners. Rivers facilitate movement within the park as well.

The latest anti-poaching missions took place outside of parks (Mefire & Mounda, 2010). The focus of these missions was to address the problem of illegal hunting in community forests, community hunting zones and sport hunting zones outside of park boundaries. Several illegal hunting camps were burned in community forests, although local communities have rights to hunt traditionally in community forests outside of protected areas.

Due to the short time frame for this pilot study and the systematic practice of burning hunter camps discovered during patrol missions, it was not possible to visit hunter camps. The BBNP MIKE representative stated that since the establishment of parks and the inception of regular patrols, hunter camps were found less and less frequently in association with elephant kills.

## Financing the hunts

Urban middlemen (*commanditaires*) commission rural middlemen or lead hunters to organize a hunting party in a specified location. They provide funds to cover the cost of food and a stipend for approximately two weeks for the entire hunting party. Normally, the *commanditaire* is solely interested in ivory and will therefore fund a two to three person hunting party (~US\$ 100), provide or rent the gun (US\$ 100, if rented) and provide the appropriate bullets (US\$ 30-36 each). Therefore, hunting missions around BBNP normally cost the middleman between US\$ 320 and 344, plus US\$ 156-180 extra for food and supplies. This high cost explains why most hunters must rely on ivory trader-initiated elephant hunts. Even the cost of bullets and a gun is more than an average rural hunter

could afford to risk. Hunters reported that the probability of finding big tusks is reportedly lower than a decade ago.

Baka hunters in Banana village, near Moloundou, and Nomedjoh, near Lomié, were generally hired by Bantu lead hunters to kill elephants. These Bantu hunters had in turn been hired by middlemen, and in rare cases, they funded the trips themselves. Most missions consist of a lead Bantu hunter, hired by an urban ivory middleman, with two Baka trackers. Trackers were in some cases the primary shooters, given their recognized expertise in elephant hunting.

**Table 9** depicts anecdotal information provided by hunters in Yokadouma and Moloundou regarding income that is received by hunters. Hunters working for a *commanditaire* receive approximately US\$ 100 (FCFA 50,000) plus the meat and other hunt trophies that they can use or sell. Hunters funding themselves sell the ivory and divide the proceeds. Hunters selling to middlemen near the park areas received from middlemen prices ranging from US\$ 26/kg for 1-5 kg tusks to US\$ 30/kg for 5-10 kg tusks and US\$ 40/kg for >10 kg tusks. If they transported the tusks to Yokadouma, they could sell the same weight classes at US\$ 36/kg, 40/kg and 60/kg respectively.

## Weapons

The only type of weapon identified to kill elephants was a firearm, although metal tow-cables are known to be used as well (Nchanji, 2005; Oumaro & Abana, 2010). Most hunters used large-bore rifles (.458 and .375 calibre) said to be military weapons originating from the army, and one hunter occasionally used an AK-47 automatic rifle rented from the owner who lived in ROC. With the exception of one hunter, all hunters used a gun supplied to hunt elephants. Specifically, eight hunters used guns belonging to the ivory dealer ordering the hunting expedition, and two used guns belonging to the sport hunting companies employing them to hunt with tourists. Imported big game rifles cost well over US\$ 1,000 in Cameroon (Nchanji,

**Table 9. Examples of hunter compensation**

Location	Commanded Ivory Mission	Self-funded Mission
Yokadouma area	US\$ 100 hunter payment + US\$ 500 mission costs/workers + meat	US\$ 36/kg for tusks weighing 5-10kg (e.g. US\$ 360-720 for 2 tusks) + meat, tail, etc. (if taken)
Moloundou area	US\$ 100 + US\$ 500 mission costs/workers + meat	US\$ 30/kg for tusks weighing 5-10kg (e.g. US\$ 300-600 for 2 tusks) + meat, tail, etc. (if taken)

2005) and bullets are very expensive, priced individually at US\$ 30 to 36 in the south-eastern regional towns of Yokadouma and Moloundou. Home-made guns and 12-gauge shotguns are known to be used for elephants as well. Hunters or bush artisans melt down 12-gauge bullets and mould them into a single large bullet fired with the 12-gauge cartridge (Nchanji, 2005).



**Bullets made from melted shotgun pellets to be fired from 12-gauge shotguns or home-made guns**  
(Source: Nchanji, 2005)

A review of weapons and bullet seizures in reports made by the Department of Wildlife and Protected Areas of MINFOF (Dandjouma 2001, 2002, 2004, 2005) and of the LAB programme (Fouda, 2007, 2008, 2009, 2010; Oumarou & Abana, 2010; Nzooh, 2009) showed that by far the most common weapons seized were 12-gauge shotguns and home-made guns, followed by .458s and .375s. AK-47s are seized more commonly now than previously, mainly near the CAR and ROC border areas (Oumarou & Abana, 2010; Anon., 2009, 2010).

### Hunting Season

The legal hunting season occurs from mid-December to the end of July each year. Poachers hunt elephants mostly during the rainy season (May - June, September - December). This coincides with the wild mango season and the low season for cocoa harvesting. Cocoa farming is a primary source of income for part-time hunters, whereas full-time hunters rely primarily on hunting returns year-round. Hunting elephants and wild animals in general is made easier in the rainy season due to muffled footsteps and increased animal mobility as they search for ripe fruits.

Hunter informants who were also sport hunting assistants occasionally hunted elephants for themselves during the legal hunting season.

### Sport Hunting

Sport hunting must be carried out in designated areas (i.e. ZICs or ZICGCs) and with the firearm and ammunition specified for the species to be hunted. There are three types of hunting permits: (1) Small game, (2) Medium game and (3) Big game. Each type has three

classes: (a) Nationals, (b) Residents and (c) Tourists. Each permit type and class has a different fee, which rises with the number of species the hunter wishes to hunt (Dandjouma, 2005).

An Internet search found three French, one American and one Zimbabwean hunting companies operating in the south-east, all of them offering elephants as one of the game species. There are also local operators. There are six hunting blocks near BBNP, Lobéké and Dja National Reserve. A 15-day hunt costs a minimum of US\$ 30,000 per hunter, plus hunting license (US\$ 1,350), taxidermy fees, trophy shipping fees, gratuities to staff and other costs. An elephant trophy fee is about US\$ 7,000 (Euro 5,000) for Tourist class. Companies recommend that a .375 rifle with magnum ammunition be used for large game such as elephant. A single hunt for an elephant, with three to six other species (bongo, forest buffalo, sitatunga, pigs and duikers being the main ones), can cost a hunter over US\$ 50,000, not counting airfare and other travel costs (Global Sporting Safaris, 2011).

The CITES Trade Database (2011) Gross Export table showed that between 1990 and 2010 some 2,981 tusks were exported. These must have been sport-hunted trophies, as any other type of tusk would have been illegal to export, or import at destination, after the CITES ivory trade ban. The numbers have declined considerably in recent years from the early 1990s. Only 483 tusks are reported as having been exported 2000-2010 by the CITES Trade Database (2011).

In the words of a Lomié hunter: *'Stop safari hunting, and explain to people why killing of some animals is not good. They will understand and stop hunting. But hunting cannot stop when only poor villagers are told not to hunt in their ancestral lands while outsiders kill any kind of animal as they wish.'*

Four hunters (LH1, LH2, YH2, YH3) believed sport hunting was responsible for decreasing elephant numbers. YH2 cited that during the dry season you could not see any elephants outside of sport hunting zones because they used the salt pans to draw in all the elephants. There is quite a bit of misconception and resentment regarding sport hunting laws. Some hunters believed that as many as 300 elephants could be killed in one year in one sport hunting zone, and some hunters believed that foreign sport hunters are allowed to use AK-47s in these zones. In fact, the BBNP MIKE site Deputy Officer reported the problem of unsanctioned poachers with AK-47s killing elephants in the sport hunting zones. The AK-47 is not an approved hunting weapon under the law.

## Knowledge of Wildlife Laws

All but one hunter interviewed were aware of the legal consequences and laws regarding hunting elephants. Many hunters cited the 1994 law and could name the hunting season, the legally hunted animals and the potential legal consequences should one be caught with illegal products.

## Transporters and Middlemen

### Elephant Meat

Five elephant meat middlemen were interviewed for this study in Yokadouma, Yaoundé, Polido'o and Djaposten villages. Informants in this study included primarily women (80%), two restaurant owners and one president of a bushmeat collectors' syndicate in Yokadouma (i.e. the one male interviewed in this category). Apart from two Eton and Nzeme (Bantu) informants, no ethnicity was given for the other respondents. Most middlemen had established family and/or ethnic ties to their meat source villages.

Many elephant meat middlemen, including women, transported and traded in meat, thereby playing both the roles of transporter and intermediary between hunter and buyer. The meat is also transported by the trucks of logging companies, hired private cars of individuals and NGOs and business vehicles that transport meat without trading in it.

Female urban middlemen also come to rural villages bringing provisions and ammunition concealed in handbags or bras, establishing themselves in a village to wait for hunters to return with wild animal meat. Once they have a sufficient amount (from US\$ 300 to 600 worth of meat), they return with their merchandise to the city to sell meat until the stock is depleted. They then return to buy again, and the cycle continues. Middlemen exist in multiple locations along a bushmeat chain. There are locally based middlemen and women who store meat to sell to urban based middlemen who travel from Yokadouma, Moloundou, Bertoua, Abong Mbang and Yaoundé to purchase meat that they then resell to vendors in their originating cities.

For meat coming from the east, it may pass through three or more middlemen traders before arriving at the urban market or restaurant. This type of work requires a base capital of at least US\$ 200, thus excluding many young or poor traders.

There are seasons when bushmeat is acquired more easily and seasons when the law enforcers come down on traders more actively and with more frequent bribe requests or the surprise seizure of illegally hunted and traded meat. Meat is more available from March through November (the rainy period), whereas law enforcement is, in theory, heavier from August to December, the closed hunting season.

Middlemen reported that elephant meat has become extremely rare. YT2 warned that this does not mean that the killing of elephants has declined as many hunters now kill elephants and abandon the carcass after removing the tusks. Law enforcement informers posing as buyers of endangered meats have further deterred rare meat sellers and middlemen.

The middleman selling price for elephant meat more than tripled between 2005 and 2010, according to three informants (YM1, YM2 and MM1). The first two said that a *morceau* ('piece') of smoked meat sold for US\$ 6 in

2005 and US\$ 20 in July 2010. MM1 reported an even higher rise, with a piece selling for US\$ 2 in 2005 and US\$ 8 in 2010. Another middleman in Polido'o gave the 2010 selling price as US\$ 16-20 for a piece, but provided no past prices. Pieces were estimated to range from 2 to 5 kg in weight. Unfortunately, the weights of the pieces associated with the prices are not known, so the reported price information only reflects price changes, not absolute prices per kg at a point in time.

One 37-year old female meat trader recounted how in the past she used to accompany hunters into the forest. *'It can take about three days trekking in the forest to see the first signs that an elephant has passed around an area days before. The hunting party then trails the elephant for days to catch up with it. Last time I accompanied hunters to the forest, four elephants were killed.'*

Realizing that increasing numbers of people were becoming aware that she was involved in this business, she decided to stop accompanying hunters. She now runs a bushmeat restaurant in Yokadouma where she prepares elephant meat from time to time for her most trusted and reliable clients only.

### Ivory Transporters

From Moloundou and Lomié (MT1, MT2 and LoT1) transporters reported receiving US\$ 80-100 from middlemen to transport ivory. Four truck drivers recalled transporting ivory four times in the past year. Ivory was hidden in many different ways: inside the truck driver's door frame, inside the engine, stuffed in large sacks full of cocoa, dried fish or other agricultural goods, or placed between logs on logging trucks.

Transporters in general are young men (26-30 years old) of a variety of ethnic groups: Beti, Bulu, Nzeme/Fang, and two Bakweli from Congo. They transport ivory generally at night by canoe, or by road using a taxi, hired car, logging truck, motorbike or, in the case of PT1, by private car with other agricultural goods in the vehicle. Transporters sometimes were commissioned to go to locations to retrieve ivory and take it to a regional or large city. In Ndongo, located on the border with Congo, just west of Moloundou, transporters moved goods between the two countries charging transport fees for items including ivory, based upon the weight, quantity and value (and risk associated) of the item as well as distance to travel.

Some transporters were quite open in sharing information about the middlemen and dealers they had worked for (e.g. police commissioner of one of the study sites and a cocoa producer in Moloundou). For more in-depth discussion on transportation means and actors involved, see the Transportation and Social Network Discussion sections below.

### **Ivory Middlemen**

This information is drawn from a sample of five middlemen in three locations (Moloundou, Yokadouma, Ndongo). The five middlemen informants were generally men in their 30s, three of whom were farmers, with one motel caretaker (Moloundou) and one Catholic priest (Socambo, interviewed in Yokadouma). Informant

middlemen were Bamileke, Beti, Bakweli Congolese and Mvongvong. Ivory sales were organized with a wide range of dealer types, including a brother jeweller in Yaoundé, a businessman in a Yokadouma hotel, an army officer in Yaoundé and a trader in Moloundou.

Further information on middlemen was gathered from WWF and MINFOF staff who work to intercept illicit trade in wildlife products. Although several attempts were made to engage and interview a Hausa middleman, this proved too difficult without a Hausa speaking RA. The following information should be used as a guide to gather additional information in a follow-up study rather than as conclusive information.

Middlemen can be non-local, sometimes Hausa, Bamileke, Anglophones and sometimes, in border towns, they are immigrants from a neighbouring country who manage the trade of ivory and other forest products between countries. They may live in local towns where they can easily access hunters and also coordinate logistics. They usually have many connections to facilitate the operation of an illegal trade and have the most to lose in sharing information. Middlemen are generally employed in other jobs, such as cocoa and timber trading and charcoal sales, or they may be restaurant owners or government workers, sometimes high ranking, (e.g. arrests by LAGA of top-ranking officials), as they need capital with which to purchase tusks. One ivory



**Middleman smuggling tusks from CAR to Cameroon by pirogue** (Photo: Karl Ammann)

middleman informant lived in Djaposten village near Lomié and sent hunters to the forest to shoot elephants. Tusks are stored in her charcoal shop to await a buyer.

Only in one instance was ivory observed during the study. YM5 presented a small tusk weighing approximately 2 kg to RA2 in Yokadouma, asking US\$ 54 for the tusk, or US\$ 27/kg. Ivory prices provided by other informants in Yokadouma indicated a 30-65% increase in the cost of ivory from 2005 to 2010, in response to higher demand and increasing legal and economic costs for trading in ivory. One middleman claimed that demand from urban buyers was much greater than the supply they could acquire. Reported prices in Yokadouma were US\$ 36/kg for tusks of 5 kg, US\$ 40/kg for 5-10 kg tusks and US\$ 60/kg for >10 kg tusks.

YV6, a woman owning a restaurant near the Yokadouma bushmeat market, believed that, *'Elephants can never be exhausted from our forest. At the rate of killing they can be reduced, but they won't be exhausted.'*

Many Cameroonians share her belief, highlighting a problem of perception that urgently needs to be addressed.

Close to the MIKE site in Ngato village, no elephant meat vendors or selling points were identified. Persons working in a handful of street-stall restaurants and the open-air market claimed not to sell elephant meat. Similar results were obtained in villages on the southern edge of the park, near Moloundou. The research team was told that Lomié and Yokadouma early morning markets sell elephant and other rare meats sourced from surrounding rural areas and national parks. In Lomié, due to the LAB raid the week prior to

this study, the market had ceased to operate during the study period. The vendor informant in Lomié informed the research team that the elephant meat she had bought had dropped to US\$ 2/kg and she sold it for US\$ 6/kg. The reason given was that suppliers were afraid to be in possession of the meat and preferred selling it at a loss than risk losing all profit should the meat be seized. She took the risk to care for her children. No restaurants or further vendors admitted selling elephant meat in Lomié.

The Yokadouma market had 16 tables and 15 women vendors, selling different kinds of bushmeat including red-tailed monkeys, forest antelopes, porcupines and pangolins. Elephant meat vendors and restaurant owners were predominately female, between the ages of 30 and 55 and originating from Bantu south-eastern, forest-based ethnic groups. The bulk of the bushmeat (about 80%) was smoked and only a small proportion was sold fresh. Ngato village, the northern entry point for BBNP, Mambéle and villages along the Moloundou - Yokadouma road were identified as key source villages for elephant meat in particular.

Middlemen traders brought the meat to the 5 a.m. market where they sold it to vendors, restaurant owners and middlemen from cities, most of whom were unlicensed. Vendors recounted that they feared selling protected species in the open markets in the region. This meat was only sold to well known customers in hidden corners outside the market.

## Elephant Meat Vendors

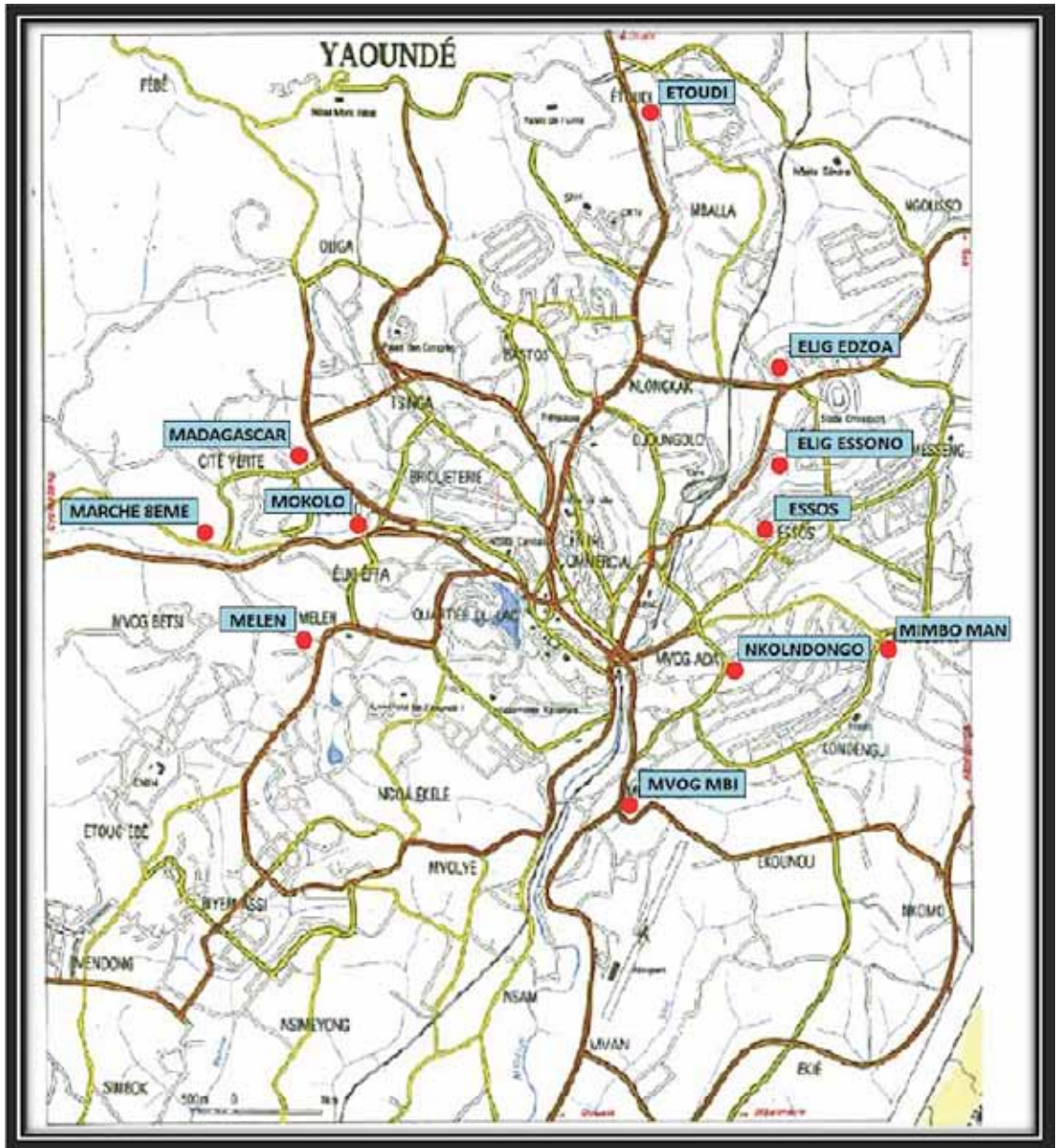
Vendor informants from Lomié (1), Djaposten (1), Polido'o (1), Yokadouma (6) and Yaoundé (20) contributed to the information on vendors. Given the coincidental timing of this study closely following LAB law enforcement raids in villages across the south-east, the research team faced significant challenges to find willing informants in many locations, especially in rural areas but also in Lomié and Abong Mbang, which LAB had raided for illegal arms one week prior to this study.

Vendors in all locations normally purchased and sold elephant meat in *morceaux* ('pieces'), with weight ranging from 2 to 5 kg each, averaging about 3 kg, according to estimations made by research assistants, in the absence of scales. Variables that appeared to impact on price were elephant meat availability in the region (lower prevalence was correlated with higher prices as well as recent law enforcement raids, which, according to vendors, led to an increase in prices). Market vendors in Yokadouma and Yaoundé most often sold whole morsels directly to elite restaurants or outside of the market to trusted individual customers.

Meat vendors interviewed reported selling elephant meat between two to five times per year, depending on availability. There was little variation between urban, regional and rural locations. Lack of market data on



Figure 8. Map of bushmeat markets in Yaoundé, Cameroon



In 2009, all meat markets in Yaoundé were systematically surveyed and geo-referenced for bushmeat sales (Randolph, in preparation). Ethnographic observations and interviews were also carried out with bushmeat vendors, traders and consumers over an 18-month period with the aim of determining social networks facilitating the trade and motives for consumers and traders. Of the 15 open-air market places, 11 were determined to sell bushmeat, including vendors in three markets selling elephant meat sporadically, and on command, discretely under the table or more often, outside the market (Figure 8).

Rodents, monkey species, forest antelopes, snakes, lizards, tree pangolins and wild boars accounted for over 90% of the wildlife sold openly in markets. Buyers of protected species (class A and B) were primarily resellers (i.e. restaurant and hotel owners) and business people, but law enforcers and government officials also comprised about 12% of protected species buyers, pointing to a serious issue of complicity and participation of law enforcers in the trade. Class A species, such as chimpanzee, gorilla and elephant meats, were primarily sold outside of markets by market vendors or commissioned directly from middlemen at the source

to individual elite consumers and restaurant/hotel owners in Yaoundé. Some class A species that were less contentious and thus less risky, such as crocodile and certain snakes, were sold out of storerooms directly adjacent to markets. The train station (Elig Essono) and Elig Edzoa markets provided meat primarily delivered by the train line from the northern and eastern regions of the country. Nkolndongo market sourced meat from the east, south and centre regions which arrived by bus and private car. This market was also the primary selling point for fresh and live wild animals in Yaoundé. In total, Yaoundé markets had about 50 tables and 61 sellers



Smoked elephant meat (Photo: Dan Stiles)

selling bushmeat. Only three sellers admitted to selling elephant meat.

Vendor buying and selling prices for elephant meat are documented below (**Table 10**). These prices are per kg, based on an assumed 3 kg per morsel average weight. Given the tough penalties for detection of illegal meat in markets and restaurants and high seizure rates, elephant meat supply was reportedly low, while demand from elite consumers remained high, driving a high price in regional and urban sale points.

Some 185 restaurants, hotels and eating stalls in Yaoundé sold wild meat (including eight elite restaurants admittedly selling elephant meat on command). Restaurants selling elephant meat were primarily elite restaurants, located in or near the centre of town, serving to foreigners or wealthy business or government workers from southern Cameroon.

Restaurant prices in **Table 11** reflect the price for one plate of different bushmeats in four restaurants that served elephant meat in Yaoundé. Restaurant class greatly influenced average price per portion and portion size. Elephant meat weights and portion sizes were not estimated for restaurants, but these factors should be accounted for in future analyses to determine price per kilogramme in restaurants. The price of elephant meat from the one out of ten restaurants visited in Bertoua that admitted to selling elephant meat was US\$ 2 per serving. The patrons sampled were asked to rank their preference for elephant meat on a three-level scale of high, moderate and low. Elephant meat was ranked as 'high' by all of them.

Knowledge of laws protecting elephants was evident everywhere. Elephant meat was rarely sold in the open market or openly in restaurants, indicating a general knowledge that elephant meat would be seized if found by the authorities. Rather, vendors would conceal meat

Table 10. Vendor buying and selling prices of elephant meat in US\$/kg

Year	<10 km BBNP		Lomié/Djaposten		Yokadouma		Bertoua		Yaoundé <sup>5</sup>	
	Buy	Sell	Buy	Sell	Buy	Sell	Buy	Sell	Buy	Sell
Aug. 2010	2	-	2	3.33-6	3.34-6.67	7.67	6.70	10	10	13
Aug. 2009	-	-	3.33	-	-	-	-	-	-	-
2005	-	-	-	3.33	2	3	-	-	-	-

<sup>5</sup> Stiles observed eight long strips of smoked elephant meat in the Elig-Edzoa market in June, 2010. The strips were estimated to weigh 4 kg each and were priced at FCFA 15,000 each, or about US\$ 7.50/kg.

**Table 11. Bushmeat serving prices in restaurants/chop shops in Yaoundé (in US\$)**

Yaoundé	Elephant	Gorilla	Chimpanzee	Monkey	Porcupine
Restaurant 1	10	10	10	10	10
Restaurant 2	25	25	25	10	10
Restaurant 3	2				
Restaurant 4	18				

under the table or only offer meat on a command basis. In Lomié and Yokadouma, hunters and local middlemen delivered both protected and non-protected species meats to early morning (5 to 7 a.m.) markets. Most of the buyers were itinerant vendors or middlemen who owned restaurants or street-side cooking stalls. Other middlemen (called *buyam sellam*) bought meat to resell in urban markets. The administrative difficulty and cost involved in obtaining collection licences or hunting permits probably explains why most hunter-traders, middlemen and vendors do not bother trying to obtain them.

In sum, elephant meat has a high return for vendors at the regional level (i.e. some Yokadouma vendors made over 100% gross profit), which drops as it moves further from the source (Bertoua 49%, Yaounde 30%) (see **Table 10**). However, according to middlemen informants, high potential gain comes at a legal and economic risk, as the number of seizures and arrests continue to rise due to efforts by LAGA and LAB. This makes it difficult to penetrate and investigate the trade because so much of it now occurs outside of the public view.

## Elephant Meat Consumers

Consumers of elephant meat were assessed based on the case study leader's unpublished thesis data in Yaoundé and Abong Mbang. Elephant meat is reserved for elite consumers as it usually costs more than anything else on the menu. Restaurant owners in Yaoundé reported that predominately elite Cameroonian business people and government officials as well as white foreigners consumed elephant meat. Given the secretive

nature of its provisioning and sale from rural villages and towns in the East Region to the capital city, many customers who consume elephant meat had personal relationships with the restaurant owner. The restaurant owner alerted regular customers of the arrival of elephant meat. Then the cook prepared the exact amount of plates requested.

Elite consumers of elephant meat often refer to it as 'sweet meat' – a phrase used to refer to fine quality meats, usually applied to rare meats, such as gorilla, chimpanzee, crocodile, giant pangolin and elephant meat. It is a high status meat, served at special occasions.

## Prices of elephant meat compared to other meats

The prices of various bushmeats are provided below compared to elephant meat (**Table 12**). Prices are in US\$ measured per kg for beef and fish and an estimated price per kg based on prices for whole live animals for sheep, goats and pork and chicken. Yokadouma and Bertoua prices were gathered during this study and Yaoundé prices were obtained from a February 2010 *La Voix du Paysan* farmer's journal, which collects and publishes averaged agricultural and meat prices from key cities on a semi-monthly basis.

Yaoundé beef prices reflect the price of open market butcher cuts with bones up to high quality boneless cuts in supermarkets. Frozen mackerel was used for fish prices.

**Table 12. Selling prices of domesticated meats and fish compared to elephant in US\$ per kg**

Place	Beef	Goat	Pork	Chicken	Mackerel Fish	Elephant
Yokadouma	4.40	3.28	2.6	6.67	2	7.67
Bertoua	3.90	4.46	3.5	8	1.80	10
Yaoundé	4.38-13.78	6.36	4.66-15.80	5.36-8	1.60	7.50-13

Source: Interviews in each specified site between June and August 2010, with cross-checking for Bertoua and Yaoundé with *La Voix de Paysan* journal (2010) and prices obtained in Casino supermarket in Yaoundé.

**Table 13. Market prices of bushmeat compared to smoked elephant meat per kg (in US\$)**

Place	Duiker	Forest Hog	Monkey	Pangolin	Elephant
Rural:Ngato/Lomié	1	2.20	1.50	1.60 <sup>1</sup>	3.33-6
Town: Yokadouma	2.25	4	3.25	-	7.67
Regional City: Bertoua	3	4.25	4.50	-	10
Capital City: Yaoundé	3.20	6	5	2.77	13

Source: Interviews in each specified site between June and August 2010.<sup>1</sup>Tieguhong & Zwolinski, 2009

If these prices are correct, one can see that the price for elephant meat exceeds that of almost any domesticated meat or fish, suggesting that supply does not meet the demand of elephant meat consumers. The highest beef and pork prices in Yaoundé in **Table 12** were for high quality, boneless cuts in Casino supermarket. Open market (e.g. Elig Odzoa) prices averaged US\$ 5.29/kg for beef and US\$ 4.66/kg for pork; thus elephant is by far the most expensive meat in open markets. Chicken prices were relatively high as well, reflecting another low supply to demand ratio meat option.<sup>5</sup>

Estimated bushmeat prices per kilogramme for duiker, wild hog, pangolin and monkey are shown in **Table 13** for Ngato, Yokadouma, Bertoua and Yaoundé. In the absence of a scale, weights were approximated based upon average weights of duiker (5.11 kg), monkey (4 kg), forest hog (28.3 kg) and pangolin (3 kg). Prices rose steadily from village to the capital city, as the distance to the bushmeat source increased.

As in the case of domesticated meats, if these prices are correct, they appear to indicate a marked status accorded to elephant meat over other bushmeats. Elephant prices were about triple the price of common species such as monkey and duiker. Prices rose to more than three times the highest priced domestic and wild meats (beef and forest hog) in Yokadouma. Elephant prices were more than double the price of common species such as monkey and duiker in Bertoua and Yaoundé.

## Ivory Vendors

The research team conducted a census of ivory workshops in Yaoundé and Douala, based upon existing knowledge of workshop owners and locations gathered during ivory trade investigations. The Project Consultant

conducted brief surveys of arts markets, luxury hotels and former ivory workshop locales where he had found worked ivory being manufactured and sold in 1999 in Yaoundé and Douala (Martin & Stiles, 2000).

In Yaoundé the *Centre Artisanat*, or arts market, has moved from the town centre at Place John Kennedy to the suburb of Tsinga. In 27 kiosks selling tourist knick-knacks, when asked, nine vendors revealed a few pieces of worked ivory hidden under shelves in sacks. No ivory was displayed openly, although there were worked bone items resembling ivory. In all, 88 pieces of ivory were brought out and shown to the investigator. A 20-cm figurine on a tusk started at FCFA 150,000 (US\$ 300) and a 15-cm figurine started at FCFA 100,000 (US\$ 200). There were a pair of poorly carved 38-cm tusks, polished tusk tips sold as paper weights, some poorly made bangles, thin figurines, bead necklaces and other mostly poorly worked jewellery items and figurines. Except for the two fairly attractive figurines priced above, the pieces looked like they had not been sold because of their low quality, suggesting that better made replacements were not being supplied. The vendors said that no ivory was being worked currently in Yaoundé because of recent crackdowns. One vendor from Fouban, located in the north-west of Cameroon, said that ivory was still being worked there. He had four additional ivory items at his home in Yaoundé. No ivory was found in any of the hotel boutiques or at the airport.

In the Briqueterie neighbourhood of Yaoundé, predominately populated by Muslim immigrants from northern Cameroon, RA3 found three ivory workshops, one of which had worked ivory at the time of the visit (July, 2010), including an unspecified number of rings, bangles and small animal carved objects.

In Douala, four ivory workshops and showrooms of worked ivory were found in Aqua, the economic centre of town, in Bonanjo, the administrative centre, and near

<sup>5</sup>Chicken prices are still high following the elimination of low priced frozen chicken imports from Europe in the market in 2009.

the airport. At least 10 additional transient shops were also identified with worked ivory. These shops, located in Aqua and Bonanjo, would open and close their ivory operations based on perceived threats from MINFOF law enforcers, who reportedly regularly raided shops in both Yaoundé and Douala. Ivory working and selling has gone underground rather than disappeared in the principal cities of Cameroon. In one of the main shops in Douala, more than 100 items weighing between 0.1 to 5 kg each were stored and presented to potential customers. Ivory customers in the Douala shops were roughly 60% Chinese, 20% European and 20% African. Ivory vendors in Douala sourced their ivory directly from regions in the south, south-west and east. Other vendors established relationships with suppliers who delivered raw ivory to their shops. Aqua was the preferred workshop location.

No ivory was found in Douala at the art market or in hotels where it had been seen in 1999. Certainly, the amount of ivory being worked and sold today in Yaoundé and Douala would be a small fraction of that seen in the late 1990s.

The small amount of ivory being supplied to the local market in conjunction with evidence for relatively important quantities of tusks being produced from poaching in the south-east and illicitly imported from neighbouring countries strongly suggests that most tusks are being exported. In fact, a tonne of raw ivory was seized in Douala in September 2009 being readied for export. The ivory was thought to originate in Cameroon and Gabon and was assembled by an organized network of smugglers that included Cameroonian government officials (LAGA, 2009). LAGA also tracked down a container with a false compartment that had been used

to smuggle tusks to Hong Kong. DNA analysis of tusks seized in Hong Kong proved they had originated in Cameroon and Gabon (Wasser, et al., 2008).

Ofir Drori, the director of LAGA, has reported the arrests of several ivory traffickers and seizure of tusks and worked pieces (e.g. LAGA, 2009), which has driven traders underground.

In 1999, Stiles (Martin & Stiles, 2000) found a fairly moribund retail ivory market in Yaoundé, with 1,124 pieces weighing an estimated 144 kg seen in total. Thirteen of 38 kiosks in the *Centre Artisanat* sold ivory, along with boutiques in the Hilton and Mont Fébé hotels. Informants were very wary of questioning and would not reveal the number or location of any workshops. The market was much livelier in Douala, where the investigator counted 4,891 pieces of worked ivory weighing a total of 510 kg being sold in 28 outlets, and found seven workshops. Informants said that worked ivory was being exported to Lagos, Abidjan and other West African countries and even carried personally to Europe and North America by traders (Martin & Stiles, 2000). The amount of ivory seen was less than Allaway (1989) had found a decade earlier.

**Table 14** presents a summary of available data on the evolution of tusk prices from 1989 to 2010. The GDP Inflation Index has been applied to all pre-2010 prices to estimate past prices in 2009 US\$ to account for inflation and make all prices equivalent (<http://cost.jsc.gov/inflateGDP.html>).

One can see that prices dropped considerably in inflation-adjusted 2009 prices after the CITES trade ban had

**Table 14. Tusk prices in Douala and Cameroon 1999-2010 in US\$/kg**

Year	1989		1999		2010	
	<5 kg	>10 kg	<5 kg	>10 kg	<5 kg	>10 kg
US\$	42-48	58-64.50	27-29	50	<40	60-120
2009 US\$	62-71	86-96	32-34	59	<40	60-120

Sources: Allaway (1989), Martin & Stiles (2000) and informants in this study.

**Table 15. The domestic ivory market in Cameroon, 1989-2010**

Locality	No. of workshops			No. of outlets			Weight displayed kg		
	1989	1999	2010	1989	1999	2010	1989	1999	2010
Douala	7	7	4	50	21	14	880	510	-
Yaounde	3	1	3	15	14	9	610	144	-

Sources: Allaway (1989), Martin & Stiles (2000) and this study.

been imposed. Prices have risen somewhat in inflation-adjusted terms between 1999 and 2010, although current Douala raw ivory prices need to be researched further. This would suggest that demand has risen over the past decade in Cameroon, particularly for the larger tusks that are most lucrative to export.

**Table 15** presents data on the internal ivory market in Cameroon which demonstrate that in spite of increased law enforcement, ivory continues to be worked and sold, although at an apparently lower level than in 1989 and 1999.



In 1999 worked ivory was openly displayed in abundance in Douala. Today it is hidden  
(Photo: Dan Stiles)

# Discussion

## Elephant meat

In south-eastern Cameroon, there exists both an abundant potential elephant meat supply and latent high consumer demand, with a possibility for considerable economic gain by hunters, middlemen and vendors, but the motivation and ability to kill elephants for meat is curtailed by a relatively effective law enforcement campaign being waged by the Cameroonian government (MINFOF and BIR) in cooperation with WWF (the LAB programme) and LAGA. Under the TNS programme, wildlife law enforcement extends to north-western ROC and south-western CAR. The only cross-border bushmeat trade in south-eastern Cameroon presently known is from the Socombo area about 8 km to Ouessou in ROC.

Lack of availability of elephant meat in markets and restaurants is also a result of the high labour demands of transporting the potential one tonne of smoked elephant meat from a single carcass out of the forest. The average porter can carry about 40 kg of meat on his back for a 20-30 km, two-day hike. Porters are also needed for tusks and other bushmeat, while other trophies, weapons and ammunition have to be brought out as well. It would take 25-30 men to transport it all in one trip, which virtually never occurs. The largest hunting party documented in this study was 15, and the porters carried off approximately 600 kg of smoked meat (40 kg per person), the largest quantity reported (informant YH4). If elephant meat is taken at all, however, it is usually only 50 to 250 kg. Only three of 11 informants reported taking meat from their last elephant hunt. Hunters reported that more meat used to be taken in previous years, but that fear of apprehension had reduced the number of those willing to spend the time to smoke the meat and attempt selling it.

The costs of mounting elephant hunts for meat compared to hunting other bushmeat species, both for subsistence and commercial purposes, also requires further research in order to better assess the potential economic gains that could drive motivation to kill elephants for meat. It appears safe to say that hunting for elephants is more expensive than subsistence hunting because specialized firearms and expensive ammunition are needed and an elephant hunt usually lasts much longer than hunts for other animals. A typical subsistence hunt would be one to two days, while elephant hunts can be several days up to a month. The shortest elephant hunt reported in this study was eight days and the longest was 34 days. The average size of hunting parties was 5.4 people,

with a range of two to 15. It would appear that the average number of people in an elephant hunting party is much larger than for subsistence hunting, also making elephants more expensive.

Elephant meat appears to be the most expensive meat of all those for which prices were obtained, but further research is necessary both to confirm the prices given by a few informants over a short period of time, and to obtain market prices of other fully protected species such as great apes. Initial consumer information suggests that elephant meat in urban areas is in high demand by the wealthier segment of society more for cultural reasons than for taste. The elephant has high status because of its rarity and perhaps because it is a protected species and enjoys a reputation as a powerful beast. The consumer, or the person offering the meat in a communal event, may gain status by association. More research is needed on the question.

Elephant meat trading could perhaps be done legally. Under current laws, collection licenses, which allow commercial utilization, can be issued for Class B species. Elephants with tusks >5 kg are Class B. Hunters with valid permits for Class B species can also dispose of meat and trophies from kills, as long as all fees and taxes are paid. The reason why so few people choose to trade legally also needs to be investigated further. One hypothesis is that it is simply too difficult to prove that the meat was obtained from a Class B elephant, since the carcass is far away in the forest and the tusks were transported elsewhere. In addition, it would not be feasible for all of the middlemen and vendors in a long and diverse commodity chain to obtain licenses for the meat from the same elephant.

The announcement by MINFOF in early 2010 that bushmeat could not be transported by rail, logging trucks or public transport and that only unprotected species were to be sold in designated markets, places the legal articles in *Law 94/01* and *Decree No. 95/466/PM* in doubt. Elephant meat was singled out in the MINFOF announcement as being illegal to sell. No official amendment to existing laws has been seen, but statements and actions by the government and those supporting wildlife law enforcement (e.g. WWF, WCS and LAGA) appear to treat all trade in elephant products as illegal.

# Ivory

Ten of the 11 hunter informants reported that ivory was the primary motivation for killing elephants. All of the hunters worked on the orders of a middleman (*commanditaire*) who financed the mission and in eight of the cases provided the primary hunt weapon and ammunition. These middlemen were all interested in receiving tusks in return for their investment, not meat. A single hunt cost a *commanditaire* several hundred US dollars; he expected therefore as many of the largest tusks as possible in return, as larger tusks receive higher prices per kg. Assuming it cost a middleman US\$ 600 to finance a hunt (see **Table 9**), another US\$ 100 in transport costs and bribes and US\$ 50 in marketing expenses (total of about FCFA 375,000, a large sum in Cameroon), and that he could sell the tusks at an average of US\$ 50/kg, he would need 15 kg of ivory to break even. That should not be difficult to achieve.

Large bore rifles (e.g. .458) and ammunition for them are extremely expensive in Cameroon (Nchanji, 2005), so poor rural hunters usually need someone to finance their elephant hunting missions. There is some uncertainty about the types of weapons used. A .458 bore rifle was the most common one reported by hunters, but they said that these were military weapons originating from the army. The only .458 military weapon that could be found in an Internet search was the American army M-16 that was modified to use a .458 SOCOM cartridge (Wikipedia, 2010). It is very unlikely the hunters were using M-16s. It is more likely that they were using big game hunting rifles. WCS found that elephant poachers used Czech-made and Winchester .458s in south-western Cameroon (Nchanji, 2005) and the situation is probably the same in the south-east. There is an increasing problem of AK-47 military arms brought in from neighbouring countries being used in south-eastern Cameroon (Anon., 2009, 2010). Due to civil strife in CAR and ROC, military firearms, mainly AK-47s, were imported in great numbers and distributed to hunters (Berman & Lumbard, 2008; Demetriou, et al., 2001).

**Table 16** shows ivory prices over time, according to informants, although this information needs to be verified by further research. The village prices are those hunters receive, regional town prices are what middlemen sell ivory for in places like Yokadouma or Bertoua and the capital prices are those paid to middlemen by ivory workshops or exporters in Yaoundé.

Cameroon has been cracking down on ivory trafficking, working and selling in recent years in response to pressure from CITES, conservation NGOs (principally WWF and WCS) and LAGA. This has forced domestic ivory working and selling underground, but evidence gathered in this study indicates that ivory markets still operate in the country and recent ivory seizures reported by TRAFFIC (2010) and ETIS (Milliken, et al., 2009) demonstrate that raw and worked ivory continues to be smuggled out of the country. Ivory trading remains a highly profitable undertaking, which means that it will be very difficult to control.

## Social Networks and Commodity Chains

Social actors in the elephant meat trade include hunters, middlemen, transporters, vendors, consumers and law enforcers. Relationships between these actors facilitate this trade, as detailed in each section of this report.

The two social networks displayed below (**Figures 9 and 10**) depict a simplified typical elephant meat trade network and a typical ivory trade network from the Boumba-Bek region to the final selling point. Social networks are comprised of nodes, individuals within a network, ties, relationships between nodes, and clusters (groups of nodes), where one or more node has many ties. The actors are labelled according to their job or role as it relates to meat or ivory. The strength of the ties is indicated by the thickness of the line.

In the meat network example, hunters, generally commissioned for ivory hunting, contact Baka trackers

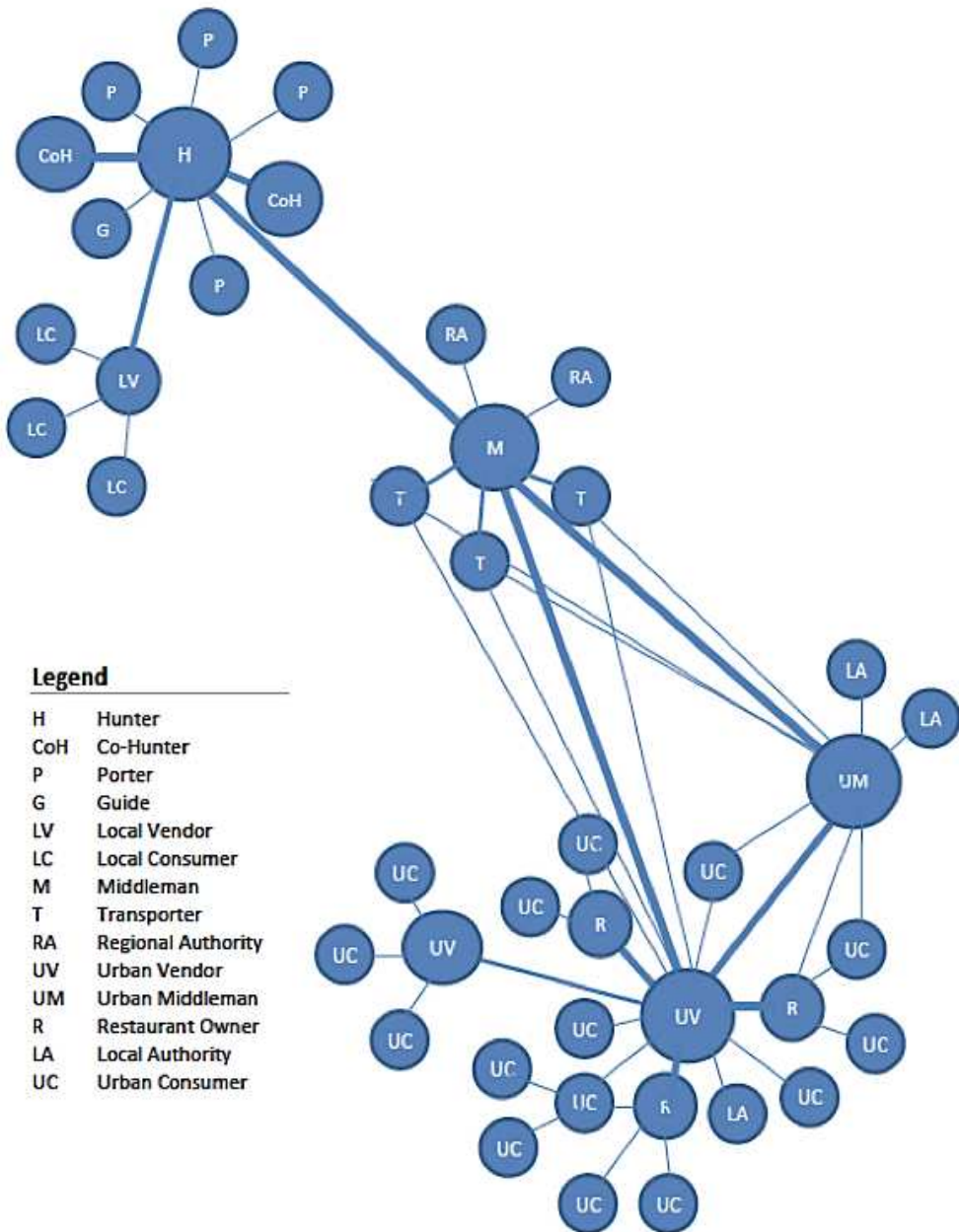
**Table 16. Changes in ivory prices over time, US\$/kg**

Year	Location	Village			Regional town			Capital		
		1-5 kg	5-10 kg	>10 kg	1-5 kg	5-10 kg	>10 kg	1-5 kg	5-10 kg	>10 kg
Aug. 2010	Ndongo	26	30	40						
Aug. 2010	Yokadouma				36	40	60			
Aug. 2005	Yokadouma					30	36			
Aug. 2010	Moloundou				26	30	40			
Aug. 2010	Yaoundé							40	50	60-120

Source: Averaged prices based on interviews with hunters, transporters, middlemen and vendors in specified locations between June and August 2010.



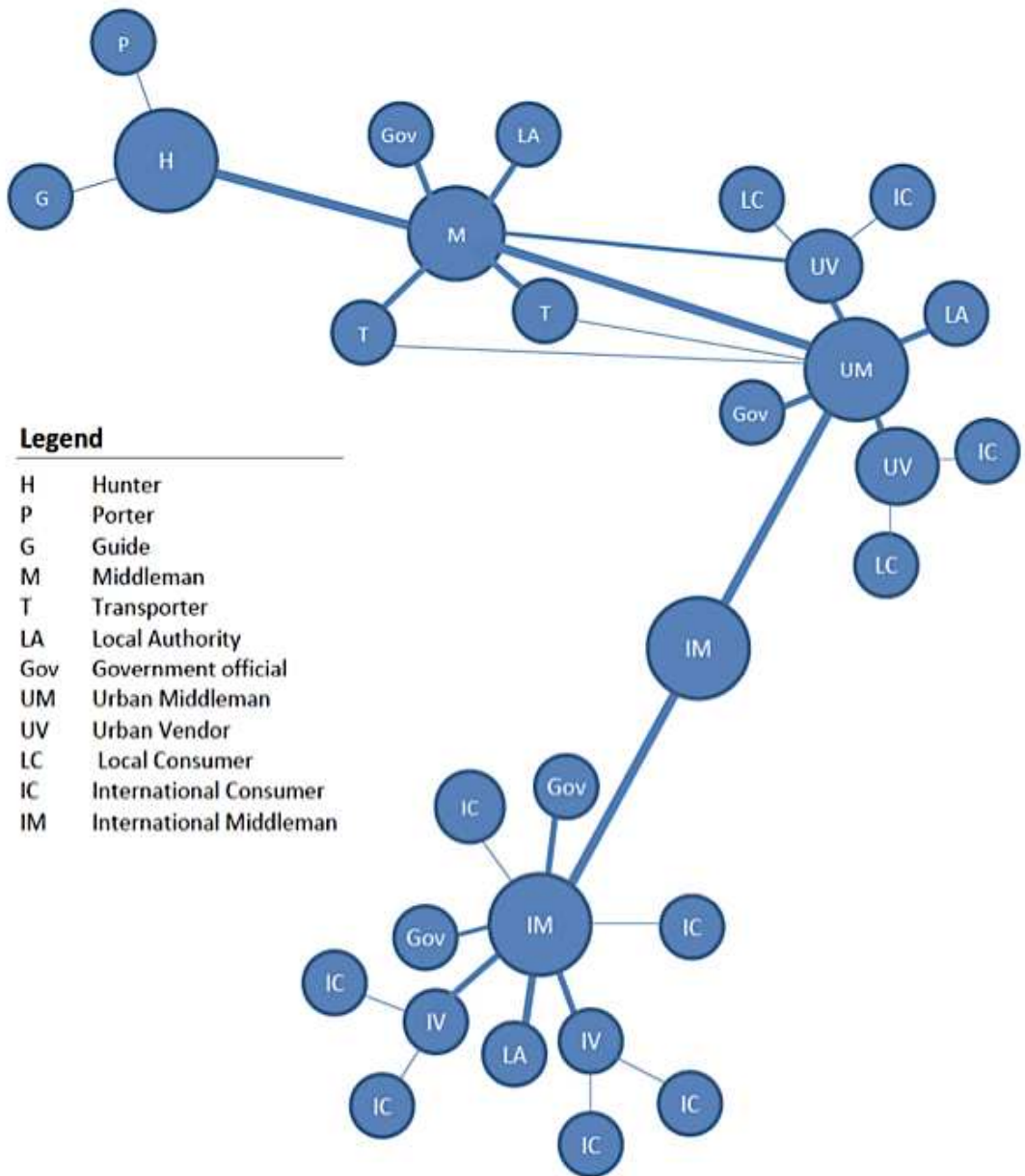
Figure 9. Elephant meat social network example



and porters to assist in carrying the meat back. Hunters have ties to transporters and local vendors who may sell to local consumers. Hunters also have ties to middlemen who have relationships with local authorities and transporters to facilitate the trade. They resell the meat to urban vendors and consumers. Sometimes urban consumers buy elephant meat for special ceremonies and thus have ties to many other consumers who will also eat the meat. Urban vendors can also sell to other market vendors as well as to elite eating establishments.

Hunters can bring meat back to the village and share or resell it to people locally. Alternatively, they can inform a meat middleman that they are going to hunt an elephant and see if that person wants to organize a smoking and porter team to carry out the meat. This happens less and less today as people fear being found near the carcass, and meat harvesting takes days or weeks to complete. A third option for the hunter already commissioned to hunt for ivory is to organize an elephant meat collection system with fellow hunters, porters and a meat middleman. A transporter is then connected to the hunter

Figure 10. Ivory social network example



**Legend**

- H Hunter
- P Porter
- G Guide
- M Middleman
- T Transporter
- LA Local Authority
- Gov Government official
- UM Urban Middleman
- UV Urban Vendor
- LC Local Consumer
- IC International Consumer
- IM International Middleman

and to villagers who receive the meat gifts and purchase the meat. These hunters share meat with local villagers when they return and sell meat to middlemen who come to the village or directly to vendors in the nearest town. Vendors then utilize their relationships with law enforcers to facilitate the movement of the elephant meat in urban centres, where it is sold to consumers.

Transportation to the road is generally completed in about two days as it is done on foot. Once the meat reaches the road, the Baka trackers take their share (which is usually a portion of one leg or shoulder meat). The rest

is transported to Yokadouma by hired car in the middle of the night. Police officers at checkpoints are fully informed by the hunters or transporters that they are carrying elephant meat. The officers in turn update the transporter or hunters whether there is anything they should be concerned about as they transport their products. Once in Yokadouma, middlemen sell to vendors who quickly buy the meat. Ivory is simultaneously discretely sold to Hausa or elite middlemen for onward transfer to urban centres. In the ivory network example, a (Bantu) hunter is connected to a (Baka) guide and porter. A middleman (M) commissions the hunter to hunt. A Middleman has

ties to or is a government official. He has ties to local authorities and transporters who facilitate the trade to urban centres, where the ivory is sold to ivory vendors who work the ivory for resale to international and local consumers and other middlemen, (although this is hypothetical until further research is carried out). Sometimes, the ivory is transported abroad to international middlemen, through ties with urban middlemen. Sometimes there are multiple middlemen through whom the ivory passes before arriving at the international vendor and customer. Government, transportation and local authority relationships are necessary throughout to facilitate the trade.



Baka Pygmies are often involved in elephant hunts as trackers and shooters. (Photo: Dan Stiles)

Hunters asked to identify types of relationships they had with law enforcers explained how certain law enforcers and other entities aided or abetted their hunting missions and transportation out of the forest back to the village. WWF was named by nearly all informants as the primary threat to their activities, while MINFOF was never named. This is a clear reflection of the incongruous association of WWF with wildlife law enforcement. However, many also named BIR (referring to LAB raids) as a primary threat, and some people who refused to be interviewed cited BIR as the reason.

Many successfully involved in the trade or hunt of elephants appear to have a good 'working relationship' with the police, wildlife law enforcement officers and powerful people in the army or government. **Table 17** summarizes hunter collaborators and threats.

Those named as collaborators in illegal hunting (police, politicians, local authorities, etc.) in **Table 17** raise questions of good governance and law enforcement. Although the Cameroon sample is small, it is consistent with the ranking Cameroon is given in the World Bank Worldwide Governance Indicators (World Bank, 2010). The World Governance Indicators measure six different aspects of governance: government effectiveness, voice and accountability, political stability and absence of violence, regulatory quality, rule of law and control of corruption. Cameroon figured in the bottom fifth of all nations ranked for good governance, rule of law and control

of corruption. A MIKE analysis (CITES, 2010) found that these indicators correlated highly with rates of illegal elephant killing.

**Figure 11** presents the commodity chains for elephant meat and ivory. This conceptual construct focuses on the commodities and how they move through the trade chain, while the social networks in **Figures 9** and **10** focus on the actors who move the commodities. With meat, the hunter can supply rural middlemen, markets or consumers directly, while with ivory the hunter only supplies a middleman (who might be his *commanditaire*). The consumer of meat can be supplied by the hunter, a middleman or buy it at a bushmeat market or restaurant. The ivory consumer, or end user, will buy worked ivory only at an ivory outlet. The ivory commodity chain involves fewer actors and is more linear than the meat chain, which has many possible permutations of actors as meat moves from hunter to consumer.

**Table 17. Hunter social relationships (threats, collaborators)**

Collaborators	Number Hunters who named this	Threats	Number Hunters who named this
Police	1	WWF	9
Politicians	3	Rapid Intervention Brigade (BIR)	4
Army	2	Forest ecoguards	5
Villagers	1	Sports hunting company	1
Local Authorities	3		
Businessmen	2		
Ivory dealers	3		
Sports hunting company	2		

Figure 11. Commodity chains for elephant meat and ivory

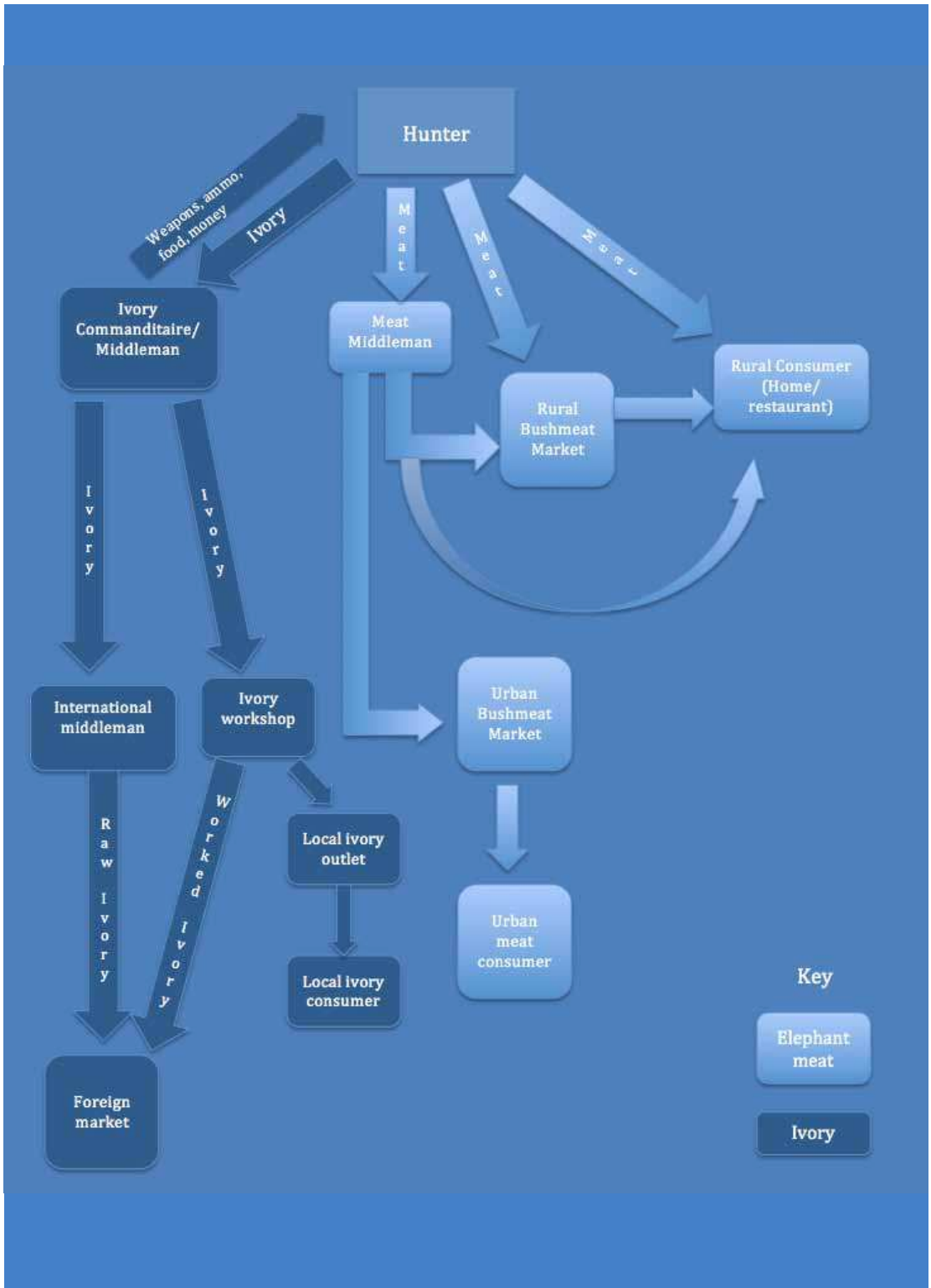
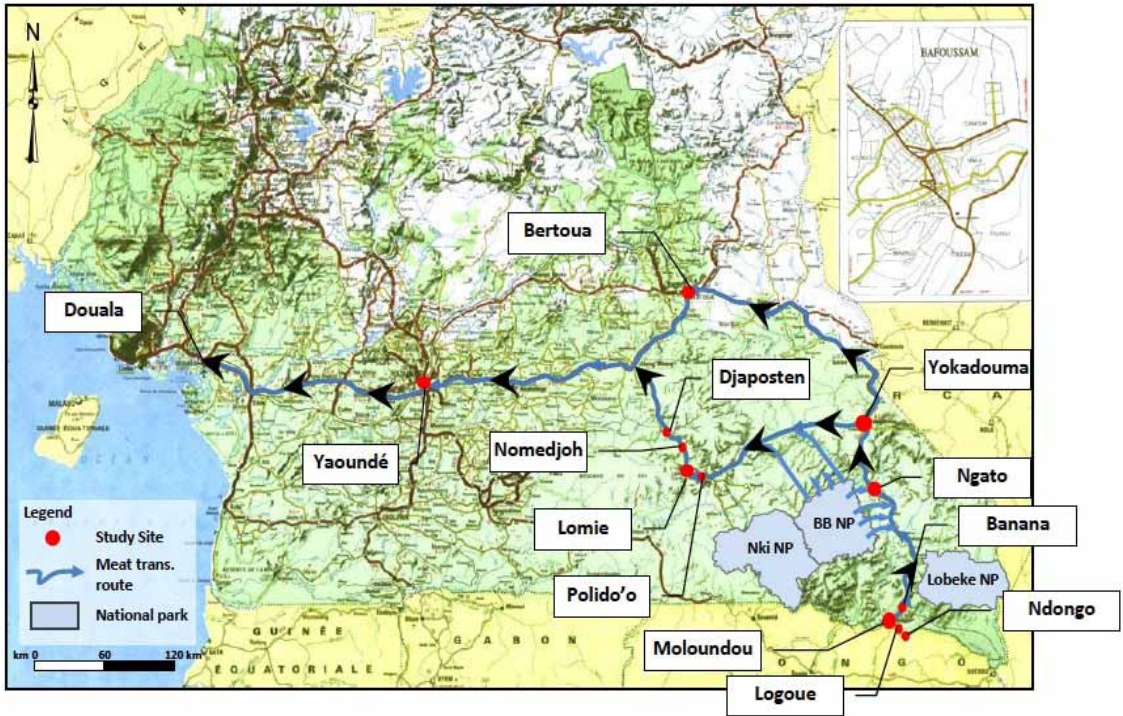


Figure 12. Transport Routes for elephant meat from south-eastern Cameroon



## Transport and Distribution

If meat is taken, it and ivory generally travel together with the hunting party on foot or by boat out of the forest to a road or settlement. Once at a road or settlement, they are generally transported and distributed separately.

Elephant meat and ivory originate from the following source localities:

1. The south-eastern corner of Nki, hunted by Congolese and Cameroonians.
2. Northern and south-eastern frontiers of BBNP where the boundary is shared with FMUs. Villagers along the road to the north of the concession were said to traverse the FMU on foot and engage in hunting, bringing elephant products out the same way. The lowest elephant populations recorded in the park were found along this boundary (Fouda, pers. comm., June 2010).
3. Along the southern border, poachers come up on foot through the sport hunting zone (UFA 10\_015), using man-made salt pans near the park boundary shooting elephants in both the north of UFA 10\_015 and the southern section of the park. There are also some in-

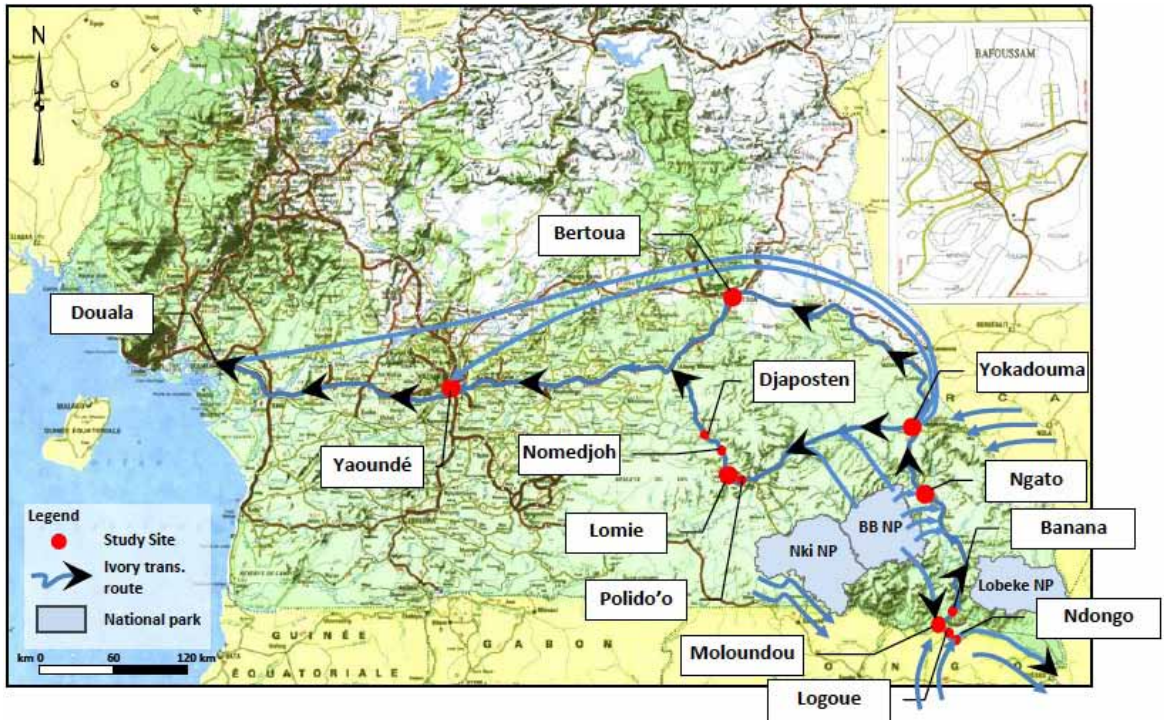
cidences of sport hunters passing across park boundaries (a river) and hunting elephants inside the park.

4. In the south-eastern and north-eastern corners of Lobéké, where poachers congregate in Libongo and Socambo and enter the park from either corner.
5. Elephants are also illegally hunted outside of the parks - along roadways, inside many logging concessions and near regional towns: Yokadouma, Moloundou and Libongo in the south-east and Lomie, Djoum and Mindourou in the south.

Several logging roads are active arteries for meat and ivory transport: the Lomié-Abong Mbang road is an active artery for meat and ivory, as well as the road going through Djoum from Gabon and southern Cameroon to Yaoundé and Douala. Although not shown on the most recent maps, another logging road that runs along the north of BBNP from Ngato to Lomié is a very problematic road for illicit wildlife trade. (Fouda, pers. comm., June 2010).

**Figures 12 and 13** depict the national transport routes documented in this study for elephant meat and ivory being extracted from the study site. Study sites are labelled and indicated by red points.

Figure 13. Transport Routes for Ivory from south-eastern Cameroon



Specifically, the following principal transportation methods and roads are used to extract elephant products from BBNP:

- By foot and by *pirogue* (canoe) to the road bordering the northern edge of Nki and Boumba-Bek National Parks from UFA 10-018 and Community hunting zone ZIC 09. This road runs east-west between Yokadouma and Lomié. Upon reaching the road, taxis, logging trucks and motorcycles serve as the primary means of transportation to move elephant meat to Yokadouma and Lomié. Meat is generally sold in markets and restaurants in these two locations while ivory is generally transported directly from the nearest village or town to Yaoundé or Douala where it is then delivered to an international dealer or, less frequently, sold locally to ivory workers.
- By foot and by *pirogue* to the road parallel to the eastern edge of the park, then north to Yokadouma or south to Moloundou by motorized transportation (i.e. bus, car, motorcycle). Dealers arrange for the ivory to be transported directly to Yaoundé or Douala via Yokadouma, Moloundou, or after crossing the Congolese border. The latter option permits traders to secure ivory in locked containers, which are much less likely to be checked before reaching the Douala

port, than non-secured truck cargo.<sup>6</sup>

- By foot across the southern border through the Forestry Management Unit (UFA 10-015) to Moloundou. Then, motorized transportation – bus, car, motorcycle – takes the meat to Moloundou or Yokadouma. Dealers arrange for the ivory to be transported directly to Yaoundé or Douala via Yokadouma or via Congo.

Outside the scope of this study area there are several key poaching and transport systems in the south. A military camp is located at Mintom to the east of Djoum, a small town about 30 km south of the boundary of the Dja National Reserve, which is about 140 km to the west of BBNP. Soldiers in the camp receive ivory coming up from Gabon that goes by Djoum north-west to reach Douala. The river systems are also used, namely the Dja, that acts as a route to take ivory and bushmeat out of Nki National Park down to Congo.

<sup>6</sup> In March 2011, 20 tusks hidden in a truck carrying cocoa from Sembe in ROC to Douala were seized in south-eastern Cameroon. It is thought that the tusks were from elephants killed in Nki NP and transported to Souanke in ROC, just across the border, to re-enter Cameroon (Nana, 2011).

# Conclusions

The results of this study suggest that ivory remains a significantly more important motive for elephant kills in south-eastern Cameroon than elephant meat. The evidence is drawn from interviews conducted with a sample of various actors in the ivory and elephant meat trades and MIKE elephant kill data from 2002 to 2010. Hunters in particular were well placed to describe the motives for hunting and the objects taken from elephant kills. They explained how, more often than not, elephant kills involve collecting the tusks, shoulder meat, trunk and tail, while abandoning the rest of the carcass. This represents a change from the recent past when ivory hunters would often partner with meat middlemen to harvest both ivory and meat, a lucrative trade as evidenced by the amount of meat potential in a single elephant, not to mention the higher price per kilogramme that elephant meat commands given its rare and apparently high status.

This ostensible decline of elephant meat harvesting seems to be driven by the creation of national parks in the south-east (Lobéké in 1999, Nki and Boumba-Bek

in 2005), which resulted in regular bio-monitoring and patrolling inside parks (i.e. LAB programme). Patrolling frequency fluctuated over this decade, depending on the amount of international donor funding directed to wildlife protection programmes. The relationship between funding, ecoguard numbers, patrol numbers and estimated elephant kill numbers would be useful to investigate in future research.

Elephant poaching has also been fuelled by a transnational influx and fluidity of guns and poachers from neighbouring countries (primarily CAR and the ROC). Poachers from these countries find hunting easier in Cameroon's national parks, where ecoguards are generally poorly armed, or even unarmed, a stark contrast to the CAR ecoguards who carry AK-47 Kalashnikov automatic weapons during forest patrols. Cameroonian ecoguards and the WWF Park Assistant for BBNP (Fouda, pers. comm., June 2010) cited this difference as a key reason why they are unable to thwart the tide of elephant poaching in Cameroon's national parks.



Cameroonian and Congolese ecoguards work together in an international effort to stop poaching and illegal wildlife trafficking. (Photo: WWF).

Unfortunately for the African forest elephant, the hard ivory from forest elephants remains in high demand internationally, especially in East Asia. The ivory trade in Cameroon and neighbouring countries continues to be supported by elites (including government officials) in Cameroon and other countries, which offers ivory traders some protection from risks. Efforts by some government officials, NGOs and the wildlife law enforcement organization, LAGA, aim to challenge the social networks that operate the illegal trade.

High levels of government corruption, poor governance and weak law enforcement exacerbate the illegal hunting and bushmeat trading situation, although recent efforts by the Cameroon government show positive signs that it is endeavouring to address these issues.

## Policy recommendations

### Policy and Conservation Management Suggestions:

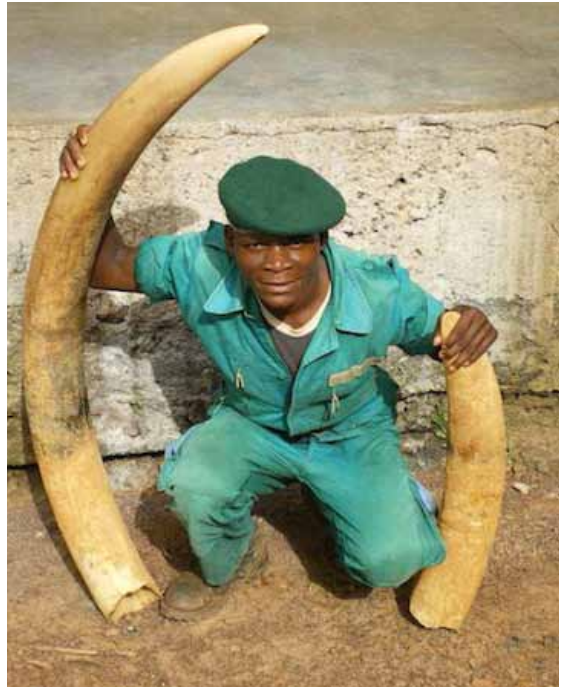
The Convention on Biological Diversity bushmeat liaison group (Nasi et al., 2008) has developed several appropriate recommendations for addressing the bushmeat trade in general. Many of these are also applicable to policy recommendations for elephant meat and ivory trade and informed the following recommendations:

1. Strengthen and expand the COVAREF programme whereby local ideas about conservation and customary conservation practices can be reconciled with conservation concerns and appropriately incorporated into conservation policy.
2. Work within the 'Poverty Reduction Strategy' process to promote the rights of use and land tenure of local populations, changes that will both empower local populations and improve sound management of rural resources, including bushmeat, through a sense of ownership.
3. Establish funding and recruit youth for a theatrical travelling group to carry out culturally targeted educational campaigns through locally written and directed shows dealing with wildlife laws, responsible hunting and the reasons behind specific hunting restrictions.
4. Promote fish and bee farming through financial assistance and training of cocoa farmers during the cocoa low season, which coincides with the hunting season, with the agreement that farmers caught illegally poaching will be dropped from the programme.
5. Limit sport hunting zones' artificial salines to defined areas a safe distance from protected area boundaries. While logging concessions and international borders are threats, the artificial salt pans near park borders and accidental sport hunting kills within park boundaries also point to the need to work more closely with sport hunting operators to enable them to respect park boundaries and to place their artificial salines further away from park boundaries.
6. Make wildlife management an integral part of forest management plans that logging, mining and sport hunting companies should implement. Logging companies should take command and control measures, holding transporters and workers to a strict policy prohibiting bushmeat and ivory harvesting and transport.
7. Train MIKE data collectors to estimate the proportion of an elephant carcass missing due to meat harvesting, in order to monitor quantitatively meat as a data variable over time. MIKE should also record whether meat-smoking racks are found near carcasses.
8. Strengthen implementation of joint agreements and regular meetings between local community representatives, extractive industries and protected areas.
9. Assure that gun seizure programmes are non-violent and paired with education on national security issues related to illegal weapons circulation. Tensions between MINFOF, WWF and BIR/LAB law enforcement and villagers have stirred resentment and negative impacts which seem to prevent the reduction of elephant poaching.
10. Establish a system to check for falsified wildlife collection permits.
11. Support the government's new law requiring establishment of official, regulated bushmeat markets. Decentralize, acknowledge and legitimize the role of bushmeat in local economies to improve the relationship between traders, government officials and conservation representatives.
12. Legitimize the bushmeat debate further by carrying out regular economic and offtake assessments of various wild meats in national statistics, and accounting for this in public policy and planning for livelihood and conservation management.
13. Reduce permit costs and simplify application procedures to encourage more traders and hunters to carry



out their work legally. Moving to legalize a portion of the existing trade will also increase reliable information on the organization of the commodity chains.

14. Reclassify elephants in one class, according to their assessed vulnerability status. Currently, elephants as a species fall under two classes of protection status in Cameroon - one fully protected (Class A), the other partially protected (Class B) - depending on tusk size. This makes no sense from a biodiversity perspective as both categories represent the same species.



**Tusks seized by ecoguards near Boumba-Bek National Park (Photo: WWF)**

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# Appendix 1.

## Data collection questionnaires

### Fiche De Donnees

#### CHASSEURS

1. Nom d'enquêteur \_\_\_\_\_
2. Code de personne interviewée \_\_\_\_\_
3. Date \_\_\_\_\_
4. Lieu de l'entrevue \_\_\_\_\_
5. Coordonnées de carte \_\_\_\_\_
6. Lieu de naissance \_\_\_\_\_

#### Démographiques

7. Âge (approximatif) \_\_\_\_\_
8. Sexe: Male / Femelle
9. Profession(s) \_\_\_\_\_
10. Chasseur pour soi-même \_\_\_\_ ou pour commanditaire \_\_\_\_
11. Si commanditaire, qui \_\_\_\_\_
12. Ville/Village ou vous habitez actuellement \_\_\_\_\_
13. Groupe ethnique \_\_\_\_\_
14. Etat civile: Marié / Marié polygame / Célibataire / Veuve
15. Religion : Protestant / Catholique / Musulman / \_\_\_\_\_ Autre (spécifier)

#### L'abattage le plus récent.

16. Site: a. Région \_\_\_\_\_ b. Aire protégée la plus proche \_\_\_\_\_
- c. Village le plus près \_\_\_\_\_ d. Distance au village \_\_\_\_\_ km
- e. Description du site de l'abattage \_\_\_\_\_
- f. Date de l'abattage \_\_\_\_\_
- g. Quantité de viande consommée sur place \_\_\_\_\_

*Encercler les items (viande, ivoire) transportés:*

17. Viande/ivoire transporté de \_\_\_\_\_ (*site spécifique*) à \_\_\_\_\_
18. Durée du voyage de trouver, de tuer, de boucaner et de transporter la viande/l'ivoire \_\_\_\_\_ jours
19. Distance approximative du trajet \_\_\_\_\_ km
20. Nombre et type de participants:
  - a. \_\_\_\_\_ membres de famille
  - b. \_\_\_\_\_ Amis de votre village
  - c. \_\_\_\_\_ Amis d'un autre village(s)
  - d. \_\_\_\_\_ Autre (spécifier): \_\_\_\_\_
21. Méthode de chasse: \_\_\_\_\_
  - Type fusil: \_\_\_\_\_
  - Type cartouche: \_\_\_\_\_
  - Nombre de cartouches utilisées: \_\_\_\_\_
  - Coût d'une cartouche: \_\_\_\_\_
  - Type câble: \_\_\_\_\_
  - Autre: \_\_\_\_\_

22. Si chasse au fusil, qui est le propriétaire de l'arme: \_\_\_\_\_

23. Ranger les causes de l'abattage d'éléphant: (1 = plus important, 2 = 2<sup>ème</sup> plus important, etc.)

\_\_\_\_\_ ivoire

\_\_\_\_\_ viande

\_\_\_\_\_ protéger la vie/les champs cultivés (conflit humain-éléphant)

\_\_\_\_\_ culturel \_\_\_\_\_ (description)

e. \_\_\_\_\_ autre \_\_\_\_\_ (spécifier)

24. Type et quantité d'autres animaux pris pendant le voyage:

a. A vendre: \_\_\_\_\_

b. A consommer: \_\_\_\_\_

c. A partager: \_\_\_\_\_

d. Pour usage culturel: \_\_\_\_\_

e. Pour médecine: \_\_\_\_\_

f. Autre but (spécifier): \_\_\_\_\_

25. Ranger les modes de transport selon fréquence d'usage (1 = le plus, 2 = 2<sup>èm</sup>, etc.)

a. \_\_\_\_\_ bus/car

b. \_\_\_\_\_ voiture particulière (propriétaire \_\_\_\_\_)

c. \_\_\_\_\_ véhicule gouvernemental (spécifier \_\_\_\_\_)

d. \_\_\_\_\_ véhicule de société/organisation (spécifier \_\_\_\_\_)

e. \_\_\_\_\_ moto

f. \_\_\_\_\_ vélo

g. \_\_\_\_\_ à pieds

h. \_\_\_\_\_ pirogue

26. Quantité de viande d'éléphant transportée: \_\_\_\_\_ kg total

a. \_\_\_\_\_ kg au marché

d. \_\_\_\_\_ kg au foyer familial

b. \_\_\_\_\_ kg vendus sur la route

e. \_\_\_\_\_ kg à partager avec autres foyers amis

c. \_\_\_\_\_ kg vendus à un abonné

f. \_\_\_\_\_ kg à vendre à un étranger

27. Quantité d'ivoire transportée: nombre de pointes \_\_\_\_\_ kg total \_\_\_\_\_

28. Nombre de porteurs \_\_\_\_\_

29. L'acheteur de l'ivoire \_\_\_\_\_

30. Autres pièces d'éléphant transportées/utilisées \_\_\_\_\_

a. \_\_\_\_\_ kg/nombre au marché

b. \_\_\_\_\_ prix kg/pièce

c. \_\_\_\_\_ kg/nombre vendus à une personne connue Qui \_\_\_\_\_

d. \_\_\_\_\_ kg/nombre vendus à une inconnue

e. \_\_\_\_\_ kg/nombre transporté au foyer

f. \_\_\_\_\_ kg/nombre donnés comme cadeau Qui \_\_\_\_\_



## Sites de vente de produits d'éléphant par le chasseur

31. (marché, bureau, domicile, restaurant, gargote, etc.)

Description du site	Localisation du site	Type de produit vendu	Acheteur

### Motifs économiques de la chasse aux éléphants

32. Prix d'un kg de viande (approximatif) \_\_\_\_\_ CFA / kg

33. Autre rémunération pour la viande \_\_\_\_\_

34. Prix d'un kg d'ivoire: pointe <5kg \_\_\_\_\_ FCFA; pointe 5-10 kg \_\_\_\_\_ FCFA pointe >10 kg \_\_\_\_\_ FCFA

35. Autre rémunération pour l'ivoire \_\_\_\_\_

36. Autres produits vendus ou utilisés \_\_\_\_\_

37. Rémunération \_\_\_\_\_

## Transporteurs/Grossistes

1. Nom d'enquêteur \_\_\_\_\_

2. Code de personne interviewée \_\_\_\_\_

3. Date \_\_\_\_\_

4. Ville/Village de l'entrevue \_\_\_\_\_

5. Coordonnées de carte \_\_\_\_\_

6. Lieu de naissance \_\_\_\_\_

### Démographiques

7. Âge (approximatif) \_\_\_\_\_

8. Sexe: Male / Femelle

9. Profession(s) \_\_\_\_\_

10. Travailler pour soi-même \_\_\_\_ ou pour commanditaire \_\_\_\_

11. Si commandité, par qui \_\_\_\_\_

12. Ville/Village où vous habitez actuellement \_\_\_\_\_

13. Groupe ethnique \_\_\_\_\_

14. Etat civil: Marié / Marié polygame / Célibataire / Veuve

15. Religion : Protestant / Catholique / Musulman / \_\_\_\_\_ Autre (spécifier)

16. Depuis quand transportez-vous/vendez-vous la viande/l'ivoire? \_\_\_\_\_

*Encercler les items (viande, ivoire) transportés.*

17. Viande/ivoire transporté de \_\_\_\_\_ (site spécifique) à \_\_\_\_\_

18. Voie utilisée (route publique, route de concession forestière, route de mine, piste, rivière, etc.) \_\_\_\_\_

19. Durée du voyage \_\_\_\_\_ jours

20. Distance approximative du trajet \_\_\_\_\_ km

21. Nombre et type de participants:

a. \_\_\_\_\_ membres de famille

b. \_\_\_\_\_ Amis de votre village

c. \_\_\_\_\_ Amis d'un autre village(s)

d. \_\_\_\_\_ Autre (spécifier): \_\_\_\_\_

22. Dates d'approvisionnement de viande/ivoire: mois de \_\_\_\_\_ de l'année \_\_\_\_\_
23. Dates de vente de viande/ivoire: mois de \_\_\_\_\_ de l'année \_\_\_\_\_
24. Ranger les modes de transport selon fréquence d'usage (1 = le plus, 2 = 2<sup>em</sup>, etc.)
- \_\_\_\_ bus/car
- \_\_\_\_ voiture particulière (propriétaire \_\_\_\_\_)
- \_\_\_\_ véhicule gouvernemental (spécifier \_\_\_\_\_)
- \_\_\_\_ véhicule de société/organisation (spécifier \_\_\_\_\_)
- \_\_\_\_ moto
- \_\_\_\_ vélo
- \_\_\_\_ à pieds
- \_\_\_\_ pirogue

25. Quantité de viande d'éléphant transportée: \_\_\_\_\_ kg total
- a. \_\_\_\_\_ kg au marché d. \_\_\_\_\_ kg au foyer familial
- b. \_\_\_\_\_ kg vendus sur la route e. \_\_\_\_\_ kg à partager avec autres foyers amis
- c. \_\_\_\_\_ kg vendus à un abonné f. \_\_\_\_\_ kg à vendre à un étranger

26. Quantité d'ivoire transportée: nombre de pointes \_\_\_\_\_  
kg total \_\_\_\_\_

27. Nombre de porteurs \_\_\_\_\_

28. L'acheteur de l'ivoire \_\_\_\_\_

29. Autres pièces d'éléphant transportées/utilisées \_\_\_\_\_

- a. \_\_\_\_\_ kg/nombre du produit au marché
- b. \_\_\_\_\_ prix kg/pièce
- c. \_\_\_\_\_ kg/nombre vendus à une personne connue Qu \_\_\_\_\_
- d. \_\_\_\_\_ kg/nombre vendus à une inconnue
- e. \_\_\_\_\_ kg/nombre transporté au foyer
- f. \_\_\_\_\_ kg/nombre donnés comme cadeau Qui \_\_\_\_\_

#### Sites de vente de produits d'éléphant par le transporteur/grossiste

30. (marché, bureau, domicile, restaurant, gargote, etc.)

Description du site	Localisation du site	Type de produit vendu	Acheteur

#### Motifs économiques

31. Prix d'un kg de viande (approximatif) \_\_\_\_\_ CFA / kg
32. Autre rémunération pour la viande \_\_\_\_\_
33. Prix d'un kg d'ivoire: pointe <5kg \_\_\_\_\_ FCFA; pointe 5-10 kg \_\_\_\_\_ FCFA  
pointe >10 kg \_\_\_\_\_ FCFA
34. Autre rémunération pour l'ivoire \_\_\_\_\_
35. Autres produits vendus ou utilisés \_\_\_\_\_
36. Rémunération \_\_\_\_\_

## Fluctuations de prix de vente de viande de l'éléphant

37. Prix mensuel / kg

Jan    Fev    Mar    Avr    Mai    Juin    Juillet    Août    Sept    Oct    Nov    Déc

\_\_\_\_\_

38. Prix à long terme

1990 prix moyen / kg \_\_\_\_\_ CFA      1995 prix moyen / kg \_\_\_\_\_ CFA      2000 prix moyen / kg \_\_\_\_\_ CFA      2005 prix moyen / kg \_\_\_\_\_ CFA

## Fluctuations de prix d'ivoire

39. Prix à long terme d'une pointe de 5-10 kg

1990 prix moyen/kg \_\_\_\_\_ FCFA

2000 prix moyen/kg \_\_\_\_\_ FCFA

2005 prix moyen/kg \_\_\_\_\_ FCFA

2008 prix moyen/kg \_\_\_\_\_ FCFA

## Détaillantes

1. Nom d'enquêteur \_\_\_\_\_

2. Code de personne interviewée \_\_\_\_\_

3. Date \_\_\_\_\_

4. Ville/Village de l'entrevue \_\_\_\_\_

5. Coordonnées de carte \_\_\_\_\_

6. Lieu de naissance \_\_\_\_\_

## Démographiques

7. Âge (approximatif) \_\_\_\_\_

8. Sexe: Male / Femelle

9. Profession(s) \_\_\_\_\_

10. Comment et avec qui avez-vous été initiée au commerce de viande d'éléphant? \_\_\_\_\_

11. Ville/Village ou vous habitez actuellement \_\_\_\_\_

12. Groupe ethnique \_\_\_\_\_

13. Etat civile: Marié / Marié polygame / Célibataire / Veuve

14. Religion : Protestant / Catholique / Musulman / \_\_\_\_\_ Autre (spécifier)

Source de viande/ivoire

15. Décrire le vendeur de viande/ivoire et l'endroit de l'achat \_\_\_\_\_

16. Quantité de viande obtenue par semaine \_\_\_\_\_ kg, par mois \_\_\_\_\_ kg

17. Prix d'achat de viande \_\_\_\_\_ FCFA

18. Quantité d'ivoire obtenue par semaine \_\_\_\_\_ kg, par mois \_\_\_\_\_ kg

19. Prix d'achat d'ivoire: pointes <5 kg \_\_\_\_\_ FCFA; 5-10 kg \_\_\_\_\_ FCFA; >10 kg \_\_\_\_\_ FCFA

## Fluctuations de prix de vente de viande de l'éléphant

20. Prix mensuel / kg

Jan    Fev    Mar    Avr    Mai    Juin    Juillet    Août    Sept    Oct    Nov    Déc

\_\_\_\_\_

21. Prix à long terme

1990 prix moyen / kg  
\_\_\_\_\_ CFA

1995 prix moyen / kg  
\_\_\_\_\_ CFA

2000 prix moyen / kg  
\_\_\_\_\_ CFA

2005 prix moyen / kg  
\_\_\_\_\_ CFA

**Fluctuations de prix d'ivoire**

22. Prix à long terme

1990 prix moyen / kg  
\_\_\_\_\_ FCFA

2000 prix moyen / kg  
\_\_\_\_\_ FCFA

2005 prix moyen / kg  
\_\_\_\_\_ FCFA

2008 prix d'une pointe de  
5-10 kg  
\_\_\_\_\_ FCFA

**Sites de vente de produits d'éléphant par la détaillante**

23. (marché, bureau, domicile, restaurant, gargote, etc.)

Description su site	Localisation du site	Type de produit vendu	Acheteur

## CONSOMMATEURS DE GIBIER

Nom d'enquêteur:

Date:

Lieu de l'entrevue:

Code de personne interviewée:

Coordonnée de carte:

Ethnie:

Age:

Sexe:

Lieu de naissance:

Domicile habituel:

Occupation:

---

Domicile ou restaurant:

Domicile

Combien de gens mangent de l'éléphant dans le foyer? Qui:

Fréquence de consommation de l'éléphant:

Quantité moyenne de viande de chaque repas:

Où achetez-vous la viande:

A quel prix/kg:

Pourquoi achetez-vous l'éléphant:

Si jamais, pourquoi:

Recevez-vous jamais la viande de l'éléphant comme cadeau:

Si oui, de la part de qui:

Estimation de la quantité de l'éléphant consommé dans le foyer chaque semaine:

chaque mois:

Que penseriez-vous si la viande de l'éléphant disparaissait du marché:

Restaurant

Description:

Fréquence de consommation de l'éléphant:

Quantité moyenne de viande de chaque repas:

A quel prix le repas de l'éléphant:

Pourquoi achetez-vous l'éléphant:

Si jamais, pourquoi:

Recevez-vous jamais la viande de l'éléphant comme cadeau:

Si oui, de la part de qui:

Estimez la quantité de l'éléphant consommée dans un restaurant chaque semaine:

chaque mois:

Que penseriez-vous si la viande de l'éléphant disparaissait du marché:

### **Général**

Si le prix de tout gibier coûtait le même, rangez les espèces que vous aimez manger le mieux en ordre de préférence :

- 1.
- 2.
- 3.
- 4.
- 5.

Si le prix de toute viande, y comprise élevé, coûtait le même, rangez les espèces que vous aimez manger le mieux en ordre de préférence :

- 1.
- 2.
- 3.
- 4.
- 5.

En réalité, rangez le type de viande que vous mangez en général par fréquence:

- 1.
- 2.
- 3.
- 4.
- 5.

Si le gibier disparaissait du marché, que penseriez-vous:





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