

# Livelihoods, Hunting and the Game Meat Trade in Northern Zambia

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## Introduction

This chapter examines the character, extent, costs and benefits of hunting and the game meat trade in villages adjacent to Zambia's Luangwa Valley national parks. It is essential to understand the role that game meat plays in local livelihoods if new conservation initiatives there are to be effective, if locals are to secure sufficient and sustainable alternative livelihoods and if illegal hunting in the national parks is to be stemmed.<sup>1</sup>

This chapter begins by examining the practice of hunting in the area: How are hunts organized? Where do they take place? Which types of animals are pursued and how are they killed? How is meat distributed? The study then examines what happens to game meat once hunters return to their home villages. We analyse the purchase of game meat by local and outside traders and its resale in Lusaka, the Copperbelt and other urban areas. The study then explores the costs and benefits of the game meat trade for locals in both quantitative and qualitative terms.

Overall, the study demonstrates that since the late 1970s an increased market demand for game meat and a lack of alternative sources of income has transformed the character of hunting. The study shows that illegal hunting and game meat sales are likely to remain a significant source of cash income for many people in the study area. Perhaps one-third of all local households gain at least some income from this trade.

The chapter concludes by discussing the implications of the game meat trade for conservation initiatives and their possibilities for introducing alternative livelihood strategies to hunting.

## Methods

This study is based on ethnographic fieldwork, interviews and case studies in several large, dispersed settlement clusters on the Central African plateau to the west of the Luangwa Valley. The origins of this study lie in 1973, when one of the authors interviewed a dozen hunters from the study site (see Marks, 1976; 2005). In 2001, as a consultant, he returned to the plateau and conducted

interviews with another 30 hunters. This fieldwork and consultancy provide a baseline for assessing changes in hunting practices and for the quotes of interviewees at the beginning of the sections of this chapter.

In 2002, the authors employed a literate and well-connected local elder to conduct further interviews with hunters and traders.<sup>2</sup> As a respected local, this researcher knew his fellow villagers sufficiently to gain their trust and to judge the veracity of their claims. As part of this research, he interviewed and collected the life histories of an additional 26 long-term hunters and interviewed 10 regular game meat traders. He also drafted detailed accounts of 18 hunting expeditions, based on extended interviews with hunters and carriers fresh from their forays into the Luangwa Valley.<sup>3</sup>

The study has several limitations, although we believe that it presents an accurate portrait of hunting and the game meat trade in this part of Zambia. First, it relies on interviews rather than intensive participant observation to assess the character and extent of hunting and the game meat trade in the area. Second, there is an inherent selection bias in the choice of hunters interviewed; it is not a random sample, but reflects the hunters and traders known and trusted by the interviewee or available to the consultant. Third, the interviews represent a snapshot of specific hunts within a specific time frame (from September 2002 to February, 2003). Hunts were therefore assessed during both the dry season (when most large-scale hunts occur) and the rainy season (when hunting is more infrequent and usually of a smaller scale). This range goes some way to reducing seasonal bias within the dataset, but it is recognized that the estimates of the income generated by hunting would have benefited from a broader sample of hunts across an entire year. Finally, given the time and terms for the study, we worked on hunting processes and production and did not conduct household surveys.

## **The changing character of hunting**

The difference between now and in the past in terms of animal populations is that there is not much wildlife to see on the plateau, but there is in the valley. In the valley, it is not easy to hunt because of game guards, distance, and floods. We just take the risks. Man, 40 years old, 9th-grade education

Hunting has long been a cornerstone of local livelihoods and identities. The Bisa people living in the study site historically relied on hunting as well as fixed and shifting cultivation, trade and raiding to secure a livelihood (A. D. Roberts, 1973; Marks, 2004). Hunting is socioculturally significant and plays a prominent role in Bisa social relations, kinship and ritual (Marks, 1976; 2005).

In the past several decades, however, the character of hunting in the study site has been transformed. Distant markets – not local needs or social systems

– are now the driving force for hunting on the plateau. As local hunters have sought to profit from hunting, they have expanded their hunting ranges to include distant parts of the Luangwa Valley, increasingly relied on guns to kill game, expanded the size of their hunting expeditions and altered their quarry preferences.

Until several decades ago, plateau villagers seldom ventured into the Luangwa Valley for their hunts: there was sufficient wildlife in the vicinity of their villages to satisfy their subsistence or trade needs. In the past several decades, however, as plateau game stocks have declined and demand for wildlife products has increased, hunters have been drawn progressively to hunt the large mammals in the valley. Of the hunt expeditions recounted for this study, all but one descended the escarpment into the Luangwa Valley and its national parks.<sup>4</sup>

The ivory and rhinoceros poaching ‘boom’ of the 1970s and 1980s first drew plateau hunters into the Valley to hunt on a regular basis (Leader-Williams, 1988; Leader-Williams and Milner-Gulland, 1993). These ‘commercial’ hunts also set the precedent for the recent profitable, large-scale and long-distance ones. By the 1990s, the supply and demand for ivory and rhinoceros horn had declined. At the same time, however, the market for game meat in Zambia’s cities continued to grow.

As locals shifted from subsistence and small-scale local trade to larger-scale commercial trade in ivory and game meat, the size of hunting expeditions increased. Initially, most hunts on the plateau were small, involving a hunter and a few apprentices or carriers. Currently, however, most hunts comprise two or more hunters and engage 12–20 carriers. The larger the size of the hunting party, the greater the profit for the organizing hunter – each carrier is responsible for transporting at least one piece of meat for the hunter (including ivory if an elephant is killed). The more carriers engaged, the more meat the hunter is able to keep for himself.

Market demand for game meat has also transformed the types of game pursued by plateau hunters. Although one hunter (72 years old) recalled killing elephants, buffalo, hippo and eland on the plateau, the main quarry of local hunters there was typically small to medium-sized antelopes and wild pigs. When these mammals were killed or snared, the meat was distributed to residents within the hunter’s village. Currently, however, the primary selection criterion for market hunters is the size of animal – shooting large animals enables hunters to maximize their carrier’s loads while minimizing their time in the bush and exposure to detection by wildlife scouts (Milner-Gulland and Leader-Williams, 1992). As a result, elephants (now mostly females and young), hippos and buffalos are increasingly the preferred quarries, although species such as roan, zebra, warthog, duiker and other species are shot as well. Generally, warthog, duikers and small mammals are shot during a trip and consumed as provisions. Lions and hyenas are occasionally shot if they become a menace while the meat is prepared in the bush.

## Contemporary hunting

In place of farming, I would like to have a job for pay as sometimes farming is not productive and this becomes difficult to get inputs and food for the family. This time animals are very few (around the villages) compared with the past. Now as a sign of depletion, hunters have to leave the village for about 6 days' walk before they can find some animals to kill – especially big animals. That hunting is possible only in the Luangwa Valley. Man, 41 years old, 7th-grade education

It is difficult to gauge precisely the number of individuals and households benefiting from the game meat trade. Our research, however, suggests that in a population of approximately 2,600 around 75 men are hunters, i.e. they possess a gun, lend it or make forays into the bush, and derive at least some of their cash income from the game meat trade. There are more carriers than hunters. We estimate that between 170 and 225 men are regular carriers. Overall, hunting contributes to the livelihoods of perhaps one-third of households.

Hunters range in age from their early 20s to their 70s; the youngest hunter interviewed was 21, the oldest 72. Hunters tend to learn their bush skills from their matrilineal uncles, fathers and brothers-in-law. In most cases, expectant hunters apprentice as carriers with these relatives several years before organizing their own hunts. Hunting is a male-dominated activity: there are no female hunters or carriers in the area. Most hunters are married with children and other dependants. Carriers tend to be younger (in their early 20s or younger) and unmarried. Many of these young men have never completed primary school, and few seem to have alternative livelihood options.

Most hunting in the study site is carried out with locally manufactured muzzle-loading guns (*mfuti*). These guns are relatively inexpensive and readily replaced should they be confiscated by wildlife officials. The materials for a gun cost between 20,000 kwacha and K25,000 (about US\$4.40–5.50), and a finished, assembled muzzle-loader costs around K50,000 about (US\$11).<sup>5</sup> Although some hunters manufacture their own guns, most are made by one of half a dozen local gunsmiths. Muzzle-loaders are surprisingly effective – they can kill the largest of game, including elephants and hippos. Moreover, the ingredients for muzzle-loading ammunition are inexpensive and easily acquired. Gunpowder is locally manufactured from a combination of 'C-compound' (a fertilizer that contains saltpetre and potassium nitrate and is used primarily for tobacco farming) and the charcoal ashes of a common shrub, the 'ububa' (*Tephrosia vogeli*). A cupful of C-compound costs around K10,000 (about US\$2.20) and provides enough saltpetre to make the gun powder propel around 20 rounds of ammunition. The lead used as ammunition is derived either from dead car batteries or from the lead mines in the Copperbelt. A piece of lead large enough to make 8–10 bullets sells locally for about K3,000 (about US\$0.65).

Locals own few rifles and no automatic weapons. A few hunters own old Arab-style muskets, but these are seldom used. Occasionally, a wealthy trader or government official will lend a rifle or an AK47 and ammunition to a hunter. They will then return several weeks later to collect the gun, unused ammunition and a percentage of the game meat or cash.

Local hunters may also snare game around their villages and near their temporary bush camps. Wire snares are readily available and are used for wild pigs and most antelopes up to and including buffalo. Generally, snares are placed along game paths or next to watering holes. Snares are also set for predators around temporary camps in the bush. Hunters then check the snare every day or so. If an animal is still alive, it is despatched with an axe or a machete.<sup>6</sup>

Almost all hunting and snaring is illegal. No one interviewed for this study, for instance, had purchased a hunting licence for any of the animals taken.<sup>7</sup> The purchase of a basic game licence and an area hunting permit requires travel to the distant administrative centre, costs tens of thousands of kwacha and must be purchased for specific species, if those animals are still available on the national quota allocated to an area.

Most hunting forays take place between August and December. At this time of the year, most game congregates along rivers in the Luangwa Valley and is easy located. Once the rains begin and more dispersed sources of water and grazing become available, animals spread out and are more difficult to find or snare. Moreover, by January, flooded plains, muddy paths and swollen rivers make it difficult and dangerous to travel to and from the valley, meat is more difficult to dry, and the humidity and rains may spoil meat being carried back to the plateau. During August to December, full-time hunters make at least one expedition a month while a more ambitious hunter may make two or three trips in a month. In the rains, some hunters continue to make occasional trips to the valley and others continue to hunt in areas near to their villages. The majority of game meat, however, is taken in the Luangwa Valley during the dry season when the animals and terrain are most accessible.

Hunting expeditions tend to be organized by one or two experienced hunters. They purchase the necessary supplies, organize the carriers and decide on a rough itinerary. Once the logistics are in place, the hunters and carriers gather at a designated place and set off for the Muchinga escarpment. It takes approximately 2–3 days of walking to reach the banks of the tributaries to the Luangwa River, where most hunting occurs. Hunters are generally opportunistic, but tend to focus their energy and firepower on the larger animals such as buffalos, elephants and hippos.

Hunters typically continue to search and kill game until they run out of ammunition or they have killed enough meat for each carrier to have a full load – usually at least 10 pieces of meat or 30–40 kg per carrier. Most hunts last about a week (the hunts on which this study is based lasted from 5 to 13 days). As game is relatively plentiful in the Luangwa Valley, expedition members

seldom return empty-handed unless they have encountered game scouts and had to flee leaving their loads of meat and supplies behind. All of the hunts recounted for this study shot at least one animal and almost all returned with full loads. The scale and quarry of these hunts is illustrated in [Table 6.1](#).

Once an animal is killed, it is generally butchered on the spot, salted, dried and cured over a fire. The carcasses of larger animals (elephants, buffalos, hippos, etc.) are cut into strips and pieces of smaller animals are tied into bundles. Meat is divided between hunters and carriers with the hunter selecting the largest and best-quality pieces for himself, as well as special portions such as the tongue, heart and brisket. Each carrier gets to keep the meat they transport to the plateau, with the exception of the piece(s) that he carries for the hunter.

## The game meat trade

I used to go to Mpika four or five times per month from 1995 to 2002. I used to spend about K800,000 per trip, transport inclusive, and I used to get a total of about K2.5 million for loans (debts) or K1.8–2 million on a cash basis. Our clientele are mainly well-to-do people in low-density areas in towns – like, in my case, for cash I go to Ndola, but on credit I go to Mufulira and my clients are mainly miners. Some pieces bought at K20,000

Table 6.1 **A sample of hunts.**

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Three hunters, 23 carriers: two elephants and one warthog
Two hunters, 12 carriers: two elephants and one warthog
One hunter, three carriers: one roan, one zebra, one lion
Two hunters, 14 carriers: one hippo and two buffalo
One hunter, 16 carriers: one hippo and one warthog
Two hunters, 18 carriers: one elephant, one eland, two warthogs, one hippo, one duiker
One hunter, three carriers: five duikers
One hunter, four carriers: one duiker
Three hunters, 28 carriers: one duiker, one aardvark, one hartebeest, two elephants, one lion
Two hunters, eight carriers: one warthog
Three hunters, 28 carriers: one warthog, two buffalo, two hippo
Two hunters, eight carriers: two buffalo, one zebra
Two hunters, 12 carriers: one reedbuck, three buffalo, one eland
One hunter, four carriers: two hippos
Two hunters, six carriers: one warthog, one buffalo
Two hunters, seven carriers: one hippo
Two hunters, 20 carriers: two elephants
One hunter, four carriers: one impala, one zebra

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in the village sell for K75,000–85,000 there. We usually cut the strips of meat into three pieces of about K25,000–30,000. A limb of a duiker in town now is about K30,000–45,000. Woman, 53 years old, from Mufulira, 7th-grade education

Hunting is driven by demand for game meat in urban areas as well as the lack of alternative livelihoods in rural areas. Consumers in Lusaka, the Copperbelt and towns throughout Zambia have a strong preference for game meat, and tens of thousands of kilograms of illegally harvested wildlife is consumed each year in urban Zambia. In Lusaka, for instance, it is estimated that the meat from approximately 33,800 impala and 3,000 cape buffalo is eaten each year. In the Copperbelt it is likely that nearly 30,000 impala and 2,600 cape buffalo are consumed annually (Barnett, 2000).<sup>8</sup> In addition, the plateau villages west of the two Luangwa Valley national parks offer strategic access to distant markets via the railway line and a major arterial paved highway.

The demand for game meat in urban Zambia is driven by preference, not cost. Urban Zambians like the taste of game meat and are willing to pay a premium for it. Game meat in urban Zambia is up to 43% more expensive than beef, chicken or goat. This is in contrast to many parts of eastern and southern Africa, where demand for game meat is cost driven. In Kenya, Tanzania, Zimbabwe, and Botswana, for instance, game meat is significantly cheaper than its domestic alternatives (Barnett, 2000).

Game meat purchased in the study site is consumed in the Copperbelt, Lusaka, Mpika, Kasama and Kapiri Mposhi. Several dozen locals have become game meat traders and travel periodically from their village homes to Zambia's urban markets. Other locals (particularly those who serve as carriers on hunts) sell game meat on the side of the road. Most large-scale game meat traders, however, are from outside the area. Unlike hunting and carrying, which are exclusively male activities, both men and women are active in the meat trade. The seven women traders interviewed claimed to be single, were the sole support for their children and some relatives, and were attracted to the meat trade by its profitability. Most of them, and the three men, had some secondary schooling and were the most educated of those interviewed. They realized the risks their enterprise entailed, recognized the high costs of transport and transactions of bribes, yet made trips to purchase meat each month. As the woman whose words began the epigraph to this section concluded her interview:

I expect to make about K2.5–3 million from my sales this journey. I have three children in secondary and two in primary school. They need school necessities. Risk is there, but how to make ends meet is very difficult. Legal business does not make much profit.

Trade in game meat is brisk from September to January, when local hunters are most active. At this time of year, several dozen outside traders visit the study site each week. Most of these traders operate at a small or medium scale; they make 2–5 trips each month and purchase between 40 and 150 kg of meat on each occasion.<sup>9</sup>

Traders purchase meat by size, not by weight. From September 2002 to February 2003 the price for a bundle of dried meat (weighing around 3–4 kg) ranged between K11,000 and K25,000 (US\$2.45–5.50). The type of game meat makes little difference to the sale price: elephant, hippo, roan and buffalo meat all generally sell for the same amount. Prices are generally fixed at a particular time, but some bargaining occurs – particularly for the purchase of larger quantities of meat for frequent buyers. Price increases with scarcity of meat and in competition between purchasers. In the past 5 years, the price of game meat has doubled, in tandem with growing demand and inflation. Some exchange of game meat for commodities occurs, with traders swapping new and used clothing, women's dresses and other scarce commodities for game meat.

Once purchased, the meat is placed in maize meal bags and packed into suitcases or travel bags to disguise the contents from game scouts. Although a few traders own vehicles and use these for transporting game meat, most rely on public transport. The TAZARA (Tanzania–Zambia Railway Authority) local service train is the most commonly used method of travel, but traders also travel by bus and lorry. Often drivers and conductors are offered money or meat in exchange for hiding the game meat and for 'facilitating' its passage through Zambia Wildlife Authority (ZAWA) and police checkposts. The going rate for this service is either K20,000 (US\$4.50) or a large piece of game meat. If possible, traders like to transport game meat at night when police and scout checkposts are less likely to be manned and the inspections are less thorough.

Once traders reach Lusaka or another urban destination, they divide the game meat into smaller bundles weighing approximately 1 kg. The meat is then sold discretely door to door, from the seller's house to regular customers, or in the markets. Most dried game meat sells for the same price regardless of the species from which it is derived.<sup>10</sup> At the time of research, the price of cut sections from previously dried game meat strips was between K25,000 and K30,000 (US\$5.60–6.65). Profit margins for game meat traders are high. Barnett (2000), for instance, notes that Luangwa Valley traders earned profit margins of around 25%. For those selling meat in Lusaka or the Copperbelt, the profits are significantly higher, with traders making up to a 300% profit on the sale of game meat.

## The costs and benefits of hunting

You asked about the difference between poachers and those who don't poach? Those who don't poach are poor. They don't have soap and other necessities. Young man, 23 years old, 6th-grade education

The sale of game meat is one of the few sources of cash income in the study site. Villagers have few formal or informal employment opportunities. In addition to game meat, the other notable sources of household income are the sale of cassava or tomatoes at roadside stands, the sale of maize, manioc and soya beans to commercial brokers and remittances from relatives in urban areas.

Of the successful hunts recounted for this study, hunters sold game meat valued between K80,000 and K470,000 (US\$17–104) and averaged around K300,000 (US\$66). Carriers' revenues from these hunts ranged from K160,000 to K280,000 (US\$35–62) and averaged around K175,000 (US\$39). The most successful hunts can generate total revenues of K4–5 million (US\$890–1,100).

Hunts are relatively inexpensive to stage. Carriers take little with them besides maize meal, salt (for preserving meat), a knife, and sometimes alcohol. Hunters' costs are higher as they take these items as well as guns, snares, gunpowder, lead 'bullets' and matches. In October–November of 2002, these hunting inputs cost approximately K29,000 (US\$6.45) for each hunter and K12,000 (US\$2.65) for each carrier. Considering these financial inputs, the profits from a successful hunt are regularly more than 10 times the amount invested by hunters and carriers.

The 26 hunters whose life histories we gathered in 2002–03 staged an average of 15 hunting expeditions in the year preceding the interviews. They reported that three-quarters of their trips were successful in bringing back expected loads of meat to the village. If the average successful hunt generated revenue of K200,000, these hunters annually earned about K2,200,000 (US\$490). Our data on carriers are less robust, but, if we assume that most carriers work an average of five hunts a year, and earn K200,000 per trip, they are likely to earn at least K1,000,000 (US\$111) annually.

The sale of ivory also provides some hunters with cash. As highlighted above, ivory used to be the impetus behind much of the 'poaching' in the Luangwa Valley, when most of the flesh from elephants killed was left to rot in the valley. These hunters were locally referred to as '*sokola*' – after the Bemba term for pulling teeth. In recent years, however, ivory has become more difficult to sell. Buyers for ivory, however, can be found, and hunters almost always transport the tusks to their villages in the hope of selling them without attracting attention of the wildlife officials or police. Informants noted that in 2002 one tusk weighing about 4 kg sold locally for K200,000.

The income generated by hunting also brings indirect economic benefits to those villagers who do not hunt, carry or trade game meat. As most serious hunters do little farming, they purchase or barter most of the food staples (maize, sorghum, cassava) from other local farmers. This in turn provides some farmers with cash and animal protein that they otherwise might not have.

In an area in which per capita income hovers around US\$120 a year (Mano Consultancy Services Ltd, 2001), the money earned through the sale of game

meat contributes significantly to local livelihoods (Table 6.2). Hunters are among the wealthiest locals. The amount of money earned through this trade, however, is transient and not sufficient to transform their standard of living. The study found that almost all money earned from the sale of game meat is spent almost immediately on food or consumables (clothes, soap, etc.). 'Even earlier participants in the more lucrative rhino horn and elephant ivory trades have retained little to show for their efforts' (Marks, 2001).

Hunting and the game meat trade brings more than monetary benefits to its participants. It also brings nutritional and social benefits. Each of the hunters or carrier interviewed kept one or two pieces of meat for household consumption. This meat contributes to household nutrition levels. However, as many hunters grow little of their own food and rely on the purchase of staples such as maize meal to feed their families, it is unclear whether hunting households are more consistently food secure than non-hunting households.

Social status is another important, but less tangible, benefit of hunting. Historically, Bisa men garnered a great deal of status from their prowess as hunters. This continues to be the case, and many of the most successful hunters are held in high esteem, for these men as patrons use their weapons and its products to protect and to nurture their relatives and clients. In the past, distribution of meat from hunts was expansive, with meat given to a range

**Table 6.2 The conversion of game meat into money (Zambian kwacha) based upon the average number of meat strips produced from a single carcass: comparison of prices of meat delivered on the Zambian plateau and in towns, 2001–02.\***

Species	No.	(A) Meat strips produced by average carcass (range)	(B) Price of strips from single carcass delivered on Zambian plateau = A × K20,000 <sup>†</sup>	(C) Price of strips from single carcass delivered in town = (A) × K50,000 <sup>‡</sup>
Elephant, large	5	130 (128–135)	K2.6 million	K6.5 million
Elephant, small	4	110 (96–110)	K2.2 million	K5.5 million
Hippo	5	120 (115–129)	K2.4 million	K6.0 million
Buffalo, male	5	33 (30–36)	K660,000	K1.65 million
Buffalo, female	4	25 (20–28)	K500,000	K1.25 million
Eland	3	43 (38–60)	K860,000	K2.15 million
Roan	2	36	K720,000	K1.8 million
Zebra	3	32 (25–40)	K640,000	K1.6 million
Hartebeest	1	20	K400,000	K1.0 million
Warthog	4	11 (10–12)	K220,000	K550,000

\*Based upon interview data from hunters and sellers.

<sup>†</sup>Sales price on Plateau ranged between K11,000 and 28,000 per strip depending upon condition, sales competition, and demand (see text).

<sup>‡</sup>Sales prices in town were 2.1–3.0 higher than on the plateau (see text).

of kin, neighbours and, in some circumstances, the headman or chief. The growth of commercial hunting, however, has transformed social and kinship relations, for, in recent years, many hunters have attenuated their kinship and social relations to reduce their distributional and social obligations. Beyond their immediate dependants, the hunters and carriers interviewed distributed meat to their parents, mothers-in-law, sisters and sisters-in-law and sold the rest. Whether or not a hunter contributed meat to these close relatives at any one time depended upon his pressing obligations and outstanding debts to others who were not related to him.

Hunting is an inherently risky occupation, all the more so when it is carried out illegally (Figure 6.1). Of the hunts recounted for this study, several hunters and carriers had close brushes with lions and charging elephants, one lost a carrier to a cobra bite and several were injured when their muzzle-loaders exploded. The greatest risk hunters and carriers face, however, is being caught, jailed or fined for poaching. The spectre of potential encounters with authorities hangs over all hunts. Local hunters periodically encounter scouts in the Luangwa Valley. Of the hunts analysed in this study for instance, three were abandoned to avoid scout patrols. Of the 30 hunters and carriers interviewed in 2001, seven claimed that their guns had been confiscated, four had spent time in prison and six had spent time in prison in addition to having their weapons confiscated. All of the 26 regular hunters whose life histories were gathered in 2002–03 had experienced run-ins with scouts during their careers. Although most hunters and carriers avoid capture, a number of locals have been arrested and prosecuted for wildlife offences. In 2002, six men from the field site were arrested by scouts. Each received a prison sentence of between 1 year and 18 months. Several game meat traders, including local residents, have also been arrested. In 2002, two local women served 6-month jail terms for selling game meat on the side of the road. More seriously, there have been several recent cases in which game scouts were reported to have shot and killed local hunters and carriers.

Overall, however, the existence of ZAWA enforcement officers does little to deter locals from hunting. As a 40-year-old man told us, 'I poach as the only way to support my family'. Hunters and carriers acknowledge that they risk arrest and jail, yet the relatively slim chances of being caught are considerably outweighed by the direct economic benefits of their participation in the current game meat trade.

## Conclusion

The only way of reserving wildlife in order for them to multiply is to employ us poachers so that we can earn money without killing animals. We should be paid for conserving them and for selling meat. If you people just look at us and enjoy apprehending us, it (your complacency) will not work because



Figure 6.1 A plateau hunter and his young carriers with loads of game meat captured by game guards in the Luangwa Valley in 1989. The guard pointing the rifle set the scene to demonstrate his effectiveness on the job and his resentment towards poaching by outsiders.

we are poor people. When you come up with measures for dealing with us (anti-poaching patrols, village raids, jail sentences, etc.), we also look for ways to challenge your measures. Under such conditions, hunting and poaching won't be stopped. Man, 51 years old, 9th-grade education

There are a lot of young men here doing poaching. It's a dangerous business as once our children are arrested there is no bright future for them. They serve jail sentences for long periods. Those jailed don't have money to bail themselves out for the money they get from poaching doesn't do them any good. They use it for such things as beer. Sometimes, these poachers are shot by game guards and no report is made for fear of further arrests. There are so many boys who have nothing to do in the village but hunt. Woman, 50 years old, married

In Zambia and elsewhere in sub-Saharan Africa, most anti-poaching strategies are based on both carrots and sticks. On the one hand, they seek to improve the effectiveness of scout patrols, crack down on the transport and

sale of game meat, and tighten the enforcement of hunting regulations. On the other hand, they seek to offer local residents in a project area alternative sources of income, some of the proceeds from tourism and legal hunts and a greater sense of 'ownership' over conservation initiatives. While sound in theory but rare in practice, this strategy has often been based on assumptions about, rather than knowledge of, the character and extent of illegal hunting in particular areas and the motivations and needs of hunters or enforcers (Gibson and Marks, 1995). With this disconnect in mind, this study provides a snapshot of unlawful hunting and its significance in one set of communities.

The study shows that illegal hunting and sale of game meat has assumed a central place in the economy of the plateau villages surveyed. Hunting appears as the largest local source of cash income, with nearly a third of local households benefiting directly from the game meat trade. No one in the area is becoming rich from hunting, yet, some hunters are able to earn nearly US\$100 in a single expedition – close to the local per capita annual income of US\$120. Less successful hunters and carriers do not earn this much, but they are still able to earn enough from game meat to supplement their meagre incomes.

The costs of hunting within the adjacent national parks are relatively negligible when weighed against its benefits – even if it is a short-term perspective. The profit from a successful hunt is 10 times that of the investment involved. A possibility of being arrested, fined or even shot by ZAWA authorities exists. However, locals see the probability of this as relatively low and in the face of few alternative sources of income are willing to take such risks.

The long-term sustainability of the national parks in the Luangwa Valley hinges on reducing illegal hunting originating elsewhere. This will be difficult task given the profits available to local hunters, the lack of realistic alternative livelihoods and the relatively low risk of being caught and punished by the authorities. Stemming illegal hunting will require much more than improved enforcement of existing hunting regulations. It will require a reduction in the demand for illegal game meat in urban areas and an increase in the legal supply of such meat. At a local level, it will require, at the very least, the creation of income-generating alternatives that are as profitable and as culturally significant as hunting.

In the short term, however, it will be difficult to create livelihoods that will earn hunters anywhere near the same profits they earn currently through the sale of game meat. Any alternative income-generating strategy (tourism, guided hunts, honey production, caterpillar and orchid harvesting and conservation farming have all been vetted) would have to provide local hunters with at least several hundred dollars of income a year to replace lost income from this trade. Moreover, even if profitable income-generating alternatives are created in the area, there is no guarantee that locals will abandon illegal hunting. Hunters may decide that it is in their best financial interest to engage in the new income-generating scheme whilst continuing to hunt.

## Notes

- 1 In this chapter, we use the term 'game meat' rather than 'bushmeat', as this is the term used by Zambian hunters and consumers.
- 2 This study would have been impossible without the professional and thorough commitment and documentation of this researcher. In an ideal world, he would be credited as an author of this chapter, but with his agreement we decided to withhold his name to protect him from reprisals.
- 3 Each hunter was asked to describe his age, education, years of hunting experience, the composition of their hunting party (the numbers of hunters and carriers) and weapons used. Each hunter was then asked for a detailed account of their day-to-day activities during the hunt (where they went, what they saw, what they killed, how the meat was divided, etc.), to recount the distribution and sales of meat and to describe how their hunt incomes were spent. Twenty thousand kwacha (about US\$4 dollars) was paid to each informant for participating in this study.
- 4 Some hunting and snaring still takes place on the plateau and in and around the villages. These hunts, however, tend to be relatively small-scale affairs in which individuals or small groups pursue bushpigs or small antelopes at night.
- 5 For the purposes of this study the exchange rate is taken to be K4,500 to the US dollar. This is the average exchange during the period September 2002 to February 2003. All conversions to dollars are rounded to the nearest US\$0.05.
- 6 All of the hunts on which this study is based relied on muzzle-loaders for killing game. Only one of the hunts reported snaring any animals (a roan and a zebra). Snaring is much more common around the villages on the plateau than used during these long forays into the valley. See Chapter 11 for an assessment of the importance of snaring in the Luangwa Valley.
- 7 In 2001, we were shown a game licence from the previous year for the following itemized costs: one hartebeest (K75,060), one warthog (K50,040), one bushpig (K10,080), basic licence fee (K100,000) and general receipt (K5,000). For this amount (K240,260 or US\$69), the purchaser had to find and kill these species within a 3-month time frame. A woman meat purchaser informed us that she had begun her trade attempting to be legal. She purchased a licence for a hartebeest (K75,000) plus a general receipt and commissioned an ex-game scout, who in 40 days failed to kill one for her. Along with others, her experience convinced her that she was wasting both her time and her money.
- 8 Statistics for estimated consumption for other species such as hippo or elephant are not available.
- 9 The lack of large-scale traders could be a product of the stealth involved in smuggling the game meat through police and game scout checkposts. A few bags of game meat are easier to conceal and less costly to lose than an entire lorryload.
- 10 Our information on the relative prices of different game meat contrasts to that of the TRAFFIC report (Barnett, 2000). This report notes that prices paid for dried game meat from larger animals such as cape buffalo are much higher than for smaller animals such as duiker. This is an issue that requires further research.