

'NIGHT TIME SPINACH'

**CONSERVATION AND LIVELIHOOD
IMPLICATIONS OF WILD MEAT USE
IN REFUGEE SITUATIONS
IN NORTH-WESTERN TANZANIA**

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TRAFFIC East/Southern Africa



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George Jambiya
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Within the refugee camps of Kagera and Kigoma Regions, wild meat is widely known as *Mchicha wa usiku* ('night time spinach' in Swahili) as it is traded covertly at night

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EXECUTIVE SUMMARY

The implications of unsustainable wild meat exploitation for wildlife management and livelihoods in the refugee hosting areas of north-west Tanzania are rarely acknowledged by all the relevant stakeholders. This study takes a focussed look at wild meat use in refugee situations in north-western Tanzania, associated impacts, driving forces, and the appropriateness of some of the management interventions taken to date.

The study outlines why enforcement of wildlife laws and regulations cannot address the drivers of unsustainable wild meat use in these, and other, refugee hosting areas. The study goes on to justify how positive incentives, whether via equitable market frameworks for wild meat or through provision of alternative sources of protein or livelihoods, may better reconcile refugee needs, local development imperatives and wildlife management objectives. Measures are recommended to stakeholders, including policy makers, refugee support agencies and wildlife managers, to broaden the complement of policy and programme responses.

Awareness of the importance of wild meat to the livelihoods of the rural poor in Africa continues to grow. There is also increasing recognition of the problems caused by unsustainable wildlife harvesting. Yet the dynamics of wild meat exploitation, consumption and trade in areas hosting refugee populations have not received appropriate attention, despite the fact that many refugee hosting countries in Africa are also home to large and diverse populations of wildlife. For the sake of improving conservation, refugee support operations and local development efforts in these areas, the importance of wild meat use in the context of refugee situations needs to be acknowledged and better understood.

Tanzania provides a relevant case study for assessing these issues. Since 1993, the country has been host to one of the largest concentrations of refugees in the world and the largest in Africa. Nevertheless, the conservation and livelihood implications of wild meat use in the refugee hosting region of north-western Tanzania have been poorly documented and understood. This study is a first attempt to fill this gap. The preliminary findings suggest that a broader range of policy and programme responses, which address the root causes and drivers of wild meat use, may be more likely to meet the food security and livelihood needs of both refugees and local communities in a sustainable fashion than enforcement measures alone.

The study draws upon data collected during two field visits to the Kagera and Kigoma regions; a stakeholder workshop in Kigoma; and a review of published and grey literature on wild meat, livelihoods and the environmental challenges associated with managing refugee populations.

It is now well known that the large refugee influxes into north-western Tanzania have caused significant forest degradation and loss. They also appear to have coincided with a dramatic increase in the scale and scope of wild meat exploitation. In some instances, the cultural preferences of the refugees have stimulated demand for rare or valuable wildlife species. In other instances, the sheer size of the



Refugee children, Lugufu camp

refugee population has resulted in unsustainable levels of wild meat harvests. Refugee involvement in the harvesting, trade and consumption of wild meat has likely increased local resentment toward refugees, fueling attitudes about refugee criminality which were not necessarily based in fact. The nature of local involvement in this problem has been obscured in this climate of suspicion.

Wild meat use in refugee camps is problematic, however, for three reasons. First, it has helped conceal the consequences of the failure of the international community to meet basic refugee needs. Moreover, the fact that wild meat harvesting continues to be illegal has meant that refugees have been twice penalized: their rights to minimum standards of humanitarian care are not always being met and their own attempts to meet them, because of Tanzanian wildlife law, are criminalized. Third, the nature and scale of wild meat use within refugee camps has appeared to cause a major negative impact on some local wildlife populations. Such declines have represented lost income to local authorities, as opportunities were foregone to earn revenue from trophy hunting and wildlife viewing. Moreover, despite its illegality, wild meat was an important local resource before the arrival of refugees. Thus, its declining availability, combined with the illegal nature of wild meat harvesting, has likely fuelled local resentment, particularly by local authorities, toward the refugees in their midst.

An examination of efforts to respond to the environmental impacts of refugees in these areas reveals a heavy emphasis on policing, either through law enforcement or efforts to improve the management of local protected areas. These *post hoc* responses were necessary but have not addressed the root causes of wild meat use in refugee situations. Some agencies have focused on environmental awareness raising and the promotion of alternative protein sources, but it is unclear how effective these activities have been at addressing influencing factors.

The study therefore identifies a number of important root causes and influencing factors behind wild meat usage in refugee hosting areas of north-western Tanzania. The placement of some camps close to Game Reserves and National Parks and the use of wild meat in this region prior to the large refugee influxes of the 1990s meant that increases in wild meat harvesting were, in the absence of mitigating factors, inevitable. Wild-sourced meat was both less expensive than local beef and more desirable for many refugees. The absence of meat in refugee rations and their inadequate caloric levels have created an extra incentive for refugees to seek out wild meat. The harvesting and trade of wild meat has also promised refugees the possibility of generating income, otherwise difficult in the face of official Tanzanian refugee policy, which discourages self-reliance within refugee camps.

These drivers suggest a number of paths forward for stakeholders concerned with the challenge of managing wild meat use in refugee contexts. Wildlife law enforcement will continue to be important, particularly in the case of endangered or valuable species like Chimpanzee or Elephant. However, law enforcement alone is an ineffective response. Other complementary alternatives exist. Refugee support organizations must address inadequate food provision policies which, if unmanaged, have potential long-term negative development impacts on the surrounding area. For their part, local authorities may want to consider avenues for legalizing the harvesting of trade in wild meat in specific areas, during certain times of the year or for selected species. The creation of incentives to increase provisioning of affordable livestock meat as an alternative to wild meat should also be promoted. Regulated mechanisms to provide legal meat supplies, both from wild and domesticated sources, may help generate local income and help support refugee food needs in a sustainable manner. Lastly, refugee policy makers may want to reconsider income generating restrictions that create perverse incentives for illegality and undermine other government policy agendas such as wildlife conservation and management.

INTRODUCTION

Wild meat and food security

The trade and utilization of wild animal meat is at the forefront of the convergence of biodiversity conservation, livelihoods and food security in many developing countries (Mainka *et al.*, 2002). The trade in wild meat has been identified as both a serious threat to wildlife populations in eastern and southern Africa, and a food security issue facing many rural communities. In this regard, wildlife is critically important as a source of cheap and preferred protein and can, when traded, provide a source of cash where few alternative sources of income are available.

Often considered a tropical forest phenomenon involving primates, extensive research has clearly highlighted the far reaching use of wild meat in eastern and southern Africa (Bakarr *et al.*, 2001; Barnett, 2000; Chardonnet *et al.*, 2002; Friedmann, 2003). Whilst the trade in legally-acquired wild meat is a growing economic activity in eastern and southern Africa, its potential is rarely realized by rural communities due to issues relating to ownership, access and poverty-related factors. On the other hand, the trade and use of illicitly-sourced wild meat – often called bush meat – plays a central role in rural food security, involves more people than any other wildlife activity, and contributes heavily towards income generation (Brown *et al.*, 2007).

Unfortunately, the conservation impacts of this use and trade can be equally profound, and a major factor contributing towards recorded declines in many animal species (Barnett, 2000). The progressive decline, and sometimes complete elimination, of larger species in key hunting areas results in a greater reliance on smaller species. The sad reality is that those who live closest to, and are most dependent upon, wild sources of food, are usually the very ones who pay the most direct price for biodiversity loss.

In Tanzania, hunting for wild meat takes place throughout the country and has led to informal and often secretive trade dynamics. The *Tanzania Wildlife Policy* notes that escalating illegal wildlife offtake and trade is one of the major challenges facing the wildlife sector (MNRT, 1998). Communities living adjacent to Game Reserves and National Parks, and especially hunters and gatherers, or any community facing a food scarcity situation, often seek access to terrestrial animals and fish as important sources of protein. For example, wild meat constituted 55-95% of meat protein requirements in Western Serengeti and Meatu Districts (Barnett, 2000). Despite being an illegal activity over the last half century, the wild meat trade has continued to thrive and expand for a number of reasons (Baldus, 2002):

- Not only has wildlife law enforcement proved extremely challenging inside protected areas, but the enormous task of securing wildlife living outside protected areas has proved almost impossible with policing action alone;
- There is very low public awareness regarding the illegality and conservation impacts associated with buying and eating wild meat, so for many people living in rural areas it is not seen as a wrongful activity;
- The demand for wild meat is present and growing because of an expanding population and increasing purchasing power of people;
- There is not always a sense of ownership of wildlife and protected areas, leading to uncontrolled exploitation of wild meat; and
- Wild meat is cheaper than beef and is in many rural areas the only meat readily available (especially in tsetse fly infested parts of the country).

After failing to fight the wild meat trade through law enforcement measures, there is a need for the Tanzanian government and all stakeholders working in refugee situations to look for new ways that might be more effective and practical. This is a formidable challenge, and it is therefore important that effective partnerships are developed between conservation professionals and local organizations and partners within the development community (Barnett, 2000; Baldus, 2002). The formalization of land tenure security and transfer of wildlife ownership to land-holders have also been noted as important strategies (Barnett, 2000).

Refugees and wild meat

The dynamics of wild meat trade and utilization are as geographically varied as the diversity of species involved. Refugee camps are one particular situation where wild meat trade can reach very high levels, but has received scant attention. As refugees are driven away from their traditional lands and livelihoods into new, frequently forested areas, the only living to be made is from slash-and-burn agriculture and hunting for wild meat to top-up food rations and secure preferred diets. Whilst some work has focused on the impacts of refugees on the environment, in particular forest resources, there is a dearth of such information on wildlife resources. However, the combination of high human population concentrations, fluctuating food supplies and locally abundant wildlife populations has in the past led to flourishing wild meat trades in and around refugee camps. In this way, wild meat has provided important dietary supplements to hundreds of thousands of displaced and hungry people, particularly in the absence of affordable or culturally accepted meat protein alternatives.

With relative political and social stability, Tanzania has been hosting refugees almost continuously since independence was gained in 1961. In a region at times torn apart by civil conflicts, the majority of refugees have come from Rwanda, Burundi, Democratic Republic of the Congo (DRC), Uganda and other southern African countries (Rutinwa *et al.*, 2003). Over 800 000 refugees entered Tanzania in two waves between 1992 and 1997, the first to Kagera Region in mid-1994 and the second to Kigoma Region in late 1996 (UNHCR, 2002a). This included what at the time was the largest and fastest movement of refugees in modern history, when some quarter of a million Rwandans fled to Ngara District in a 24-hour period¹. Whilst the majority of Rwandan refugees in Tanzania returned home in 1997, Tanzania still hosts the largest refugee population in Africa with 2007 UNHCR statistics putting the total number of refugees still in Tanzania at 548 000 (predominantly from Burundi and the DRC), with 63% of these refugees residing in formal camps (UNHCR, 2007).

There are numerous economic, social and environmental challenges to face when hosting refugees within formal camps. A comprehensive assessment of refugee presence in north-western Tanzania revealed six broad negative impacts (Rutinwa *et al.*, 2003):

- threat to external security (strained relations with the countries of origin);
- threat to internal security (increase in criminal activities);
- environmental degradation;
- destruction of physical and social infrastructure;
- excessive burden on local governance and administration; and
- retarding economic development in refugee-affected regions.

¹ Following the assassination of the first elected Hutu president of Burundi, Melchior Ndadaye, on 21st October 1993, revenge swept through the country and some 700 000 Hutus fled, with almost half moving to western Tanzania. Six months later, as many refugees prepared to return, both presidents of Rwanda and Burundi died in a plane crash on 6th April 1994. During the resulting genocide of up to one million people, hundreds of thousands of Rwandans fled to north-western Tanzania (Jaspars, 1994).

With regard to forestry and wildlife concerns, most attention has focused on the most highly visible and, therefore, most immediately recognizable negative impact: the degradation of surrounding woodlands as a result of building pole and fuel wood demands (Rutinwa *et al.*, 2003; Annex 2). Whilst not as clearly evident, wild meat trade in and around refugee camps has had significant negative impacts on local wildlife populations, including those in nearby protected areas (e.g. Burigi, Biharamulo, Moyowosi, Kigosi and Kimisi Game Reserves). Indeed, as a result of reduced wildlife numbers, the consumptive and non-consumptive tourism potential of surrounding protected areas has dropped tremendously, resulting in lost revenue and perceived value by stakeholders.

In general, however, the nexus between wild meat use, refugee camp management and local wildlife populations is poorly understood, with very little attention focused on root causes and influencing factors. It is also apparent that the contribution of the wildlife sector towards meeting refugees' dietary requirements is seldom, if ever, fully acknowledged by institutions responsible for refugee camp management. As a result, the longer-term humanitarian, environmental and economic implications of unsustainable wild meat harvesting and consumption trends are poorly considered in the context of refugee camp management and finding incentive-based solutions.



Woodland regeneration at site of former *Benaco* camp, Kagera

Credit: George Jambiya

Study objectives

Over the last 40 years or so, more than 20 major refugee camps have been located within close proximity to Game Reserves and Game Controlled Areas, with 13 remaining in 2005. A closer look at the nexus between environmental and socio-economic considerations affected by wild meat use and trade in and around refugee camps in north-western Tanzania was thus warranted because of both humanitarian and conservation concerns. This study aimed to document available data and perceptions about the wildlife situation that has evolved in north-western Tanzania under successive influxes of refugees. Indeed, the implications of the location of refugee camps need to be clearly shown, understood and documented.

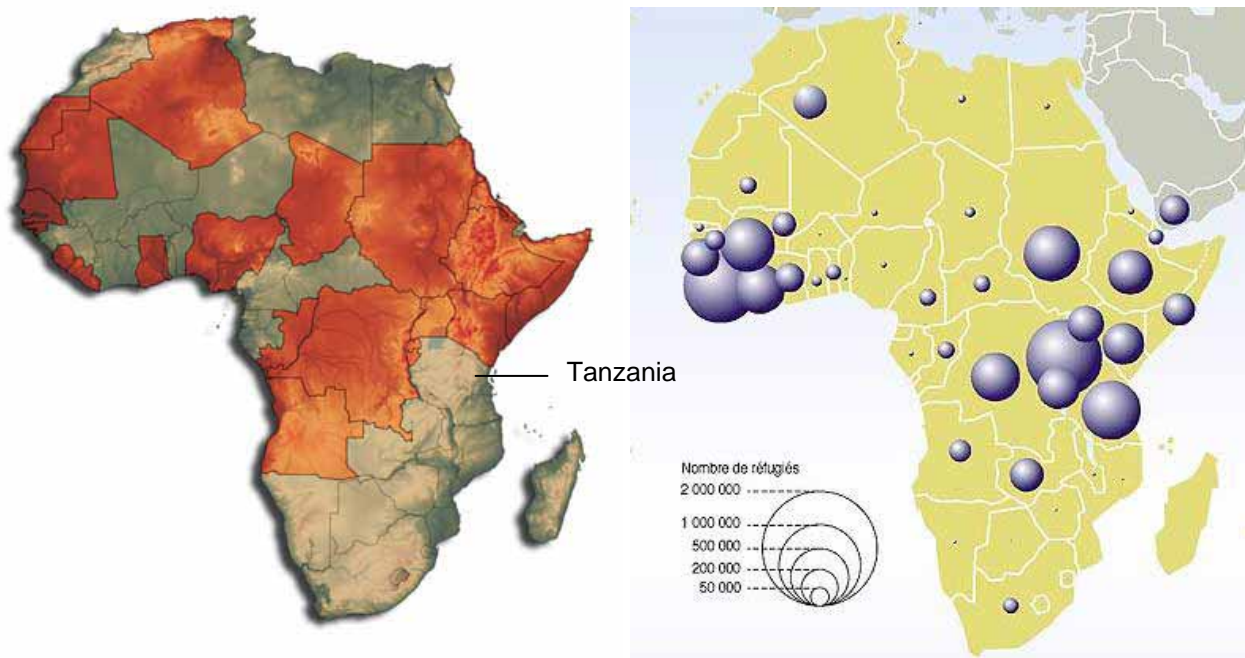
This study has the ultimate objective of contributing to the improved management of existing and future refugee camps in terms of investigating how food security requirements for refugee populations can be met without threatening wildlife populations or the livelihoods of Tanzanians living in the vicinity of refugee camps. It is seen as an initial step towards raising the profile of wild meat trade in and around refugee camps in north-western Tanzania, so that the matter is given the serious attention that it warrants. In this way, the study is seeking possible ways and means of arriving at win-win situations, rather than the path of outright bans and further criminalization of the trade. It is recognized that further research may be required before a fuller understanding justifies follow-up advocacy and policy work.

It is hoped that recent efforts aiming at bringing peace in the Great Lakes region will bear fruit, and indeed some recent developments are encouraging. Repatriation of Rwandese refugees has been partially successful and the process in Burundi and DRC is still under way. However, it is important for Tanzanian authorities to have contingency plans to cope with a repeat of refugee flows into north-western Tanzania, both in terms of wildlife management and ensuring food security. The same considerations are required during future consolidation of existing camps and for refugee repatriation efforts.

It is also likely that lessons learned from north-western Tanzania could be used to strengthen the management of protracted refugee situations elsewhere in the world. It is, however, recognized that local conditions (especially climate and landscape) may vary enormously between refugee camps even in neighbouring countries. In 2003, some 6.2 million people were involved in 28 protracted refugee situations prevailing globally, each lasting an average duration of 17 years (UNHCR, 2004). Within Africa, war and political turmoil have made 21 nations major sources of refugees and/or internally displaced persons (Anon., 2005; Figure 1). The ten largest refugee groups in Africa are from Burundi, Sudan, Angola, Somalia, DRC, Eritrea, Liberia, Sierra Leone, Rwanda and Ethiopia (UNHCR, 2005a; Figure 1).

Figure 1

Major sources (red) and relative size of refugee populations (blue) in Africa



Sources: Anon. (2005); UNHCR (2005a).

BACKGROUND

Demography and economy

Covering an area of 945 090 km², the United Republic of Tanzania is bordered by Kenya and Uganda to the north, Rwanda, Burundi and the DRC to the west, and Zambia, Malawi and Mozambique to the south. Around 900 km of coastline forms the eastern boundary with the Indian Ocean. In 2002, Tanzania had a population of 34.7 million, growing at an average rate of 2.9% per annum between 1988 and 2002. The population density is 40 persons per square kilometre (NBS, 2003a, 2004).

Whilst economic and fiscal reforms have ensured a steady increase in GDP since the 1990s, reaching 6% in 2002, the real GDP per head has increased very slowly, with very little reduction overall in the proportion of households living below the national poverty line (Anon., 2003a,b; NBS, 2003b). Indeed, Tanzania is one of the poorest countries in the world with 36% of the population living below the national basic needs poverty line (VPO, 2005). Annual per capita income is around USD 331. Life expectancy at

birth is 51 years, whilst 29% of children under five experience child malnutrition. The economy is heavily dependent on agriculture, which in 2004 accounted for 46% of GDP, provided 85% of exports, and employed 90% of the work force (NBS, 2004). Topography and climatic conditions, however, limit cultivated crops to only four percent of the land area. Industry is mainly limited to processing agricultural products and light consumer goods. Over the last 15 years, Tanzania has been rehabilitating a deteriorated economic infrastructure. Tanzania also has vast amounts of natural resources, including gold deposits and gas.

The *National Strategy for Growth and Reduction of Poverty* (NSGRP, also known as *Mkakati wa Kuongeza Uchumi na Kupunguza Umaskini - MKUKUTA*) is the second national organizing framework for putting the focus on poverty reduction high on the country's development agenda (VPO, 2005). It builds directly on *Tanzania's Development Vision (Vision 2025)* as well as the *Millennium Development Goals* (MDGs). All sectors are thus required to align closely with the NSGRP/MKUKUTA.

Wildlife resources

Tanzania is renowned as one of the richest countries in Africa in terms of biodiversity. In response, over 24% of the land is devoted exclusively for wildlife, upon which much of the tourism industry is now based (Severre, 2003). Several protected areas and wetlands are internationally renowned as World Heritage and Ramsar (Convention of Wetlands) sites. Three government organizations are responsible for wildlife management in different categories of protected area – Tanzania National Parks, Ngorongoro Conservation Area Authority and the Wildlife Division within the Ministry of Natural Resources and Tourism. Local authorities falling under the President's Office – Regional Administration and Local Governance also play a major part in wildlife management.

Amongst other factors, achievement of the MDG on environment has been hindered by insufficient involvement of local authorities and communities (UNDP, 2001). Thus, in addition to maintaining the protected areas network, the *Wildlife Policy of Tanzania* (1998) places a strong emphasis on involving all stakeholders in conservation and management of the resource, especially local communities and the private sector (MNRT, 1998).

The wildlife sector is important in terms of its present and potential revenue generation. Hunting and forestry jointly contribute 2-3% of the GDP under the total agriculture contribution, whilst trade, hotel and restaurants contribute a further 16.8% (NBS, 2004). The real contribution of the wildlife sector is estimated at between seven and ten per cent of the Tanzanian GDP (NBS, 2004). In 2002/3, Government revenue from photographic safaris conducted in National Parks accrued TZS 19.5 billion, with a further USD 9.3 million collected from tourism hunting and TZS 6.7 billion collected from non-consumptive tourism activities in the Ngorongoro Conservation Area (Severre, 2003). However, gross incomes from wildlife are higher still. For example, the hunting industry is estimated to have actually generated some USD 27.6 million in 2001 (Baldus *et al.*, 2004). In recent years, the number of tourist arrivals in Tanzania has increased from 295 312 in 1995 to 576 000 in 2003. Income realized also shows an improvement from US\$ 259.4 million in 1995 to US\$ 731 million in 2003 (Sosovele, 2005).

Less well documented, but of significant importance to local communities, is the role of wildlife in providing food security and income generating opportunities (Barnett, 2000). Given the illegal nature of most wild meat use in Tanzania, it is difficult to establish its importance to rural economies. However, as a locally-contested resource, its absence from official statistics should be seen as a weakness of the statistics themselves rather than an indication of its low economic importance to rural communities.

Hosting of refugees

Tanzania has hosted hundreds of thousands of refugees for more than four decades. During this time, two distinct refugee policies have been pursued. Between the 1960s and early 1980s, the Government liberally allowed refugees most socio-economic rights, including the right to engage in economic activities, and the commitment to host refugees until the conditions in the countries of origin were right for voluntary repatriation (Rutinwa *et al.*, 2003). However, following growing concerns over the negative impacts of refugee presence on security, environment, infrastructure and economic development, a new policy was adopted in the 1990s. The new policy, still in operation, focuses on temporary protection for refugees, curtailing their freedom of movement and engagement in self-reliance activities, whilst actively pursuing rapid, voluntary repatriation.

The principal legislation governing refugee matters in Tanzania is the *Refugees Act (1998)*, which became legally effective in 1999 and replaced the *Refugee Control Act of 1966* (UNHCR, 2000). The primary institution responsible for refugee affairs is the Directorate of Refugee Services in the Ministry of Home Affairs (Rutinwa, 2005). The foremost partners include United Nations High Commissioner for Refugees (UNHCR), World Food Programme (WFP), United Nations Children's Fund (UNICEF), United Nations Population Fund (UNFPA), Food and Agriculture Organization (FAO) and International Federation of Red Cross and Red Crescent (IFRC), with numerous other agencies involved in specific assignments such as camp management, water, sanitation, community services and environmental care.

Other policies relevant to refugees include those related to land, human settlements development, agriculture and livestock, environment, forestry, wildlife, education, employment, fisheries and immigration (Rutinwa, 2005). Overlapping jurisdictions (e.g. the Ministry of Home Affairs and regional authorities) and differences in the provisions of the *Refugee Act (1998)* and the *National Refugee Policy (2003)* have been recently identified as amongst major challenges with respect to effectively protecting refugees (Rutinwa, 2005).

Tanzania was hosting some 566 000 refugees at the end of August 2005, a decrease of 6% since the beginning of the year (Anon., 2005). According to the Government, a further 200 000 Burundian and Congolese refugees live in villages close to the border who do not have official status (Rutinwa, 2005). At the end of September 2005, UNHCR was assisting some 370 000 refugees, including around 211 000 from Burundi (predominantly Hutu), 154 150 from the DRC (predominantly from Kivu Provinces), 2650 from Somalia (Bantu origin) and a further 2200 of mixed origin (Figure 2; UNHCR, 2005a).



Credit: Simon Milledge/TRAFFIC

Although the north-western borders of Tanzania have for many years been an area of conflict and strife, Tanzania enjoys good relations with its neighbours in the region and has been an active participant in efforts to promote the peaceful resolution of disputes. Tanzania is helping to broker peace talks to end conflict in Burundi and supports the Lusaka agreement concerning the conflict in DRC.

Tanzanians near Lugufu refugee camp preparing for hunting excursion

Figure 2

Refugee camps in north-western Tanzania



Source: UNHCR website (UNHCR, 2005d).

METHODOLOGY

This study was conducted through two field visits to the most refugee-affected regions of Tanzania, Kagera and Kigoma, as well as follow-up work in Dar es Salaam during 2005, and a stakeholder workshop held in Kigoma during 2006 (Annex 1). A significant source of information was gathered through interviews and consultations with almost 100 stakeholders, including villagers, village leaders, government officials at district and ministerial level, retired civil servants, refugees and refugee leaders, UN agencies, representatives of NGOs, former hunters and consumers of wild meat. A combination of interview techniques was employed. In addition, available wild meat and wildlife information were collected, including published and grey literature, official records and other fieldwork data. This study did not involve field research to collect new quantitative data on wild meat use and trade.

The field trip to Kagera Region focused on Ngora District, to gain a better understanding of the history and extent of wild meat use and trade dynamics, the effectiveness of previous interventions, and the presentation of recommendations under different scenarios. The *Lukole* refugee camp was a focus of this trip, and collection of information on wild meat trade spanned three distinct phases. The first phase of interest was prior to 1994, when local communities indigenous to the area consumed limited quantities of wild meat and refugee presence was minimal. The second phase started in April 1994 following the civil

war in Rwanda, when a huge influx of refugees from Rwanda settled at *Benaco* refugee camp within a very short time span. Refugees later settled to nearby camps in Ngara District and this period was generally associated with an abnormally high volume of wild meat trade and consumption. The third (and current) phase of interest started in 1997 when Rwandan refugees were forcibly repatriated to Rwanda. Since that time, the volume of wild meat trade has declined substantially but continues on a smaller scale.

A subsequent trip to neighbouring Kigoma Region focused on Lugufu camp and Gombe National Park. Collection of available information aimed to better understand wild meat trade dynamics by both recent Congolese refugees and those who entered Tanzania in the 1960-70s, as well as the threats to endangered species (e.g. Chimpanzees).

In this way, research findings were analyzed according to the following areas:

- historical and contemporary wild meat trade dynamics;
- impacts on wildlife resources and local development;
- involvement and relative influence of refugees and local populations;
- wild meat considerations in camp management;
- conflicts of interest and modes of resolution; and
- review of management approaches and responses.

Unless otherwise indicated, the exchange rate used for currency conversions was USD 1 to TZS 1100.

THE DYNAMICS OF WILD MEAT USE IN REFUGEE HOSTING AREAS

With the exception of the 1972 Burundian settlement refugees in Tabora and Rukwa Regions, Kagera and Kigoma Regions have historically hosted the bulk of refugees in Tanzania, particularly from the mid-1990s onward. As will be shown, there are similarities and differences between the dynamics of wild meat usage in these two areas. Both the similarities and differences suggest a need for diverse policy responses to the issue, and underline the argument that one approach alone cannot hope to address the underlying causes and influences affecting wild meat usage in refugee hosting areas.

Kagera Region

Ngara District, witness to one of the largest mass movements of humans in modern times, is one of six districts in Kagera Region. According to the 2002 National Census, the population of Kagera Region was 2 003 888 with an annual growth rate of 3.1% (NBS, 2003a). More than half of the land area is covered by forest (Table 1) although severe encroachment has affected at least 600 hectares of forest reserves, and moderate encroachment affecting a further 1000 hectares (Anon., 1998).

Kagera Region has five Game Reserves covering an area of 5241 km², namely Ibanda (294 km²), Rumanyika (245 km²), Kimisi (1030 km²), Biharamulo (731 km²) and Burigi (2941 km²) (Table 1; Figure 3). An additional two Game Controlled Areas, Masasi River (180 km²) and Nelwa Nkima (50 km²), bring the total area under protection to 16% (Anon., 1998; 2002).

Table 1

Summary protected area statistics for Kagera Region

District	Land area (km ²)	Forest area (km ²)	Forest area (%)	Forest Reserves (Number)	Game Reserves (Number)
Biharamulo	8 938	6 340	71	3	2
Bukoba	5 530	541	10	11	0
Karagwe	6 993	4 156	59	0	4
Muleba	2 499	1 059	42	1	2
Ngara	4 428	2 522	57	1	2
Total	28 388	14 618	52	16	5 ^ψ

Sources: Anon. (1998; 2002); MNRT (2005a).

^ψ Note: Biharamulo Game Reserve covers Biharamulo and Muleba Districts, Burigi Game Reserve covers Biharamulo, Karagwe, Muleba and Ngara Districts, and Kimisi Game Reserve covers Karagwe and Ngara Districts.

Figure 3

Game Reserves and National Parks in Kagera Region



Source: MNRT (2005a).

Game Reserves (such as Burigi and Biharamulo) are recognised for their important economic contributions at national, regional and district levels, such as fishing, tourism, sport hunting, beekeeping and creation of employment (MNRT, 2002). However, tourism opportunities in north-western Tanzania are somewhat limited by the infrastructure constraints, security situation near the borders, and relatively small pool of potential tourists to draw upon locally.

Wildlife revenue is mostly derived from tourist and resident hunting fees, and reached almost USD 51 000 in 1991 but dropped to just under USD 20 000 in 1993, the year prior to the refugee influx. According to available figures, by 1996, revenue had dropped to USD 10 793. The ten-fold increase in revenue from the sale of game meat and trophies may have been due to sales to refugees. However, this increase was offset by a decline in revenues from tourist hunting, likely a result of concerns over security in the area (Table 6).

Wild meat utilization before the arrival of refugees

In the past there was a small human population known as the Banyamuhimba. Until the mid-1970s, the Banyamuhimba lived as hunters and gatherers in the area until villagization, which was carried out between 1973 and 1975. The villagization exercise led to the resettlement of about 80% of Tanzania's rural population into villages, thus the Banyamuhimba were clustered together with other people from around Kagera region, forming a permanent settlement in this area. Although the main objective of villagization was to bring people closer to social services, it also led to their alienation from natural resources that had previously been part of their livelihood, which included hunting. This area was unsuitable for livestock keeping and human settlement since it was once infested with tsetse fly.

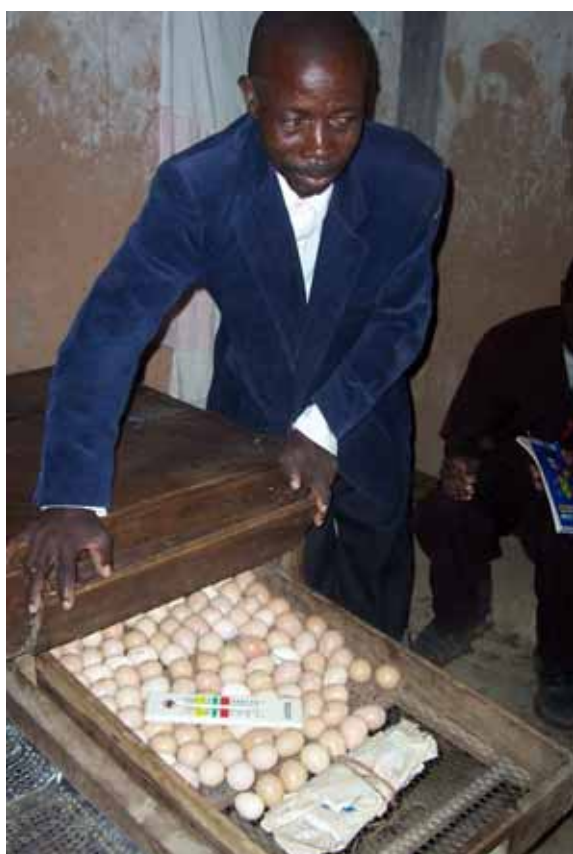
Until the mid-1970s, the thick vegetation supported large populations of wildlife with the major threat coming from the local people who lived mostly through hunting and snaring wildlife, collecting honey and gathering wild fruits. The Banyamuhimba would go out and set snares, checking them daily. Whatever animals were caught, they would keep some of the meat for their own consumption and sell or barter the rest with nearby villages. Thus, the consumption of wild meat is not new in this part of the country.

However, hunting for wild meat was illegal according to the *Wildlife Conservation Act* (1974), so when other tribes moved into the area, the Banyamuhimba were wary of them, suspecting that they may be informing officials of their illegal hunting and trade in wildlife products. The wild meat trade slowly, but steadily, grew until the early 1980s, with traders also selling hides and skins, Elephant tusks and even Rhino horn. Many animals were hunted locally and sold to businessmen who in turn would take them across the border to Burundi and Rwanda. Thus, the trade in wild meat and other wildlife products gradually evolved from a purely subsistence-based activity to a more business-orientated occupation.

At the same time, the drive to achieve food self-sufficiency and generate rural employment through operation *Nguvu Kazi* in 1983 led to the forced movement of urban and some rural youth into the area to establish farms. This meant that some of the forested areas had to be cleared, a number of one to two

hectare plots were established, and farming commenced. The operation was not entirely successful, however, since many of the youth subsequently returned to urban areas or their places of origin. The hunting and trading continued nonetheless, albeit at a relatively low level.

From the mid-1970s to the mid-1980s, there were a number of other factors that led to the gradual opening up of the area, and this resulted in an increase in the local population and significant clearing of the forests for cultivation. During this period, the Ngara-Isaka road was built, which was later bituminized and upgraded into a major trunk road leading to Rwanda and Burundi (Figure 4). From the mid-1980s, people from Biharamulo District came into the area, mainly the Wahangaza tribe. This migration was triggered by land shortages in Biharamulo, and land availability in Ngara. As a result of these developments wildlife habitats gradually contracted, leaving the officially-protected areas crucial for their survival.



Credit: Simon Milledge/TRAFFIC

Small-scale poultry farming by Congolese refugee

In summary, the utilization of natural resources by local people in this part of Tanzania is not a new phenomenon, and especially the utilization of wild meat despite the fact that this activity was already a crime according to the *Wildlife Conservation Act (1974)*. Before the peak of refugee arrivals in this area in the early 1990s and indeed throughout north-western Tanzania, wild meat was very much part of peoples' livelihoods.

Prior to 1994, there were no more than 200 000, mainly Burundian, refugees in Ngara district, who were mostly confined to camps situated away from the Burigi and Kimisi Game Reserves (Figure 4). Wild meat was being consumed, albeit at relatively low levels, in almost all the camps and forest resources were used for construction, cooking, heating and timber. It was the arrival of vast numbers of people concentrated in a few areas adjacent to forests and wildlife habitats that hugely increased the demand and stimulated the wild meat trade in north-western Tanzania.

Demography of the 1994 refugee influx

In just two days starting on 22nd April 1994, following the civil war in Rwanda, over 450 000 Rwandan refugees (Banyarwanda) crossed the Tanzania border at Rusumo bridge in north-western Tanzania. This was a modern day exodus of people fleeing their home area to a foreign country. Bloesch (2002a) reports that the refugees settled in an area with a low population density of about 50 people per square kilometre in the vicinity of a man-made dam near the village of Kasulo, about 20 km from Rusumo (Figure 4). Within less than a week, the tiny village of Kasulo, with less than 1,000 inhabitants, became the second largest population concentration in Tanzania, following the commercial capital of Dar es Salaam. Indeed, Kasulo was a little larger than Mwanza, Tanzania's second largest city, thereby quadrupling the population of Ngara District.

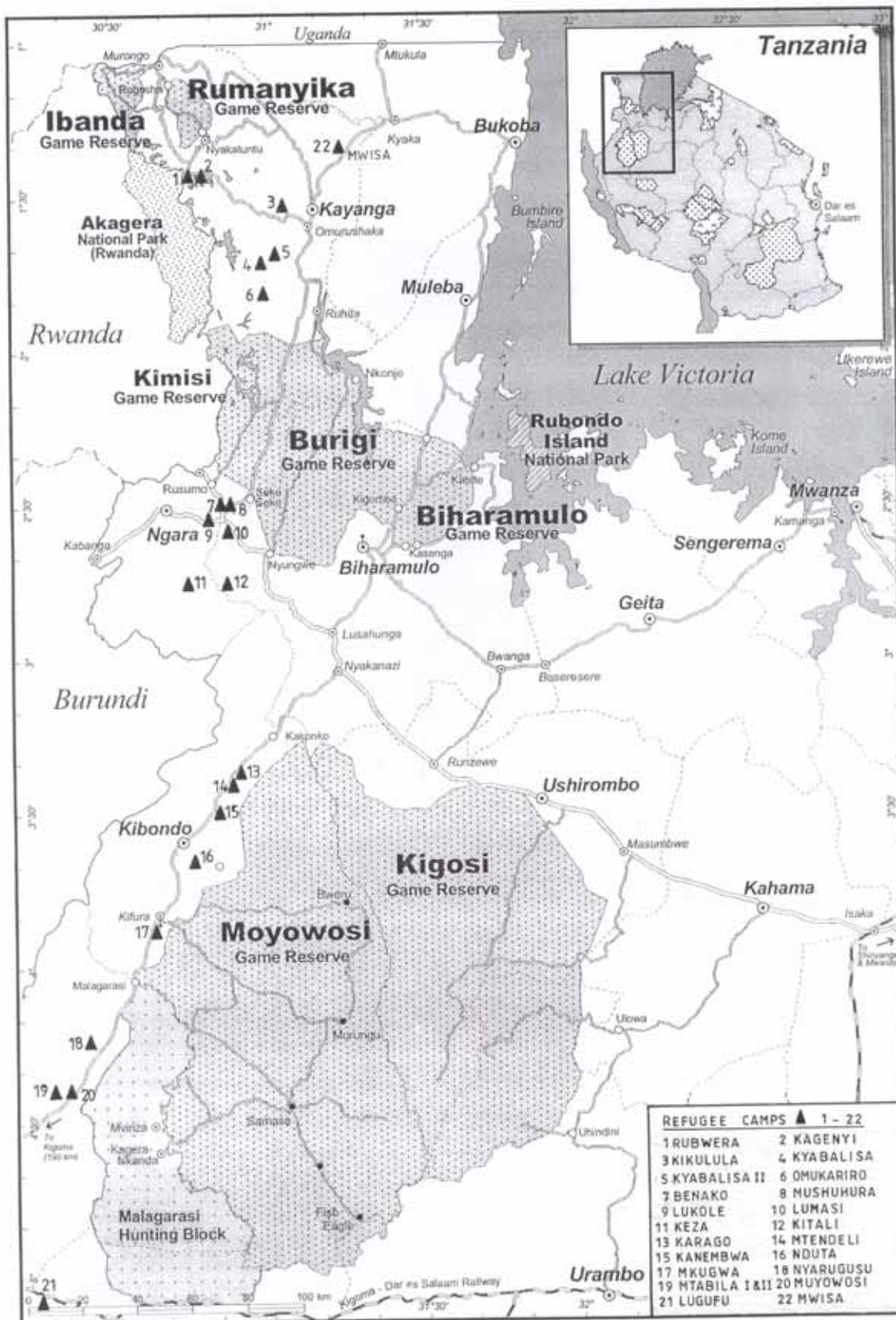
The refugee camp occupied a site² covering 2.5 km² that had been used by a road construction company known as *Benaco*, which was formerly based in the area and indeed built the Ngara-Isaka tarmac road. Whilst originally envisaged as a camp to accommodate 15 000 - 20 000 of the some 325 000 Burundian refugees who fled to Tanzania in late 1993, *Benaco* was quickly utilized to cope with the Rwandan refugee influx (Jaspars, 1994). In an attempt to reduce the number of refugees in *Benaco*, the authorities opened three more camps (the *Greater Benaco*, camps 7-10 in Figure 4) located a few kilometres away from each other. By October 1996, shortly before their return to Rwanda, a total of almost 618 000 refugees constituted 45% of the entire population in Ngara, Karagwe and Biharamulo Districts. The dominance of the refugee population was most pronounced in Ngara District, where they amounted to 70% of the entire population (Bloesch, 2002a).

Before the influx of refugees, relatively dense wooded savannahs prevailed in the area of *Benaco*, with tree and shrub cover ranging between 20 and 40%. The average growing stock was estimated to be around 30m³ per hectare with broad-leaved trees more abundant than the fine-leaved Acacias. However, the highest growing stock of 40-50m³/ha was found in savannah woodlands with almost pure stands of *Acacia polyacantha*.

This huge concentration of people had an extensive impact on the environment as well as the socio-economic situation of the local population, which manifested itself in the form of increased food prices, shortages of poles and fuel wood, land scarcity, deforestation, illegal hunting and increased criminal activities. Among the best documented impacts of refugees were on forest resources (Annex 2).

² The former *Benaco* camp lies in a savannah landscape with smooth rolling hills lying between 1,500m and 1,700m above sea level and mean annual temperature of around 21°C (Bloesch, 2002a). The rainfall in this area is bimodal with a mean annual rainfall of around 900mm and a dry season extending from May to August.

Figure 4
Historical refugee camps and protected areas in north-western Tanzania



Source: Biharamulo District Natural Resources Office and Cartography Unit, Geography Department, University of Dar es Salaam.

Refugee influx and declining wildlife populations

The massive influx of refugees over a very short duration in 1994, which peaked at some 700 000 people, meant that there was a great demand for food. Food was mainly imported by refugee aid agencies with some additional amounts bought locally by WFP. In some instances, refugees exchanged or traded food with the local population. Initial delays in responding to the exodus by relief agencies, and the subsequent rise in food demand as refugee numbers increased, resulted first in the pilfering of crops and food from locals and eventually hunting of wildlife, marking the start of larger-scale wild meat operations.

It is important to understand that the Rwandan refugees by tradition keep cattle, with meat forming part of their normal food intake. In contrast, food provisions generally lacked meat protein. Meanwhile, wildlife was in abundance since many of the large refugee camps were situated on the edges of Burigi-Biharamulo (and Moyowosi-Kigosi in Kigoma Region) Game Reserves (Blanc *et al.*, 2003; Figure 4). The refugees naturally started to chase, snare and hunt wildlife for wild meat. With the influx of refugees, there was an extraordinary increase in poaching activities and the illegal harvesting of wildlife meat in Game Reserves became widespread. For example, a daily market for wild meat was established at *Benaco* where entire carcasses and large portions of meat were openly hung for sale.

Within less than a year of the refugees' arrival, poaching was carried out on a massive scale and it is estimated that about 7.5 tons of wild meat, equivalent to 60 wild animals, were illegally hunted and supplied to the two main refugee camps of *Benaco* and *Kilale Hill* each week (KEP, 1997).

During a consultative workshop for Burigi-Biharamulo Game Reserves in 2002, participants noted the following wildlife-related problems with respect to refugee presence (MNRT, 2002):

- placement of refugee camps close to Game Reserve boundaries;
- refugees were denied meat in rations, causing them to use Game Reserves to obtain meat;
- commercial poaching by refugees armed with weapons;
- tendency for refugees to become repeat offenders and hunt in large groups;
- ineffective anti-poaching patrols and low sentences; and
- potential problems of any new influx of refugees.

A significant amount of wild meat originated from Burigi Game Reserve (2200 km²), where the western boundary lies within five and 25 kilometres away from at least five refugee camps of various sizes (*Benaco*, *Mushuhura*, *Lumasi*, *Lukole A* and *Lukole B* refugee camps; Figure 4). The Director of Wildlife reported over 600 000 refugees settled close to the western boundary of Burigi Game Reserve in 1994 (MNRT, 2005a; Box 1). Official records from Burigi Game Reserve and anecdotal evidence from people who were in and around the area during the Rwandan refugee influx (1994-1997) revealed that there was considerable hunting and snaring of wildlife, particularly mammals, in areas with proximity to the refugee camps (KEP, 1997).

Box 1 Official perspectives on impact of refugee presence

“The unpreparedness of the game reserve management created an opportunity for the refugees to freely enter the reserves en-masse plundering and depleting the resources with no respect for Tanzanian laws. The refugee presence increased the availability of weapons in the region thus causing deterioration in general security and a dramatic increase in poaching. The result was that the wildlife populations were decimated, with most species dropping to less than 10% of their former numbers, and indiscriminate tree cutting was widespread leading to serious habitat destruction.”

Source: Foreword by Director of Wildlife to the Burigi, Biharamulo and Kimisi Game Reserves Management Plan, Kagera Region (MNRT, 2005a).

Burigi Game Reserve used to be renowned for its diverse and large populations of wildlife. However, it is clear that there was serious depletion of wildlife that was hunted mainly for wild meat. Large mammal populations reportedly declined by 60% between 1994 and 1996, at the peak of the refugee influx (KEP, 1997). According to reports by the Ngara District Natural Resources Officer, the presence of refugees prior to 1997 had resulted in the depletion of wildlife in Burigi and Kimisi Game Reserves by two-thirds (Rutinwa *et al.*, 2003).

Whilst the accuracy of official records is not substantiated, data collected in 1997 revealed extensive poaching for wild meat inside Burigi Game Reserve, with the live animal to carcass ratio reaching as low as 1:1.3 for some species (Table 2).

Table 2

Large mammal populations, carcasses and legal trophy hunting in Burigi Game Reserve, 1997

Species	Population estimate	Number of carcasses counted during census	Number of individuals trophy hunted during year
Impala <i>Aepyceros melampus</i>	6 981	4 606	8
Zebra <i>Equus burchelli</i>	4 848	3 776	3
Buffalo <i>Synceros caffer</i>	4 382	1 123	16
Topi <i>Damaliscus lunatus</i>	2 326	1 826	7
Warthog <i>Phacochoerus aethiopicus</i>	1 627	961	8
Eland <i>Taurotragus oryx</i>	1 414	753	2
Roan antelope <i>Hippotragus equinus</i>	1 063	160	1
Giraffe <i>Giraffa camelopardalis</i>	146	69	0
Lion <i>Panthera leo</i>	no data	9	2
Leopard <i>Panthera pardus</i>	no data	6	0
Oribi <i>Ourebia ourebi</i>	no data	114	1
Waterbuck <i>Kobus ellipsiprymnus</i>	no data	43	5
Olive baboon <i>Papio anubis</i>	no data	131	1
Helemeted guineafowl <i>Numida meleagris</i>	no data	161	2
Spurwing goose <i>Plectropterus gambensis</i>	no data	14	2
Monkey (unspecified species)	no data	106	no data

Source: KEP (1997); MNRT (2005a,b).

A comparison of various aerial surveys carried out in 1990, 1998 and 2000 of Burigi and Biharamulo Game Reserves conducted by the Tanzania Wildlife Conservation Monitoring Unit suggests a significant decline of many species between 1990 and 1998 (Table 3). Affected species included Buffalo *Synceros caffer*, Eland *Taurotragus oryx*, Elephant *Loxodonta africana*, Giraffe *Giraffa camelopardalis*, Lichtenstein's hartebeest *Sigmoceros lichtensteini*, Reedbuck *Redunca* spp., Roan antelope *Hippotragus equinus*, Sable antelope *Hippotragus niger*, Sitatunga *Tragelaphus spekei*, Topi *Damaliscus lunatus*, Waterbuck *Kobus ellipsiprymnus*, Warthog *Phacochoerus aethiopicus* and Zebra *Equus burchelli* (Anon, 2003a). Whilst these data may not represent accurate estimations of species population numbers, it is believed that they do reflect a true indication of trends. It is thus apparent that some wildlife populations were reduced to less than 10% of their former numbers largely through illegal exploitation by refugees and

local populations (MNRT, 2005a). Indeed, the 2003 Ngara District Development Plan noted that remaining wildlife populations had declined to less than 15% due to poaching (Anon., 2003c).

Some species, including Buffalo, Bushbuck and Zebra, have experienced a resurgence in their populations since 1998, following the departure of most of the refugees. Elephant numbers also appear to have remained stable or increased, perhaps due to an Elephant corridor between Moyowosi and Burigi Game Reserve (Barnes *et al.*, 1999; Blanc *et al.*, 2003). For example, Elephant numbers in the Moyowosi-Kigosi area have increased from 1583 in 1994 to 2861 in 2000. Surveys during October 1996 recorded the most evidence of Elephants in the area south of Burigi Game Reserve (WTEP, 1997).

Table 3

Trends in major species of animal populations in the Burigi Game Reserve 1980- 2000

Species	1990		1998		2000	
	Estimate	SD	Estimate	SD	Estimate	SD
Buffalo <i>Synceros caffer</i> [‡]	2670		44		78	41
Bushbuck <i>Tragelaphus scriptus</i>	229	33	18	15	153	194
Eland <i>Taurotragus oryx</i>	878	336	237	102	-	-
Giraffe <i>Giraffa camelopardalis</i>	127	79	300	119	75	27
Impala <i>Aepyceros melampus</i>	5130		2795	801	1157	289
Lichtenstein's Hartebeest <i>Sigmoceros lichtensteinii</i>	324	137	0		-	-
Reedbuck (both species) <i>Redunca</i> spp.	147	49	98	31	84	16
Roan antelope <i>Hippotragus equinus</i>	466	169	15	15	-	-
Sable antelope <i>Hippotragus niger</i>	279	125	32	20	9	7
Sitatunga <i>Tragelaphus spekei</i>	490	208	0		-	-
Topi <i>Damaliscus lunatus</i>	6399	298	160	109	74	37
Waterbuck <i>Kobus ellipsiprymnus</i>	822	218	94	61	-	-
Warthog <i>Phacochoerus aethiopicus</i>	2628	188	71	61	54	40
Zebra <i>Equus quagga</i>	6552	1127	606	140	656	147

Sources: Severre (2000); MNRT (2005a).

Key: SD = Standard Deviation.

[‡] 1990 and 1998 data from IUCN Antelope Report.

Kigoma Region

With similar patterns of wild meat consumption and trade, impacts on wildlife populations and associated wildlife-based revenue in Kigoma Region are not believed to be markedly different from those observed in Kagera Region. It was reported that for local Tanzanians, hunting was a pastime as well as an income-generating activity, and most hunting was conducted with dogs and spears. However, the influx of refugees has influenced capture methods including the use of snares. Further, many stakeholders believed that the main consumers are Tanzanians, not refugees.



Confiscated antelope meat, Uvinza village

Credit: Simon Milledge/TRAFFIC

Interviews in the area revealed that people are known to travel up to 30 km away; individual hunters can control up to 500 snares. Uvinza village is known as one of the larger markets for wild meat in Kigoma Region. Some stakeholders estimated wild meat appearing in the market about twice per week, normally Hippo, Kudu or Bushpig. Wild meat is often chosen ahead of livestock meat due to preference as well as cost. A piece of buffalo meat weighing 1-1.5 kg in Uvinza village costed around USD 0.90 (TZS 1000) in late 2005.

The following sections describe aspects of wild meat utilization in three areas of Kigoma Region: Moyowosi and Kigosi Game Reserves, Lugufu refugee camp, and Gombe National Park.

Moyowosi and Kigosi Game Reserves

Covering approximately 19 000 km², Moyowosi and Kigosi Game Reserves support large tracts of miombo woodland (dominated by *Brachystegia* spp.) and extensive flood plains and swamps associated with the Malagarasi and Moyowosi Rivers (TWCM, 1998). In addition to healthy numbers of many large mammals (e.g. Sitatunga *Tragelaphus spekei*), the area supports important populations of Shoebill *Balaeniceps rex*, Saddle-billed Stork *Epippiorhynchus senegalensis* and Wattled crane *Grus carunculatus*.

Successive surveys conducted during the wet season in 1990, 1994 and 1998 have revealed trends in numbers and distribution of most large mammals, as well as human activities (TWCM, 1998). Over two thousand thatched roof settlements were estimated in 1998, both inside and on the periphery of the Game Reserve boundaries, whilst the large number of poaching camps counted in 1998 (N=607) suggested that the reserve was exposed to illegal hunting all year round (Table 4). Tanzania Wildlife Conservation Monitoring reported the use of both traditional and modern weapons for hunting, with the dried meat used for subsistence and commercial purposes (TWCM, 1998).

Table 4

Wet season estimates of selected human activities in Moyowosi and Kigosi Game Reserves, 1998

Human activity	1998 wet season	
	Estimate	SD
Cattle	20 034	6008
Agriculture	2 475	445
Thatched roof	2 373	329
Saw pits	1 216	118
Poacher's camps	607	80
Fishing camp	589	377
Tree felling	106	43

Source: Tanzania Wildlife Conservation Monitoring/Frankfurt Zoological Society/European Union (TWCM, 1998).

Key: SD = Standard Deviation.

Illegal hunting is believed to be the major factor contributing towards reduced wildlife populations in the Moyowosi and Kigosi Game Reserves (TWCM, 1998). Species showing an overall decline between 1990 and 1998 included Hippo, Zebra, Roan, Sable, Sitatunga, Warthog and Waterbuck (Table 5). On the other hand, several species appeared to remain stable or fluctuate during this period, including Lichtenstein's

Hartebeest and Giraffe. Assessing reliable trends for gregarious and migratory species such as Elephant and Buffalo were not possible with the survey techniques employed.

Table 5

Wet season estimates for wildlife in Moyowosi and Kigosi Game Reserves, 1990, 1994 and 1998

Species	1990 wet season		1994 wet season		1998 wet season	
	Estimate	S.E.	Estimate	S.E.	Estimate	S.E.
Buffalo <i>Synceros caffer</i>	7070	4790	6652	3666	6926	3778
Bushbuck <i>Tragelaphus scriptus</i>	-	-	197	72	65	36
Elephant <i>Loxodonta Africana</i>	392	376	1583	700	2262	716
Giraffe <i>Giraffa camelopardalis</i>	1043	292	1465	246	1131	302
Hippo <i>Hippopotamus amphibius</i>	1518	680	784	271	574	196
Topi <i>Damaliscus lunatus</i>	1803	773	9410	3488	5061	772
Zebra <i>Equus burchelli</i>	1412	618	3971	1830	787	248
Lichtenstein's hartebeest <i>Sigmoceros lichtensteinii</i>	549	190	1112	237	512	133
Reedbuck <i>Redunca</i> spp.	486	59	5168	674	1524	152
Roan antelope <i>Hippotragus equines</i>	-	-	1738	381	617	359
Sable antelope <i>Hippotragus niger</i>	-	-	985	272	242	146
Sitatunga <i>Tragelaphus spekei</i>	310	99	512	85	32	20
Warthog <i>Phacochoerus aethiopicus</i>	1137	237	1251	143	299	118
Waterbuck <i>Kobus ellipsiprymnus</i>	835	228	920	153	437	141

Source: Tanzania Wildlife Conservation Monitoring/Frankfurt Zoological Society/European Union (TWCM, 1998).

Lugufu camp

Lugufu camp, which houses Congolese refugees, shows most starkly the influence that culture can have on patterns of wild meat consumption. Many stakeholders reported noticeably different diets between Congolese refugees and the local Tanzanian population, with the latter being much more selective.

Lugufu camp, divided into two sections, was originally designed to be a temporary camp, but later became permanent due to the extended insecurity in DRC. The original placing of *Lugufu* camp was of concern to conservationists since the locality was very close to the northernmost Chimpanzee population in Tanzania, which possibly acted as a corridor linking to other populations. Wildlife declines in neighbouring areas are very evident.

Baboons were specifically mentioned being in high demand in *Lugufu* camp. On occasion, they would be bartered for a live goat. It was also reported that up to ten baboons could be caught in one night, using a unique trapping method of encircling a tree with a large net.

In addition to baboons, there is also some evidence of continued Chimpanzee utilization in *Lugufu* camp. Greengrass (2000) reported that wild meat, including Chimpanzee, was sold in *Lugufu* camp during 1998. In February 2005, a baby Chimpanzee and baby Lion were being kept by Congolese in *Lugufu* for fattening up before probable consumption. These animals probably came from around five kilometres away from the camp near Malagarasi. However, the animals went missing after the owner became aware of being followed, and subsequently left the camp himself.

Gombe National Park

Located 16 km north of Kigoma town, Gombe National Park covers a total area of 52 km². Poaching for wild meat, especially during the 1973 Burundi refugee influx, has led to the gradual demise of several wildlife species, including Buffalo and Zebra. Bushbuck and Duiker are also reported to be scarce, whilst Lion, Leopard and Spotted Hyaena have been similarly persecuted. Poaching and illegal activities remain among the major threats facing the park, the others including human diseases, fire, inbreeding and loss of genetic variation (TANAPA, 2005). Incidences of illegal activity in Gombe National Park are predominantly firewood collection, grass cutting, wildlife snaring and entering the park illegally (Abdul, 2005). Logging is also a serious problem on the eastern border. Poaching statistics indicate a decline from 90 incidents in 1995 to 14 in 2004, with most arrests in recent times due to illegal fishing (Abdul, 2005).

Gombe National Park is one of just four locations in Tanzania where Chimpanzees *Pan troglodytes schweinfurthii* still survive. They are the focus of the longest-running Chimpanzee research programme in the world, which started in 1960. The Chimpanzee population has declined to around 85 that remain in three distinct communities within the park. Numbers of the southern *Kalende* community fell sharply over a short time period during the late 1990s (Greengrass, 2000). Whilst disease has contributed towards Chimpanzee mortality, available evidence, as well as the relatively quick decline, indicated that poaching was the main cause for a variety of reasons (Greengrass, 2000):

- Almost all cases of poaching have taken place in the southern portion of the park, where nearby villages have a large Congolese population, who traditionally eat primate meat;
- Active wild meat trade exists between coastal villages near Gombe and Kigoma;
- Live Chimpanzee trade has existed in Kigoma, with two baby Chimpanzees confiscated in the past and two Congolese offered for sale a baby Chimpanzee held in Mtanga on the southern border of Gombe, coinciding with the discovery of a decomposed female Chimpanzee in the southern section; and
- Surveys during the latter half of 1998 revealed evidence of poaching activity (e.g. snares, hunters), including a dead male Chimpanzee without hands and genitals;
- Increased availability of firearms, with incidents of semi-automatic gunfire heard at night during 1999.



Credit: Simon Milledge/TRAFFIC

Kazinga at southern border of Gombe Stream National Park

According to park authorities, the threat of poaching for Chimpanzees and baboons is not very pronounced in Gombe National Park except on the southern side, especially near the fishing village of Kazinga³. The Kazinga community is heterogenous, approximately composed of 50-60% Congolese, 10-20% Burundians, and the rest Tanzanians. Gombe National Park authorities claimed that it is the Congolese, who moved to Tanzania in the 1960-1970s and still retain a preference for primate meat, who pose the greatest threat to Chimpanzees. In addition to being a preferred source of meat protein, Chimpanzees are also

³ Following serious flooding and landslides which killed many refugees in Mtanga, the refugee recovery post was moved to Kazinga in 2001, although it was subsequently abolished a few years later.

apparently poached for spiritual and medicinal purposes (one post mortem of a Chimpanzee revealed part of the backbone, one leg and scrotum removed). Park authorities believe that there is an ongoing likelihood of primate consumption since it is known that many Congolese refugees still move frequently between Tanzania and DRC, or are visited by their relatives from DRC. Many nylon snares were found on the southern side of the park between 1998 and 2003, and whilst they are set for other wildlife, primates may still be caught. A Chimpanzee had a limb amputated by a snare in the mid-1990s.

One of the greatest challenges to park authorities is that the true threat posed by Congolese refugees living around Gombe National Park is not fully understood⁴. Park authorities also reported that efforts to raise community awareness regarding the values of the park and its regulations have proved very challenging.

Similarities and differences between refugee hosting areas

Research data collected in Kagera and Kigoma Regions suggests that there are certain impacts that are common between different refugee situations. Certainly, there were, and are, linkages between refugees and local communities in the exploitation and use of wild meat in most refugee situations. The nature of these linkages appeared to vary, however, and seemed to be subject to such factors as the relative size of the refugee population vis-à-vis local communities, the patterns of hunting prior to the arrival of refugees and the strength of enforcement efforts in local protected areas. There also appeared to be declines in only certain species of wildlife in each region. This may reflect what species are most easily hunted. In both cases, traditional and modern hunting methods were used. There also appeared to be similarities in the open nature of the harvesting and trade of wild meat, with known wild meat markets in both areas in the early days after the arrival of refugees. More recently, the trade and use of wild meat appears to have become more clandestine, perhaps following awareness raising efforts and increased enforcement activity.

Interestingly, research data also suggested important differences between some refugee situations. Most obviously, the size and speed of the refugee influx in Kagera Region meant the scale of wild meat harvesting was both large and beyond the immediate ability of humanitarian agencies to manage. The country of origin also appeared to affect what species were targeted in the hunt. For instance, the cultural preferences of Congolese refugees created pressures on local primate populations. The presence of armed elements amongst the refugees in Kagera meant an increased availability of small arms for hunting, and represented an additional challenge to local authorities charged with policing local protected areas.

NEGATIVE IMPACTS OF WILD MEAT USAGE

Lost development potential

The most tangible financial benefits from wildlife accrued by local and central government in this part of the country is derived from trophy hunting. For example, the hunting of 1238 animals from Burigi East, Burigi West and Biharamulo hunting blocks between 1986 and 2001 generated USD 1 064 975 (MNRT, 2005b). A total of 378 animals were hunted from the fourth hunting block in Kagera Region, Ibanda/Rumanyika, between 1991 and 2001 (MNRT, 2005b).

⁴ The scenario is further complicated by possible linkages to refugee health, with a strain of simian immunodeficiency virus, implicated as the reservoir for human infection in acquired immune deficiency syndrome, AIDS, found in a single wild Chimpanzee *Pan troglodytes schweinfurthii* in Gombe National Park (Hahn *et al.*, 2000; Santiago *et al.*, 2002). Further scientific studies in central Africa have suggested a link between primate meat consumption and the transmission of certain diseases to humans (Peters, 2004).

A record is emerging that suggests the demand for wild meat has caused wildlife populations to plummet in areas surrounding refugee camps, with reported declines of up to 90% from some protected areas (MNRT, 2005a; Severre, 2000). Damage to the *Benaco* complex as a result of poaching for wild meat was estimated at USD 315 000 (TZS 208.4 million) in the mid-1990s, but does not include lost revenue from missed tourist hunting opportunities (Anon., 1998). UNHCR reported an abrupt end to revenue from hunting in Kagera Region, which formerly averaged USD 100 000 annually to local and central government and around ten times indirectly to other support sectors (UNHCR, 1998, 2005e).

As a result of declining wildlife numbers, hunting return statistics for Burigi and Biharamulo Game Reserves show that the gross income to the Government from hunting fees dropped (with some fluctuation) from USD 103 100 in 1994 to USD 33 670 in 1998 (MNRT, 2005a,b). Incomes have since increased, however, reaching USD 119 150 in 2001. Similarly, hunting revenues to the Kagera regional administration dropped from over USD 50 000 in 1991 to less than USD 11 000 in 1996 (Table 6).

Table 6
Wildlife revenues in Kagera Region, 1985-1996

Source of revenue	1985	1987	1989	1991	1993	1996
Tourist hunting	69 989	1 379 325	5 346 240	11 656 167	9 388 000	6 287 000
Resident hunting	24 181	72 950	n/a	230 483	65 900	102 400
Sale of game meat/trophies	175 780	12 467	15 583	35 180	36 400	410 000
Total TSH	269 950	1 464 742	5 361 823	11 921 830	9 490 300	6 799 400
Total USD	16 361	17 500	27 926	50 947	19 771	10 793

Sources: Anon. (1998), from Regional Game Office, Bukoba, 1998, Kagera Regional Development Programme, 1990, National Accounting Tanzania 1976-1994 11th Edition.

To further highlight the gravity of the problem, the owners of the three hunting blocks in the area of Burigi-Biharamulo Game Reserves still report that although the numbers of animals are now steadily increasing, overall numbers remain small. Indeed, the situation in the southernmost sections is most serious with very small numbers of large mammals remaining. Most wildlife has disappeared or moved to the north since the areas lying south have been depleted of most vegetation and encroached by local communities. An assessment of sport hunting in 2005 highlighted concern over the sustainability of current quotas in light of population declines of some species such as Waterbuck and Topi (Table 3; MNRT, 2005b).

Nevertheless, the potential annual income from sport hunting and fish production in Burigi and Biharamulo Game Reserves is estimated at USD 60 000 and USD 45 000 for concession/daily fees and game fees respectively (MNRT, 2005a). Maintenance of the remaining wildlife resource is therefore vital to ensure greater revenue generation and reduced dependence on external funding.

Further south in Kibondo District, Kigoma Region, wildlife in Moyowosi Game Reserve was also greatly depleted, resulting in a 44% decrease in revenue from USD 328 491 (TZS 195 452 000) in 1995 to USD 144,860 (TZS 107 776 000) in 1999 (Rutinwa *et al.*, 2003). It is also important to recognise the non-direct impacts of wildlife declines, especially lost values which are frequently not captured in economic analyses. Such impacts include damage to water catchment areas, lost cultural values (e.g. traditional medicines) and negative influence to local climatic conditions (MNRT, 2002).

Double jeopardy: Forced criminality and resentment towards refugees

The illegal nature of wild meat exploitation has meant that refugee involvement has served to reinforce and exacerbate local resentment, particularly on the part of authorities, to their presence. It has also increased opportunities for criminal elements, in both refugee camps and local host communities, to increase their power. The illegality of wild meat harvesting likely also makes refugees susceptible to exploitation, both by each other and by the unscrupulous in surrounding communities, as refugees can be engaged as hunters with little risk to those who hired them.

Based on crime and prison statistics, refugee and host population numbers, Rutinwa *et al.* (2003) concluded that relatively high rates of crime were evident in refugee hosting areas (see also Box 2). For example, in the year 2000, Kagera Region ranked nationally as first, seventh and fourth under crime category headings showing the rates of illegal possession of arms/ammunitions, armed robbery and murder respectively, moving up to first, second and third in 2001. Similarly, Kigoma Region ranked third, first and tenth in these categories during 2000. Two factors contribute towards higher insecurity in refugee affected areas - the relative ease of obtaining weapons from nearby war torn areas and the perennial shortage of food and other basic needs (Rutinwa, 2005).

Box 2

Hostility towards refugees

A report by the Human Rights Watch in July 1999 stated that: "...the influx of refugees since 1994 - and the attendant crime and insecurity caused by militants among the refugees, economic strain, and environmental degradation have resulted in a growing hostility towards refugees in Tanzania."

Source: Anon. (1999).

However, contrary to popular thought, Rutinwa *et al.* (2003) demonstrated that refugees are neither necessarily involved nor more likely to commit a crime than members of the host population. For example, the proportion of refugee cases in Kigoma Region during 2000 (22% and 25% for murder and armed robbery respectively) closely matched the overall number of refugees as a percentage of the total population (22%), whereas many people believed that the number of crimes committed by refugees would be disproportional to their absolute population size (Table 7). Further, Kasulu prisons statistics during June 2002 indicated that the ratio of criminals among the refugee population (0.053%) was comparable to the ratio of criminals among the local populations (0.046%).

Nevertheless, the proportion of refugees arrested for wildlife poaching cases was reportedly very high at the height of refugee presence in Tanzania. For example, a reported 334 out of 382 (87%) of arrested poachers in Kagera Region were non-Tanzanians (Anon, 1998). The impact of organized wild meat poaching is also likely to be directly influenced by the availability of small arms, since hunters are able to take many more animals with guns than with snares or other traditional hunting methods. Since some of the refugees arriving in Kagera brought weapons with them, the impact on local wildlife was more severe than it might otherwise have been.

It is often asserted that even if locals commit crime, it is because they use weapons which they buy cheaply from refugees. Rutinwa *et al.* (2003) argued that this may not always be the case. For example, between January and December 2001, a total of 1150 illegally possessed weapons were recovered in Kagera Region, comprising two sub-machineguns, three pistols, 12 shot-guns, two Uzis, one G3, one rifle and 1129 locally-made muzzle loaders (*gobores*). On the other hand, in Kigoma region, only 14 of the 50 illegally possessed weapons were *gobores*, the remainder being 29 sub-machine guns, ten G3s, one pistol and one shot gun. In other words, most of the illegally possessed weapons in Kigoma were of a military type which had most likely originated from a neighbouring war torn country (although it may be the case that such weaponry was not necessarily brought into Tanzania by refugees). In Kagera, the problem of illegal arms appeared to be much more homegrown.

Table 7**Selected crimes committed in Kagera and Kigoma Regions between January and December 2000**

Description of crime	KAGERA				KIGOMA			
	Total number of cases	National rank	Crimes involving refugees	% involving refugees	Total number of cases	National rank	Crimes involving refugees	% involving refugees
Illegal possession arms/ammunitions	48	1	2	4	38	1	-	-
Armed robbery	57	7	6	10.5	232	2	59	25
Murder	186	4	6	3	89	3	20	22

Source: Rutinwa *et al.*, 2003.

Despite the many positive benefits accrued to local communities from the presence of refugees, it is the negative impacts that most commonly generate news and discussion, sometimes tainting perceptions of refugees. A UNHCR study to identify gaps in protection capacity noted the negative attitudes and growing intolerance of hosting refugees expressed by both government officials and local communities (Rutinwa, 2005). With regards to natural resources, the protracted presence of refugees in north-western Tanzania has clearly led to deforestation, scarcity of fuel resources, land degradation, destruction of water resources and encroachment in protected areas (UNHCR, 2002b). It is very likely that shortages of natural resources have naturally led to stiff competition and conflicts of interest between refugees and local populations.

DRIVERS OF WILD MEAT USAGE IN REFUGEE HOSTING AREAS

Fundamental requirements for arriving refugees include food, water, energy and shelter. Often refugees arrive in an area after having undergone considerable trauma and facing little or no food and clean water supplies. UNHCR, WFP and various other partners set up the necessary life support systems that include the provision of emergency food rations. The aim is to supply the refugee populations with the minimum 2,100 calories per person per day, enough to keep a person alive with a minimal level of nourishment. According to Jaspers (1994), food aid is regarded by many as *the* means of saving lives, with inevitable deaths if food is not provided in sufficient quantity immediately. All refugees still residing within camps in Tanzania rely on assistance for food, water and clothing (Rutinwa, 2005).

WFP supplies food through a camp management agency, aiming to meet the recommended UNHCR standards of 2100 calories per day. Following the refugee influx in 1994, the targeted ration composition included cereals (420 g), pulses (120 g), oil (25 g), salt (5 g), and later blended food (50 g) (Jaspars, 1994).

Influence of shortages in food rations on wild meat demand

Despite the commendable humanitarian efforts of the WFP and its partners, from time to time even the minimum requirement cannot be met due to logistical problems or lack of donors, and the stress is passed onto the refugee populations. Food shortages appear to be a relatively frequent phenomenon, resulting in refugee rations falling below recommended levels. As early as the first month of refugees arriving in Ngara District, Jaspars (1994) reported that there was rarely more than three days supply of food on hand. This seriously hampered the organization of food distribution. In some circumstances, low food stocks within a camp resulted in a reduction of the ration level.

More recently, UNHCR reported chronic food shortages that began in 2004 and continued in 2005, resulting in serious protection problems (e.g. domestic violence and sexual exploitation) (UNHCR, 2005b). Rutinwa (2005) reported food rations of 1400 kcal per refugee per day, and the UN News Center reported that 400 000 refugees in Tanzania faced malnutrition due to insufficient donations (resulting in a shortage of almost all foods - cereals, pulses, corn-soya blend, vegetable oil and salt) and a food shortage in the region. In March 2005, UNHCR reported that rations were increased to 1629 kcal⁵, but still fell short of the recommended levels (UNHCR, 2005c).

According to observations by staff from UNHCR and the Ministry of Home Affairs, when there is hunger, refugees will inevitably respond in a number of ways:

- Refugees commonly **barter** or **sell** part of their WFP food ration for less nutritious but more filling foods like cassava and bananas, thus lowering even further their nutritional intake (UNHCR, 2005g). Jaspars (1994) reported the very rapid emergence of markets which actively sold refugee food and other items following the 1994 refugee influx. However, it should also be recognised that another reason for bartering and trading is to obtain other livelihood necessities.
- Some refugees resort to **theft** to feed themselves. The government has cited failure of the international community to provide adequate support to the mitigation and rehabilitation of the impact of the presence of refugees. Specifically, prolonged cuts in refugee aid impact provisioning of life-sustaining assistance such as food, which has also forced refugees to turn to crime to survive thus enraging further the local communities and the government. (Rutinwa *et al.*, 2003).
- Another strategy for obtaining food in circumstances of food shortages is to go into surrounding Game Reserves and open areas to illegally **hunt** for wild meat (Box 3). This strategy appears to be widely known by all stakeholders, yet rarely acknowledged or included in policy planning. According to all stakeholders interviewed, wild meat offtake is also likely to be directly influenced by operating budgets of the refugee management agencies.
- In the worst-case scenario, some refugees **return** to unsafe areas because of hunger (Anon., 2004a).

Box 3

Food shortages drives wild meat demand

A survey carried out in 1999 by the Relief and Development Society (REDESO) with the Lukole refugee community and Kasulo and Nyabugombe villages surrounding the refugee camps helps to illustrate wild meat trade dynamics at that time (REDESO, 1999).

According to the report, poaching is due to the food security situation facing the refugees and local communities. “*We need meat and we can not spare an incoming animal*”, commented one of the participants. Poaching is also creating employment for refugees through selling wild meat themselves or by being employed by local Tanzanians.

Tanzanians who claim to have hunting licenses hire refugees to hunt, with some camping in Burigi Game Reserve for up to one week, hunting and drying the meat to reduce its weight. One participant mentioned, “*We cannot know the species of animals they bring in the camps because the meat is normally dried.*”

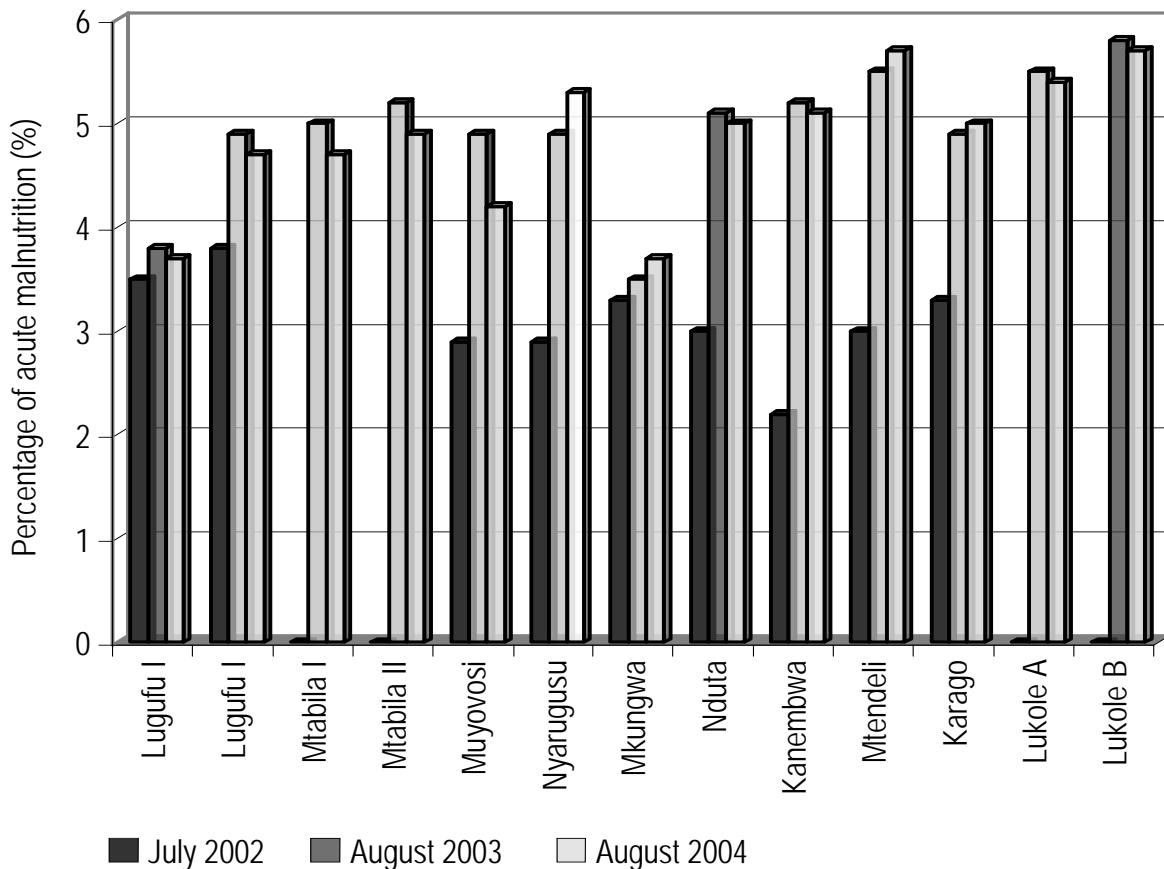
Whenever there is a degree of hunger, there will almost certainly be an implication to nutrition. A nutrition survey at the end of 2004 showed that 37% of refugee children under the age of five were chronically malnourished and just over 23% underweight (Anon., 2004a). Nutrition surveys during August and September 2004 showed that the prevalence of malnutrition had slightly increased in some camps when compared to 2002 (Figure 5). This can largely be explained by the cut in food rations experienced in

⁵ Reported figures do vary slightly. For example, rations distributed by TCRS reportedly provided 1857 kcal, including 410 grams of maize grain per day, 350 grams of maize cereal, 80 grams of pulses, 40 grams of corn soya blend, 20 grams of vegetable oil and 10 grams of salt.

2003 and 2004 and by the restriction of movements of refugees to within just one kilometre outside the camps in 2003.

Further, the prevalence of stunting varied between 22% and 42% depending on the camp. Anemia was assessed among children and pregnant women and was found to be a significant health problem, especially in *Lugufu II* camp which receives new arrivals from DRC. Red meat is a source of iron.

Figure 5
Prevalence of acute malnutrition in Tanzania refugee camps, 2002-2004



Source: Anon., 2004a.

Factors driving contemporary wild meat trade

Whilst little empirical evidence currently exists on precise trade levels, evidence from wildlife surveys, wildlife-based revenue data, reports from existing literature and stakeholders' perceptions all indicate a high demand in refugee-affected areas for wild meat supplies and an impact on wildlife populations.

There has been, and continues to be, situations of food insecurity in refugee camps in north-western Tanzania. Where the prospect of insufficient food, perhaps hunger, prevails it is inevitable that refugees and local Tanzanians will source food from alternative sources, including meat. Some (more well-off) refugees keep domestic livestock such as goats, pigs and poultry for both domestic consumption and sales, but they number relatively few and thus wild meat and fish are probably the most important alternative sources of meat protein.

Further, the potential for livestock to offset the demand for wild meat is somewhat problematic since the keeping of livestock on a viable scale is neither encouraged nor entirely consistent with the current refugee

policy of temporary protection before eventual voluntary repatriation, which includes restrictions imposed on engagement in self-reliance activities. Nevertheless, some organizations (e.g. TCRS) have made concerted efforts in promoting livestock rearing.

The demand for wild meat is particularly high with refugees coming from areas where wild animal protein has been a key component of their diets. Indeed, many refugees continue to buy wild meat for cultural and habitual reasons in addition to food security pressures (Box 4).

The economics of wild meat supply and demand also dictate preference, with the price of wild meat historically being around a third of beef, making it the most affordable meat for most households. In recent years the price of wild meat has risen in line with increased risks involved in poaching due to increased law enforcement levels by wildlife authorities.

Human reaction to hunger is frequently one of desperation and this partially explains the actions of the refugees in terms of obtaining wild meat in the adjacent protected areas, even as enforcement levels and associated risks increased. Some refugees also have a commercial motive for wild meat hunting and trade, as a means of securing livelihoods. Despite all the hazards and dangers associated with the business, it is seen as an alternative source of income. It is therefore important to appreciate this economic motive, and develop appropriate strategies to address it.

For the different reasons described above (e.g. ration shortages, lack of alternatives, cultural preferences, economic factors), wild meat consumption and trade continues in most, if not all, refugee camps (Box 5). Wild meat is currently nicknamed ‘night-time spinach’ within refugee camps (in Swahili, *Mchicha wa usiku*, the language spoken in many camps) and is traded secretly at night. Current levels of wild meat trade are far lower than during the massive refugee influx in the mid-1990s although precise trade dynamics are not known.

Box 4

The joy of wild meat in current refugee camps

During recent discussions with Burundian refugees, women noted that “*the air would be filled with the aroma of bush meat cooking, and the children would be happy and excited waiting for the tasty meal. Mothers have to admonish the children to be quiet and not to tell anyone that they had bush meat on the table*”. Even as the discussions were taking place, one could see in their excitement that many clearly liked wild meat and could not wait for the day when some is bought into the camp. Many of the women pointed out that the wild meat helped stem hunger and provided important protein that kept their families healthy and happy.

WFP rations were barely sufficient and they cultivated around the camps and also on local farmland to make sure there was enough food. However, the WFP rations did not include meat. When the hunters return, many people would know; the secretive trade is carried out in the dark with all the meat sold and cooked during the same night.



Credit: George Jambiya

Young refugee prepares goat meat

Box 5

Historical and contemporary wild meat trade: perspective of a refugee at *Lukole* camp

Mr. Ramadhani is a refugee hailing from Burundi in the 1960s. In 1996, he arrived at *Lukole*, a refugee camp predominantly comprising of Burundians. Not far away was the *Benaco* camp, established for Rwandese refugees from the 1994 civil war in Rwanda. When he first arrived here, the area had an abundance of wild animals, particularly mammals, though he was told that even by then numbers had declined somewhat. He recalls that access to wild meat was easy and there was a lot sold wholesale, fresh or dried. Most meat was sourced from the *Benaco* camp, being adjacent to areas that had significant numbers of wildlife. Further, when compared to the Warundi refugees, the Wanyaruanda are skilled hunters. They also hunted with skilled local Tanzanian hunters to provide for a huge and ready market, whose population at some point peaked at around 700 000 people.

At *Benaco* camp there was a place known as Mkanogo, where a wild meat market flourished; the sheer volumes of wild meat traded was so high that it virtually ceased to be illegal. The hunters and traders would often not even bother to skin the animals. Wild meat was traded all year round and consisted of a wide range of species. The main species hunted were eland, gazelle, impala, wild pig, buffalo, dik dik and zebra. Tanzanian hunters used locally made muzzle loaders (in Swahili, *gobore*), whilst some Wanyaruanda used their military weapons. However, most hunters preferred snares and traps. The type of hunting at the time was no longer for subsistence; it had become a lucrative business supplying *Benaco*, adjacent communities and villages.

In 1997, after the Wanyaruanda refugees were repatriated, some of the Warundi refugees took part in the demolition of the thousands of huts at *Benaco*. Given the sudden nature of the repatriation exercise, the Wanyaruanda left behind a lot of wild meat. During the demolition, large quantities of bones, skins and even dried wild meat were found in the huts. After repatriation, the wild meat trade declined significantly, but did not stop altogether. Local traders and elements of the Wanyaruanda who fled into the wild (in Burigi and Biharamuo Game Reserves) continued to supply illegal wild meat to the camps and local populations together with local Tanzania hunters. From this time onwards, wild meat trade has faced greater law enforcement from the Wildlife Division and the Ministry of Home Affairs.

Nowadays, hunters go out in bands with individuals specializing in snaring, shooting, meat processing and porters (carrying). Normally it is the adults who are the skilled hunters, whilst the youth carry out the meat processing and eventually do the carrying of the meat back to adjacent Tanzanian villages and camps. The youth also go to learn hunting skills. These bands go out less frequently to hunt but stay in the bush for a few days, enough time to collect sufficient wild meat. The wild meat is now sold through a clandestine network. The hunting band returns at night and by the next morning all the meat would have been sold.

Meat is no longer sold fresh or in bulk. Instead it is processed (smoked/dried) and sold as individual pieces rather than by weight. Prices have risen but remain much cheaper than goat or beef. A small piece weighing approximately two kilogrammes would cost around USD 0.45 (TZS 500), and a large piece weighing four to five kilogrammes costing USD 0.91 (TZS 1000). Apart from wild meat, dried fish illegally fished from Kabalege is sought after as a source of protein.

Recognition of refugee food rations - wildlife sector linkages

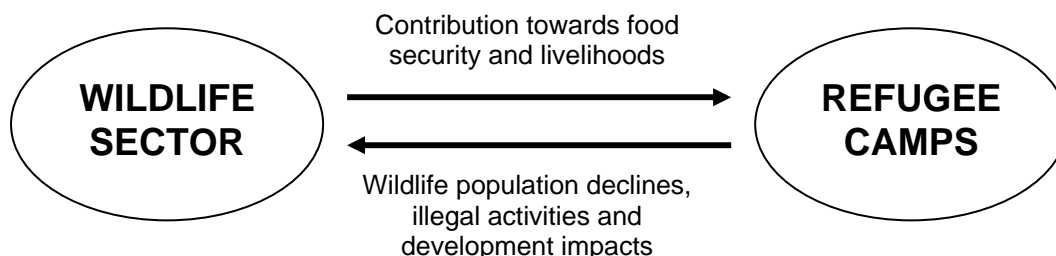
Environmental considerations are important in refugee camp management since there is a clear relationship between refugees' well-being and the state of the local environment. In addition, there are direct linkages between the state of the environment and refugees' sustenance. A comprehensive review by UNHCR of lessons learned regarding environmental management in refugee operations from ten countries in Africa and South Asia highlighted many of these linkages (UNHCR, 1998). For example, refugees may depend on wood fuel and poles from nearby woodlands, water from nearby rivers and crops grown on neighbouring farmland. Any overuse of environmental resources can therefore directly affect refugees, such as shortages of firewood (driving refugees to collect fresh wood which increases risk of respiratory problems), or shortages of water (increasing the chance of using contaminated water).

Unfortunately, despite clear evidence linking the wildlife sector and refugees at different levels (Figure 6), wild meat is not viewed in the same light. Some of the negative impacts on wildlife caused by the presence of refugees are acknowledged by UNHCR and other partners, including the loss of wildlife, their

habitats and corridors (UNHCR, 2005e,f). However, the contribution of wild meat towards refugees' food security and well-being (e.g. the effect of wildlife declines on refugee food security needs), and the impact of refugee camp management policies (and budgets) on the wildlife sector are seemingly not fully recognized.

Figure 6

Illustration of main relationships between refugee camps and the wildlife sector



Contribution of wildlife sector to well-being of refugees

Wild meat forms part of the food security needs of refugees as well as assisting to provide monetary incomes. Wild meat also contributes towards maintaining good health. The demand for wild meat is an important aspect of livelihoods and food security in north-western Tanzania. Despite this reality, it is an element that is given little or no due attention, other than the fact that it is deemed to be illegal and thus basically falls to law enforcement measures. The following examples illustrate the low recognition of the contribution of the wildlife sector to the well-being of refugees:

- **Food security** - There is little doubt that wild meat is a very important source of food for refugees. Available evidence would suggest that claims by WFP about being able to supply enough food during the height of the Rwandan refugee influx was achieved not only by a good food supply chain through WFP, but was also topped up by the more than ample supplies of wild meat at the *Benaco* camp. It is also arguable that the gravity of low food supplies since 2004 has been largely off-set by wild meat supplies. However, even tentative acknowledgements of the protein contributions from wild meat cannot be found in existing literature. The above-mentioned UNHCR review of environmental management in refugee camps did not include the hunting of wild animals for their meat as among the coping mechanisms used by refugees facing declining food rations (UNHCR, 2002a).
- **Health** - Surveys conducted in 1994, one month after the arrival of refugees at *Benaco* camp, found only 4.5% children under 110 cm suffering from malnourishment (Jaspars, 1994). This was attributed to the good condition of refugees upon arrival, the effective responses in the fields of water, health and sanitation, and possible over-distribution of food. Again, it is quite possible that wild meat, through its contributions to a more balanced diet, helped to prevent disease, malnutrition and general poor health.
- **Income** - A relatively recent assessment of refugee hosting areas in Tanzania did not mention wild meat trade among the major income generating activities undertaken by refugees, which included subsistence farming, weaving, tailoring, shop keeping, haircutting salons, carpentry, soap making, radio repairs and restaurants (Rutinwa, 2005). Since the same report did not mention wild meat in any other context (e.g. food provisions, security-related issues), it is most likely that again it has simply been overlooked.

Impact of refugee camp management on the wildlife sector

Since wild meat trade in refugee situations is not regulated and often takes place during food shortages, offtake can easily exceed sustainable levels. Ultimately, the wildlife declines may lead to reduced revenues from tourism as well as a declining resource base underpinning other sustainable use options. Unfortunately, proactive and remedial actions rarely, if ever, acknowledge two fundamental issues:

- **Rations:** Whilst meat is culturally and nutritionally a core part of most African refugees' diets, it is not included as part of their rations; and
- **Budgets:** Ration shortages are a primary factor that can influence the level of wild meat poaching.

MANAGEMENT RESPONSES TO FORESTRY AND WILDLIFE ISSUES

With regard to the environmental impacts of refugees, to date most attention has focused on the most highly visible and, therefore, most immediately recognisable negative impact: the degradation of surrounding woodlands due to the high demand for building poles and fuel wood. In response, various projects have been developed, including tree planting, managing woodlots, and woodland regeneration, promoting fuel efficient stoves and new cooking practices, firewood provision, promotion of effective gardening techniques and agroforestry, supporting forest guards, and environmental awareness-raising.

Despite the emphasis on forestry-related activities in management responses to refugee impacts in these areas, some activities have been undertaken that address directly the issue of uncontrolled wild meat use and its deleterious impact on local environments and livelihoods. These are briefly described below.

Law enforcement

Since the wild meat trade is illegal, law enforcement and other measures to enhance protected area management capacity have been the main strategies of the government to date. As an indicator of the gravity of the situation and the task facing wildlife officers, over a period of just two months in the mid-1990s, about 9600 poachers were arrested in Biharamulo and Ngara districts (of whom 7480 subsequently escaped). Confiscated poaching gear included 17 321 wire snares, 2007 spears, 1003 bows, 1220 arrows, 900 knives, 501 axes, and 205 machetes (KEP, 1997). Kagera Regional Wildlife Office records show a dramatic increase in the numbers of poachers⁶ caught, from just 20 in 1991 to 368 in 1996 (Anon., 1998).

Severre (2000) referred to increased availability of automatic weapons as a result of refugee presence, which can then be used in wildlife hunting. Indeed, refugees in Tanzania not only include civilians but also elements of trained military personnel, many bearing firearms. These firearms were owned illegally, since refugees are obliged to surrender any arms or else they cannot be given the protection that they seek.

As a result of increasing levels of poaching and use of arms, there have been severe conflicts between poachers and wildlife officers. For example, it has been reported that some refugees have been shot dead and others arrested in Burigi Game Reserve by the wildlife scouts. Whilst it is understood that such incidences are often conducted in self-defense and under difficult field circumstances, it also raises humanitarian concerns, considering the fact that the same people only recently fled armed conflict in their home countries.

⁶ Although it is relevant to note here that these statistics do not indicate whether the poacher in question was Tanzanian or a refugee. Given that there are no national identification cards required of Tanzanians, establishing the identity of poachers can often be difficult.

Protected area management

In view of the extent of damage aggravated by the influx of refugees, the government has felt the need to make deliberate and timely interventions in all the major Game Reserves in north-western Tanzania. Various measures were considered necessary to improve the protection and conservation of existing wildlife populations, including:

- improving wildlife management practices and support to Game Reserves in western Tanzania;
- applying legal/legislation frameworks and by-laws for wildlife harvesting, revenue sharing, and protection of existing animal species, according to the current *Wildlife Policy of Tanzania (1998)*; and
- integration of local communities in buffer zones under natural resource management and ownership protocols.

In fact, the situation was so bad that immediate interventions were required to salvage what was otherwise a drastic situation. In 1996, the European Union funded a six-month emergency law enforcement operation to bring about a measure of control to the situation. CARE also provided logistical and financial support. From 1997, large influxes of refugees began to arrive in Kigoma Region. Once again, many large refugee camps were established on the boundaries of Game Reserves and resulted in the escalation of poaching activity in Moyowosi Game Reserve. In recognition of the problem, in 1998, UNHCR made funds available to the Wildlife Division to develop infrastructure and assist law enforcement operations.

In 1999, the Kagera Kigoma Game Reserves Rehabilitation Project (KKGRRP) was established. This development effectively constituted an admission by Government that there was a huge problem of illegal hunting and snaring for wild meat and trophies in western Tanzania, and that this problem was directly linked to the presence of refugees. The objectives of the KKGRRP were to conserve ecosystem biodiversity and improve the livelihood security of the people in Kagera and Kigoma Regions. The main activities of the KKGRRP focused upon strengthening Game Reserve management, law enforcement and developing management plans.

KKGRRP now operates in Ibanda, Rumanyika, Burigi, Biharamulo and Moyowosi Game Reserves, which together cover an area of around 24 000 square kilometres. As a result, the unsustainable poaching situation within Burigi Game Reserve has been brought under control to some extent and there has been a gradual re-establishment of migratory corridors. Law enforcement has also achieved success in the Kigosi and Moyowosi Game Reserves. Illegal immigrants formerly encroaching on Rumanyika Game Reserve have mostly been evicted through improved law enforcement as a result of the project.

In the process of finalizing management plans, the Game Reserves in Kagera Region have been mapped, ecological descriptions written and socio-economic studies of the surrounding communities conducted. Kimisi Game Reserve has been gazetted, thereby linking Burigi-Biharamulo with Akagera National Park in Rwanda. A number of suitable areas for community-based wildlife management initiatives on village land for tourist and resident hunting have been identified in co-operation with District authorities and village leaders. Further, the Ministry of Finance has approved a Retention Scheme for all reserves, aimed at ensuring that the reserves are able to fund more of their own running costs and maintain critical infrastructure during and after the KKGRRP has ended. The majority of revenue comes from legal trophy hunting.

Despite this improved situation, many thousands of refugees remain in the area, presenting a potential threat to the reserves. The security situation in Biharamulo and Burigi Game Reserves remains volatile. Further, even if all the refugees return to their homelands, demand would be reduced but not eliminated, since the local population is equally in need of wild meat.

Two management objectives are clearly identified in the management plan for Burigi, Biharamulo and Kimisi Game Reserves to address problems associated with the presence of refugees (MNRT, 2005a):

- ensuring that no new camps are established within 15 km of the Game Reserve boundary; and
- maintaining wildlife migration routes free of refugee activity.

In order to meet these two objectives, four key activities have been planned over five years, at a total cost of just USD 14 200 (TZS 15 620 000) (Table 8). It is worth noting that the first objective closely matches UNHCR’s own environmental guidelines of situating camps 12-15 km from protected areas, even though the likelihood of establishing new camps in the immediate future is very remote.

The placing of refugee-related activities within the management plan appears to reflect the common belief within the Wildlife Division that enforcement and protective measures are the most effective solutions to refugee presence (Box 6). Of the four overarching functions identified in the management plan (Protection, Management, Development and Utilization), both of the objectives relating to refugee presence are grouped within the ‘Protection’ function, together with resource protection, fire management and boundary maintenance. Further, the two priority activities primarily involve senior stakeholders involved in protection, security and enforcement including the District Commissioner, Police Commander, District Security Officer, Ministry of Home Affairs, UNHCR Sub-office and District Natural Resources Officer (Table 8).

Box 6

Protection as a primary reaction

“The situation is much improved, but the conflict in these neighbouring countries continues and the refugee camps remain active in the area. The same core issues of protection remain on a lesser scale but with the never-ending threat that chaos could again erupt as suddenly and lead to similar pressures once again.”

Source: Foreword by Director of Wildlife to the Burigi, Biharamulo and Kimisi Game Reserves Management Plan, Kagera Region (MNRT, 2005a).

Table 8

Game Reserve strategies and activities to address challenges of refugee presence

Objectives	Strategies	Activities ^ψ
To ensure that no new camps are established within 15 km of Game Reserve boundary	1. Involve all relevant authorities responsible for refugee camps in discussions and assessment of the negative impacts on the Game Reserves 2. Gradual closure of existing camps close to Game Reserve boundaries and migration routes	1. Organize two meetings annually with local and national authorities responsible for refugees to discuss impacts of camps close to Game Reserves 2. Initiate and proactively support a technical team to produce proposals for alternative refugee camps 3. Collaborate with relevant authorities and agencies to relocate problematic refugee camps placed close to the Game Reserves
Wildlife migration routes maintained free of refugee activity	3. Establish scientific facts to demonstrate the extent of migration routes	4. Initiate studies to investigate the extent of migration routes

Source: Burigi, Biharamulo and Kimisi Game Reserves Management Plan (MNRT, 2005a).

^ψ Activities 1 and 3 are deemed high priority (i.e. essential activities that must go ahead) whilst activities 2 and 4 are regarded as medium-high priority (i.e. activities to be cut back if there is a serious shortage of funds).

Environmental education and promoting alternatives

Outside the formal framework of agencies involved in refugee camp management, some NGO activities have focused on environmental education and encouraging livestock alternatives to the consumption of wild meat. For example, the Jane Goodall Institute (JGI) in Tanzania operates three programmes, the Gombe Stream Research Centre, 'Roots and Shoots' and 'TACARE'. 'Roots and Shoots', a global environmental and humanitarian youth programme of JGI, have been creating awareness about wildlife policy and regulations, and establishing livestock projects in various villages in the Kigoma Region.

In *Lugufu* camp, 'Roots and Shoots' runs activities aiming to improve the life of refugees, including the promotion of alternative meat sources and educational activities. Poultry farming is being promoted since it has a relatively rapid turnover compared to other livestock, requires less capital investment and running costs, can easily be managed by refugees themselves and inspires youths to become involved.

'Roots and Shoots' have also worked with CARE in *Lugufu* camp to discourage the trade and movement of wild meat. However, in reality very little wild meat trade detection has transpired in recent years due to increased secrecy and the nocturnal nature of trade. The last incidence was reportedly in 1998 when a Congolese refugee was caught with baboon meat. In recent years, the majority of unsound activities detected in *Lugufu* camp and actively discouraged by CARE include cultivation around river beds, charcoal making and gardening in designated areas (Table 9).



Credit: Simon Milledge/TRAFFIC

Chicken and guinea fowl egg incubator, *Lugufu* camp

Table 9

Environmentally unsound activities detected in *Lugufu* camp, April – June 2005

Camp	Refugees doing environmentally unsound activities and advised on alternatives		Forest products harvested		
	Men	Women	Poles	Logs	Withies
Lugufu I	69	55	1 183	177	973
Lugufu II	45	89	1 535	154	2 801
Mtabila	438	591	0	0	0
Moyovosi	29	23	170	16	0
Nyaragusu	17	12	595	760	364

Source: CARE records, *Lugufu* camp, 2005.

The 'TACARE' programme works in 26 villages throughout Kigoma Region undertaking a range of activities to improve peoples' livelihoods whilst maintaining a positive focus on the environment. Projects include elements of agroforestry and reforestation, sustainable agriculture, micro-credit schemes, girls' education and land planning.

Several other organizations acting as implementing partners to UNHCR run schemes designed to provide alternative protein sources, even though one of the primary goals is actually to encourage self-reliance. For example, since 1994, Tanganyika Christian Refugee Services (TCRS) (a long-term implementing

partner of UNHCR since 1964) has been responsible for management and basic needs provision of three refugee camps in Kibondo District (Mtendeli, Kanembwa and Ndutu). All three camps lie on the western border of Moyowosi Game Reserve and hosted over 63 000 refugees in October 2005. In addition to facilitating the delivery of services and aid to refugees, TCRS also supports self-reliance and environmental protection activities. Recent achievements have included the following:

- Environmental awareness meetings in Karago and Kanembwa villages, attended by 6191 families;
- Protection of natural resources through the use of designated harvesting sites and forest guards;
- Promotion of fuel efficient stoves (e.g. 75% households in Kanembwa camp);
- Distribution of seeds, tools and training in managing kitchen gardens;
- Dairy goat production programme in Nduta camp, with 816 goats benefiting 654 families;
- In Mtendeli and Kanembwa camps, 378 dairy cattle benefiting 238 families;
- Training in pig husbandry provided to 649 refugee families; and
- Training in poultry and duck keeping provided to 1050 refugees.

Environmental measures taken since 1995 show that much can be achieved with good partners and local co-operation. Reforestation, tree planting and natural regeneration have become the cornerstones of the rehabilitation of refugee-affected areas (Rutinwa *et al.*, 2003; UNHCR, 2002b). Improving the management of affected Game Reserves has had a positive impact on wildlife numbers. The provision of training in animal husbandry as a way to generate income and provide alternative sources of protein is a positive step whose progress should be watched closely. Some awareness-raising programmes have shown good results but the success of awareness-raising as an activity is often hard to evaluate. For example, the links between environmental education and, for instance, reduced poaching are difficult to establish. Better awareness of the laws and regulations regarding wild meat usage may simply encourage the trade to go underground. In fact, there is some evidence that this has already happened.

Despite these successes, many of the activities undertaken to date have not addressed the root causes and influences of wild meat consumption and trade in these areas. More could be done. Exactly what and how is covered in the next and final section of the report.

CONCLUSIONS AND RECOMMENDATIONS

This study, the first of its kind to focus specifically on wild meat trade in and around refugee camps, has provided greater clarity regarding the importance, scale and longer-term conservation and humanitarian implications. Several conclusions can be drawn from the existing literature and stakeholder consultations:

- Wild meat has contributed towards meeting the dietary requirements of refugees in north-western Tanzania, although the precise contribution is not quantified and in general there is a dearth of current information on wild meat trade in and around refugee camps;
- Wild meat is still traded and consumed within refugee camps, albeit in a covert manner;

- The contribution of wild meat towards meeting the dietary requirements of refugees is not well understood nor acknowledged by many stakeholders, hence rarely incorporated into policy decisions;
- Refugee camp management policies and decisions may directly influence wild meat offtake and trade, to the detriment of long-term environmental and humanitarian objectives;
- Wild meat offtake has had a major negative impact on local wildlife populations and associated revenue generating opportunities, although some protected areas are showing signs of good recovery once refugees have moved out of the region;
- Refugee presence may pose a serious threat to the survival of Chimpanzees and other rarer species;
- Poaching and illicit wild meat consumption has led to negative attitudes towards refugees and caused disputes; and
- Most interventions to date have been retrospective, costly, and based around law enforcement or protected area management, highlighting the need for innovative approaches and partnerships addressing food security and livelihood concerns.

In more recent times, agencies working with refugees are far more aware about environmental considerations, largely due to the increasing realization that negative environmental impacts can exacerbate the social, economic, health and political conditions within host countries (UNHCR, 1998, 2002a, 2005e,f). However, perhaps the most perplexing finding from the study is that while wild meat trade inside refugee camps is known by most stakeholders, many do not fully acknowledge it and the issue has been given little specific attention in the context of refugee camp management. Notable exceptions include protected area management and law enforcement efforts by the KKGRRP, as well as some environmental education activities and encouraging small-scale livestock production. At the same time, there were some encouraging signs of receptivity, especially from organizations responsible for refugee camp management.



Refugee camp, Kigoma Region

Credit: Simon Milledge/TRAFFIC

Both national and international agencies including the Wildlife Division, Ministry of Home Affairs, WFP and UNHCR need to acknowledge that refugees do feed on wild meat and that something needs to be done to better understand the dynamics of this trade and jointly seek viable solutions to the problem, rather than simply criminalizing it. Agencies need to acknowledge that wild meat consumption has contributed significantly to people's nutritional levels at various times during the waves of refugee arrivals.

Further, the wild meat trade has contributed to the livelihoods of local communities prior to and during the arrival of refugees in Tanzania, and will continue to do so for the foreseeable future. It is important that such a critical piece of natural capital begins to contribute to peoples' desire to alleviate rural poverty, making rural communities partners in conservation rather than adversaries (Robinson *et al.*, 2002). The NSGRP (MKUKUTA) recognizes the important role of natural resources, including the wildlife sector towards sustainable development of the country, especially in the reduction of poverty (Table 10).

Table 10

Relevance of wildlife sector in Tanzania's National Strategy for Growth and Reduction in Poverty

CLUSTER 1: GROWTH AND REDUCTION OF INCOME POVERTY	
Goals	Targets
Goal 2: Promoting sustainable and broad-based growth	Reduced negative impacts on environment and people's livelihoods Reduced land degradation and loss of biodiversity
Goal 4: Reducing income poverty of both men and women in rural areas	Increased contributions from wildlife, forestry and fisheries to incomes of rural communities

Alternatives to law enforcement

Cases of illegal wild meat trade, whether in refugee areas or otherwise, are usually referred to wildlife officers whose main reaction is to ensure compliance with existing wildlife laws. Law enforcement is necessarily required in many circumstances, especially in and around protected areas where rarer and valuable wildlife occurs, such as Chimpanzees, Elephants, Sable, Roan, Lichtenstein's Hartebeest, Oribi, Red Colobus and Shoebills. Rowcliffe *et al.* (2004) also concluded that the protection of vulnerable species can only take place through effective enforcement by either wildlife or traditional authorities given that hunters will not comply voluntarily.

Effective as this approach can be, enforcement-related interventions have their limitations and are not appropriate in all circumstances, as well as not fully protecting remaining wildlife. An assortment of different strategies, including incentive-based approaches that are culturally acceptable and economically viable in addition to enforcement, is probably much more effective in addressing this conservation and livelihoods issue (Figure 7).

Figure 7

Illustration of different strategies (blue) to reduce illegal and unsustainable wild meat trade (red)



In ascertaining viable alternatives to enforcement to offset the illegal poaching and illicit trade in wild meat, there can be other positions and indeed viable options that need to be considered, tried and tested, especially by wildlife management authorities. For example, challenging the assertion that wild meat is not necessary as long as there is enough domestic stock, or the belief that initiatives to obtain wild meat legally can set a dangerous precedence, even stimulating an increase in the illegal hunting of wild animals.

Lessons learned during a UNHCR review of ten refugee camps in Africa and South Asia included the view that community-based natural resource management (CBNRM) is the most sustainable environmental protection strategy in the long-term (UNHCR, 2002a). Whilst the issue of wild meat was not discussed in the review specifically, the principles of CBNRM can be applied to almost any natural resource. In Tanzania, CBNRM involving the wildlife sector increasingly takes the form of Wildlife Management Areas (WMAs). In north-western Tanzania, the KKGRRP, where possible, aims to introduce and promote the concept of WMAs which strive for greater local ownership, empowerment and benefits accrued from setting aside land for wildlife management. As a viable enterprise, WMAs would compete as the optimal land use option and thus improve peoples' livelihoods. In this way, there appears to be an opportunity to turn the 'bush meat problem' into a conservation challenge and advantage (Balduis, 2002). If the use of wildlife within WMAs, including the sale and consumption of wild meat under a legal framework, can help to conserve wildlife and contribute to a humanitarian cause, this should be encouraged instead of being banned.

The KKGRRP aims to see that both ecosystem biodiversity and livelihood security in Kagera and Kigoma Regions are secured and improved. Indeed, there are definite signs of the ecosystems beginning to recover. However, realizing tangible benefits to local communities in terms of securing livelihood benefits have not been as successful. A consultative workshop for Burigi-Biharamulo Game Reserves identified the lack of capacity to make Game Reserves viable and the general scarcity of resources outside Game Reserves as major obstacles to supporting community-based conservation (MNRT, 2002). It is postulated, therefore, that one of the potential livelihood benefits could be through CBNRM initiatives that include the legal supply of wild meat for both local communities and refugee populations. It is noteworthy that UNHCR also supports attaching a monetary value to natural resources as a means to reduce the level of those resources consumed (UNHCR, 2005e).

However, it currently appears that for Tanzanian wildlife management authorities, the question of wild meat makes many feel uncomfortable. Despite embarking on CBNRM initiatives where wild meat trade can ultimately become legalized, any notion of the meat from legal hunting to be provided or sold to refugees, or for that matter to any other institution, is not entertained. It appears that despite the opportunity created within the wildlife policy for the creation of a legal process to provide wild meat, it is not rated highly amongst the authorities. The main concern voiced is that legal wild meat supply might encourage the refugees and local Tanzanians to consume more wild meat and hence increase demand, which in turn may lead to increased illegal hunting/poaching. Other concerns include the health risks of meat deterioration, and the belief that the provision of meat to refugees could lower their incentives to return to their home countries. In addition, it is possible that challenges faced by commercial cropping schemes under TAWICO in the past, including economic viability, may act as a further disincentive.

As an alternative to legal wild meat supply, critics prefer to promote the farming of domestic animals such as cattle, goats, pigs and poultry. Indeed, this is a very viable option in much of the study area and ongoing efforts to promote livestock should continue (Anon., 1998). At the same time, however, the positive spin-offs of livestock-keeping on the wildlife sector are seemingly not fully acknowledged. For example, a UNHCR handbook on livestock-keeping and animal husbandry in refugee and returnee situations did not mention the reduced pressure to wildlife off-take among the positive impacts of livestock-keeping (UNHCR, 2005h). Instead, recorded positive environmental impacts of livestock included fertilization of soils from livestock manure, stimulation of plant growth following modest grazing, reduced erosion and water run-off, use of agricultural by-products as animal feeds, savings in renewable and non-renewable energy resources, food and income generation.

Unfortunately, the provision of livestock meat is not always practical for a number of reasons. Firstly, one should note that livestock, and especially European breeds, have driven wildlife out of many different

habitats in Africa, leading to a loss of biodiversity and wildlife-based revenue earning potential (Balduş, 2002). Since wildlife is a renewable resource, it has ecological advantages over livestock. Therefore, wherever wildlife production systems are possible on a sustainable basis, these should be encouraged. Secondly, whilst livestock meat is available in most rural areas, it is not affordable. Wild meat is much cheaper and preferred. Thirdly, the current policy for hosting refugees in Tanzania does not encourage self reliance, which could act as a disincentive to engage in sustainable livestock production systems. Further discouragement derives from the risk of livestock theft.

Since limited, controlled wild meat harvesting and trade can not only help local communities become key stakeholders in conservation efforts and contribute towards local livelihoods, it can also meet some of the food security requirements of local and refugee populations. It is a strategy that warrants closer investigation. Chardonnet *et al.* (2002) listed Bushpig *Potamochoerus* spp., Bushbuck *Tragelaphus scriptus* and some Duikers *Cephalophus* spp. as taxa that can withstand a relatively high level of hunting pressure and could be candidates for sustainable offtake. As the Tanzanian human population grows and as conservation is required to contribute more towards poverty reduction in the country, new and innovative avenues need to be explored. Further, the refugee problem in north-western Tanzania is not going to vanish over night. Perhaps it is time to look for a manageable win-win situation. It is therefore recommended that the future possibility of selling wild meat through legal channels be further explored by government wildlife authorities, even if it is only available seasonally and in certain areas.

A third alternative to undercut illegal wild meat trade is the ranching or farming of wildlife. Since there are no commercial wildlife enterprises in north-western Tanzania, future initiatives along this idea would probably be most feasible if kept at a small-scale. While no such examples exist within this part of Tanzania, however, Cane rats *Thryonomys swinderianus* probably hold the most potential; not only do they breed quickly but are likely to be culturally acceptable (Anon., 2004b). Chardonnet *et al.* (2002) also recommended the ranching of this species in rural areas to enhance income-earning capability and increased protein intake. Other species that have been farmed for their meat in Africa include the Brush-tailed Porcupine *Atherurus africanus*, Giant Rat *Cricetomys emini*, Red River Hog *Potamochoerus porcus*, Duikers *Cephalophus* spp., Giant African Snail *Archachatina marginata*, Helmeted Guineafowl *Numida meleagris*, Double-Spurred Francolin *Francolinus bicalcaratus* and Scaly Francolin *Francolinus squamatus* (Anon., 2004b; Chardonnet *et al.*, 2002; Wilkie *et al.*, 1999).

A study into the feasibility of ranching or farming alternative wildlife species specifically for meat production in north-western Tanzania should be conducted jointly by government and members of the development and conservation communities, with a primary focus on increasing meat availability inside the refugee camps. It is likely that possibilities exist for those agencies already involved in promoting livestock production inside and nearby refugee camps.

It would also be prudent to promote off-farm and non-farm income-generating activities to local communities as well as refugees, to help provide alternative sources of household revenue. Increased disposable incomes may also enable people to buy livestock meat such as goat, poultry and pork, thus reducing the demand for wild meat.

Physical setting of refugee camps

The scenario experienced in the Kigoma and Kagera Regions is amongst the best example known highlighting the impact of establishing refugee camps so close to Game Reserve boundaries. At the same time, the choice was understandable given the great pressure placed by an unprecedented influx in a very short time. In many places in north-western Tanzania, UNHCR had to compromise its own environmental guidelines of 12-15km between camps and protected areas because the districts, especially Ngara and

Kibondo, have many Game and Forest Reserves. For example, some 72% of Kibondo district is covered by reserves, and as a result they exist in close proximity to refugee camps with the obvious result of human encroachment into the protected areas in the form of cultivation, tree felling and poaching.

The policy of keeping refugees in discrete camps undoubtedly increases the threats to the local environment when compared to settling refugees with local communities (UNHCR, 2002a). However, it has also been argued that had the sites been more carefully planned from the environmental perspective, the financial costs would have been only a fraction in the long term when considering both rehabilitation costs and losses in wildlife revenue.

It is envisaged that in the unfortunate event of another large refugee influx, existing camps could probably accommodate large numbers. Nevertheless, better forward planning is needed in terms of locating and managing refugee camps in the future, taking into consideration not only what natural resources that they may need, but also what are the likely impacts of such camps on environmental resources. Such forward planning by the Ministry of Home Affairs, Ministry of Natural Resources and Tourism and UNHCR can mitigate many of the undesirable impacts.

As important, however, is the forward planning for closure and consolidation of existing camps. As the numbers of repatriated refugees increases year by year, the number of camps may justifiably be reduced, including consolidation of existing camps. Careful planning is thus required by the same agencies to minimize negative environmental and livelihood impacts as a result of consolidation exercises.

Refugee camp management

Most of the dramatic stories regarding the environmental impact of refugees in Tanzania relate to the influx of Rwandese refugees after the genocide in Rwanda during 1994. Not only was the scale and pattern of that influx unique, it occurred at the time when environmental considerations were not prioritized in refugee management. More recently established refugee camps have managed to ensure better protection of the environment, whilst refugee programmes now incorporate environmental projects that go beyond remedying the impact of the presence of refugees to improvement of the environment generally.

A review by UNHCR of lessons learned regarding environmental management in refugee operations promoted best practices and their integration in all phases of refugee operations, from emergency through to care and maintenance, and ultimately repatriation and rehabilitation (UNHCR, 2002a). According to the *UNHCR Environmental Guidelines (2005)* and UNHCR key principles, the emergency response stage is most important in terms of incorporating environmental concerns, a view shared by other analysts (Rugumamu, 2004; UNHCR, 2005e,f). The justification of early, preventative measures is two-fold. Firstly, the loss of ecological resources and services in protected areas as a result of over-exploitation and habitat can have great economic implications. Secondly, rehabilitation of protected areas in particular is very expensive. Whilst wild meat is not specifically mentioned in the UNHCR review, many of the recommendations and best practices can be applied to wild meat concerns by all agencies involved in refugee camp management:

Emergency phase

- Wild meat considerations should form part of the contingency planning process for refugee emergencies in addition to the range of other environmental considerations;
- Wild meat considerations should be included in site selection;

- Camps should be sited more than 15 km from protected areas or areas of ecological significance; and
- Refugees should be well informed of the regulations regarding wild meat use and trade.
- Following site establishment, wild meat issues should be incorporated into an overall emergency environmental action plan, taking into account local community priorities and relevant wildlife sector expertise;
- Monitoring and evaluation, including the collection of baseline information, should include trade and use of wild meat, with monitoring indicators also reflecting wildlife populations and wildlife-based revenue data; and
- Representatives from the wildlife sector should be part of inter-agency co-ordination mechanisms to help ensure the wild meat issue is tabled at refugee camp, district and national levels.

Care and maintenance phase

- In some instances, the sustainable use of wildlife, including meat, within a legal framework, may help in the generation of income for refugees;
- Wild meat concerns should be mainstreamed into camp management design and budgets, including, in some circumstances, the provision of meat in refugee rations;
- Wild meat use should be included amongst the indicators for monitoring refugees' coping mechanisms to changes in food rations;
- Environmental education activities should include wild meat issues, and also extend to communities adjacent to refugee camps and work with existing village environmental management committees;
- Where such village environmental management committees do not exist, they should be formed;
- Wild meat issues should also be included within environmental training sessions, public awareness programmes and fundraising events; and
- In areas where environmental rehabilitation and management is planned or taking place (e.g. home gardening, afforestation) the food security component should be incorporated (e.g. animal keeping to minimize wildlife poaching).

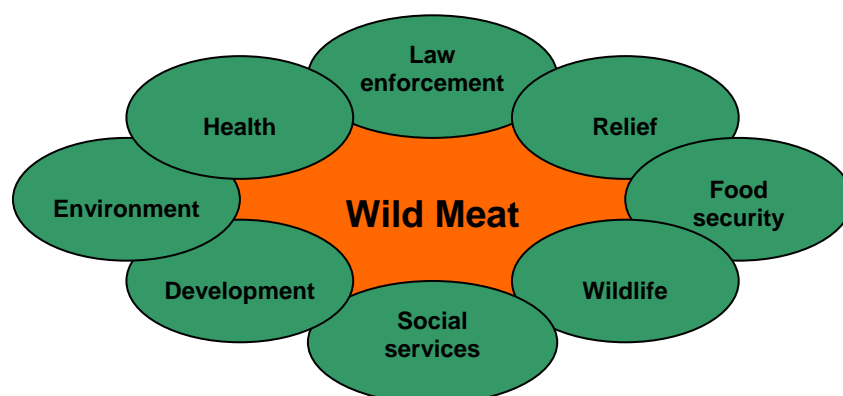
Dialogue and partnerships

Development organizations often pursue long-term community-based programmes to improve the socio-economic status of the communities in which they work. Ensuring food security is often a major focus of these initiatives. In this regard, the introduction of wild meat into local diets is seen as a bonus to augment poor or unreliable harvests from agriculture and livestock production, sometimes with insufficient consideration of the conservation implications of such harvest and use. Unsustainable harvesting, however, impacts on the future viability of wildlife food as a hedge against famine and hunger during times of drought or between harvests. Unsustainable harvesting also undermines the future economic potential of the wildlife resource. Thus, there is an urgent need to bring wild meat issues to the attention of those organizations working on the ground to improve the socio-economic status of rural Africans, particularly those addressing food security issues.

Beyond awareness, there is a clear need for partnership arrangements to allow the specialist knowledge of the conservation community to be linked with the long-term community-based programmes of the development community (Figure 8; Robinson *et al.*, 2002). Within the context of refugee camp situations, it is important for conservation-orientated civil society groups to enter into dialogue and partner with UNHCR, WFP and other relevant implementing partners, and to agree on how best to proceed in terms of addressing the wild meat issue in the context of the NSGRP/MKUKUTA. Two potential avenues for initiating dialogue include monthly inter-agency meetings at refugee camps as well as monthly Development Partners sub-group meetings on refugee issues (co-chaired by UNHCR, WFP and UNICEF).

Figure 8

Wild meat has linkages with numerous other sectors/stakeholders



Research priorities

This study was unfortunately unable to obtain up-to-date, detailed information regarding the trade in wild meat for various reasons, including unavailability of the data itself, unwillingness of some wildlife authorities to divulge data, and lack of resources to conduct new field research. However, a number of key research areas have been noted for possible follow up by academic institutions:

- More detailed studies on the dynamics and importance of wild meat trade to both rural livelihoods and refugees in north-western Tanzania are needed, including an assessment of the potential of wild meat provision as a livelihoods-enhancing and poverty-alleviating strategy.
- Understanding the relationships between ration levels, operational budgets, crime levels and wild meat consumption and trade are needed.
- The potential for wild meat supply in areas that have been identified as suitable for establishing WMAs in north-western Tanzania, addressing both the food supply as well as the entrepreneurship (benefits sharing) potentials, should be explored on an experimental case study basis.
- The possibility of the sale/distribution of wild meat from commercial hunting operations to host and refugee communities, either through local NGOs/CBOs or the WFP, should be explored.
- The potential of wildlife farming or ranching to provide wild meat as a source of protein as well as an income generation activity needs to be explored.
- The way in which local CBOs can support the KKGRRP to assist local communities establish and run WMAs with the aim of maximising benefits and improving conservation efforts should be examined.

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ACRONYMS

CBNRM	Community Based Natural Resource Management
CBO	Community Based Organization
DRC	Democratic Republic of the Congo
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
IFRC	International Federation of Red Cross and Red Crescent
KKGRRP	Kagera and Kigoma Game Reserves Rehabilitation Project
MDG	Millennium Development Goals
NGO	Non-Governmental Organization
NSGRP	National Strategy for Growth and Reduction of Poverty (MKUKUTA)
REDESO	Relief and Development Society
TCRF	Tanzania Christian Refugee Services
TZS	Tanzania Shillings (currency)
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNHCR	United Nations High Commissioner for Refugees
USD	United States Dollars (currency)
WFP	World Food Programme
UNICEF	United Nations Children's Fund
WMA	Wildlife Management Area
WWF	World Wide Fund for Nature

Annex 1: Summary of stakeholder workshop on the conservation and livelihood challenges of wild meat use and trade in refugee situations in western Tanzania

TRAFFIC organized a workshop in Kigoma in October 2006 to bring together a range of stakeholders involved in either refugee support or environmental management in refugee areas. Participants included national, regional and district government officials, representatives of UN agencies, conservation organizations and humanitarian and development NGOs, as well as representatives from refugee camps and local communities in the region. The objectives of the workshop were:

- to promote a wider understanding of root causes, socio-economic and conservation implications regarding the use and trade of wild meat in refugee situations; and
- to address challenges through the identification of longer-term, win-win approaches for both refugee camp management and wildlife management.

Following a short series of presentations, participants were divided into groups to discuss current approaches used to address related conservation and livelihood issues; the main challenges faced by different stakeholders; what further opportunities might exist and how stakeholders could best pursue these in an effective and coordinated fashion.

What follows is not meant to be an exhaustive account of the workshop proceedings. Rather, it highlights some of the key issues associated with wild meat exploitation in refugee areas identified by stakeholders present and the most salient points raised during discussions for how the various challenges could be better addressed in the future. These points and issues have been grouped below according to the organizing principles of the workshop, which was thematically structured around the four main social and economic drivers of the wild meat trade: livelihood choices, markets and prices, laws and regulations, and awareness.

Background Discussion

Presentations were made by TRAFFIC, the Jane Goodall Institute, the Lake Tanganyika Catchments Reforestation (TACARE) project and UNHCR. In discussions following each presentation, a number of comments were noteworthy. It was noted that the wild meat trade existed not only around refugee camps but also within local communities. Refugees provide a geographical concentration of demand, but the market is not limited to refugees alone. Wildlife populations are declining due to illegal activities and it is clear to all in the region that the wild meat trade has been, and continues to be, increasing. There would appear to be many drivers of this trade, from the need to meet basic food and nutrition requirements to issues of poverty and income generation. However, there are also those who generate considerable wealth out of the trade. Some participants also felt that haphazard and uncontrolled wild meat exploitation, especially by rural communities, stems partly from poor awareness of the rules and regulations regarding wildlife and protected areas. Participants felt that there is still not a clear or widespread recognition and understanding of the root causes and driving influences of the trade. Further investigations of the trade were deemed necessary, as were cross-sectoral efforts and new, innovative and inclusive approaches.

Some participants felt that there is often poor coordination between government and the NGOs that work in the region. This leads to a situation where work is done on a set of issues (e.g. on development or conservation) in isolation from other issues in the area. This means that cross-cutting issues like livelihoods are not addressed properly. Government needs to take the lead in these matters and coordinate the efforts of NGOs so as to achieve maximum impact on the ground. At the same time, government has

to note the advantages that NGOs have in their specific areas and make use of them. The work of NGOs can, and should, be complementary to government policies.

At a more macro-level, it must be acknowledged that the range of different policies associated with refugee contexts (e.g. environmental policy, refugee policy, wildlife policy, forestry policy, etc.) can sometimes contradict each other. Some policy alignment is needed urgently, especially those that relate to livelihood security, development, and environmental management.

Finally, some participants noted the importance of considering the environmental issues associated with refugee repatriation. Planning should include consideration of this, either in the area refugees are leaving or in the areas to which they will be returning.

How can enforcing regulations and restrictions be made more effective at reducing illegal or unsustainable wild meat harvesting and trade?

Some participants felt that the relevant laws (*Wildlife Conservation Act 1974, Refugee Control Ordinance 1966, Refugee Act 1998, Forest Ordinance and Forest Act 2002*) were not necessarily well known to local stakeholders and that some dissemination of materials in simple and understandable language would help. There was some sense that laws have not been well integrated. It should also be recognized that there are conflicts between local communities and protected areas management over such issues as wild fires and poaching which are quite separate from the issue of refugees; focusing enforcement on refugees alone is insufficient. Local communities might be willing to participate in enforcement efforts if they were also more involved in the planning and implementation of conservation activities. It was stressed that if local communities can see the direct links between a healthy wildlife population and local benefits (employment, revenue generation, etc.), they would be more likely to use natural resources sustainably.

Will changing the regulations on tenure, access and rights (over the land/resource base) reduce illegal or unsustainable activities?

Any way to increase a sense of local ownership over wild resources was seen as likely to reduce illegal or unsustainable activities. Some participants expressed views that suggested the need to reconsider access to and distribution of benefits associated with wildlife. For instance, some felt that the revenue being collected from tourist hunting was going only to the government and not reaching or being reinvested in local communities. Moreover, those benefits that were being received by communities, such as employment, were sometimes not distributed in an equitable fashion. Wildlife Management Areas were considered promising developments since they establish that a fixed percentage (25%) of tourist and hunting revenue will be pumped back into the community managing the hunting area. However, the concept was still being piloted and it would take time before it could be expanded. One suggestion was made to allow hunting, but only for hunters using traditional methods, with shooting or snaring remaining illegal. This might help reduce the scale of wild meat harvesting while still allowing some legal, local consumption. Proper land use planning, such as rotating hunting areas, could also relieve some pressure on the resource. However, a major obstacle to managing wildlife resources in this way was the poor state or absence of wildlife inventories, making the establishment of sustainable offtake levels difficult.

What potential does alleviating poverty and/or altering food security and livelihood strategies have for reducing illegal or unsustainable wild meat trade?

Some participants felt that for poverty alleviation strategies to have an impact on reducing the wild meat trade, they must be designed with a participatory, rights-based approach, whether with refugees or host communities. Good programmes require sufficient analysis of local livelihood strategies and need to focus on the impact of different policies and institutional arrangements which are creating obstacles or disincentives to the pursuit of alternative livelihoods.

To date, there have been some income generating activities undertaken in the region supported by UNHCR, but there should be increased support for income-generating projects in both refugee camps and host communities. These could include animal husbandry without grazing, poultry, handcrafts, hair cutting, boutique, pottery, home gardening, embroidery, small food kiosks/shops, fish ponds, etc. Entrepreneurship training could also be provided. There have also been some family planning activities but these have faced some cultural barriers. The main challenges have been the limited funding available from either donors or the government. Another challenge has been market access for refugees, since existing refugee law and policy limits their ability to engage in such activities. There has also been a lack of co-operation and coordination among some stakeholders, which has been exacerbated by a poor understanding of the roles and responsibilities of UNHCR and its implementing agencies versus the government. Some participants felt that the UNHCR-supported income generating activities which target small groups have resulted in conflicts due to perceptions of favouritism. Larger groups could be targeted in the future to avoid such situations.

Opportunities may exist to improve government social service provision in areas around refugee camps. The establishment of rural microfinance banks (community banks) for vulnerable sectors of the community might also help alleviate a shortage of credit for entrepreneurial activities.

Some participants felt there should be more emphasis placed on supporting women's groups and the most vulnerable. Others felt that creating alternative employment opportunities for hunters and traders in areas with eco-tourism potential should be prioritized. More tree planting and energy saving stoves would be helpful too, as would more education on wildlife conservation, especially in schools (whether in the refugee camps or in surrounding communities).

Existing, successful projects in refugee areas could be replicated elsewhere, requiring increased information sharing and role sharing between and among Government, UN and NGO agencies. Some felt that host communities needed to better understand stakeholder roles and responsibilities; this would help manage expectations. Ultimately, responsibility for projects in surrounding communities should be transferred gradually from UNHCR and its implementing partners to local communities to ensure long term sustainability.

How can awareness raising efforts (either with hunters, traders and consumers or with the managers of protected areas and refugee camps) of the negative impacts of wild meat use reduce illegal or unsustainable wild meat harvests and trade?

To date, the main focus of efforts to reduce wild meat usage has been on law enforcement, which emphasize disincentives rather than positive incentives. Some participants felt that the training of wildlife managers currently places little emphasis on the wild meat trade. There was a sense too that there is little information shared at the higher levels of the bureaucracy, making it a challenge to find alternatives to regulatory approaches.

At the community level, a number of awareness-raising modalities could be used. Some participants saw awareness-raising at the community level as important, since they felt there is a lack of community awareness of the local benefits of hunting areas. This could be done in a number of ways. Youth education programs have shown some positive results and should be expanded. Young school children could be educated on the value of wildlife, and made to understand why animals disappear if there is too much hunting. Village meetings could also be used to raise awareness of these issues, as could drama groups or excursions to view local wildlife. There could also be wildlife clubs, village environment committees (where they don't already exist), or conservation-related development projects at the village level.

Amongst refugee camps, there are a different set of challenges. The composition of refugee populations often changes, requiring awareness-raising to be done continuously. As long as there are willing consumers who need nutritional, cultural, medicinal or spiritual needs met, there will be incentives for hunters and traders to meet these needs. Meeting the specific and sometimes unique cultural and spiritual requirements of refugees will require creative approaches.

Participants noted that all these efforts will necessarily require increased personnel, increased funding and materials, as well as associated policy adjustments.

Annex 2: Summary of the impact of refugee influx on timber resources in Ngara District

One of the most immediate impacts of the arrival of refugees in Ngara was the impact on forest resources. The area of the *Greater Benaco* refugee camps did contain an apparent abundance of wood for fuel and construction. However, immediately after their arrival in 1994, the refugees felled trees for the construction of shelters and gathered fuel wood in the vicinity of the camps to meet their energy requirements for cooking, heating, lighting, and brewing.

Once established, the Rwandan refugees were largely left to fend for themselves as far as energy supply was concerned. Despite the existence of a fuel wood provision project implemented by CARE in Ngara until January 1996, it supplied less than 12% of the total consumption, and was later suspended because of costs and potential counterproductive effects on energy usage (Bloesch, 2002a). Over time, the cutting of trees for fuel wood was the main driving force behind vast deforestation of the area. UNDP noted that harvesting of firewood was, in most cases, the most environmentally damaging activity associated with refugee influx (Bloesch, 2002a).

In December 1994, the daily fuel wood consumption in *Benaco* camp was initially around 2.7 kg per person, equivalent to some 1 200 tonnes for the entire refugee population (UNHCR, 2002b; Owen *et al.*, 1997a,b). Since the wood was used relatively wet, these figures corresponded to an annual demand of about 550 000 m³ (1m³ = 800 kg) for the entire camp or 1.22 m³ per person per year.⁷ However, fuel wood demand quickly exceeded supply. The annual fuel wood demand for Bukoba Urban, Rural and Muleba Districts was estimated at 1.5 million m³, whilst supply was only 1.1 million m³ (Anon., 1998). At first, dead wood was gathered in the near vicinity of the camps, but within a year people were forced to collect and cut wood within a radius of more than 10 km. With increasing distance from the camps the degree of cutting decreased. Such a huge demand of firewood led to severe deforestation of the surrounding savannah woodlands. Extensive deforestation took place in Kyalisa and Ngara refugee camps (Anon., 2002). According to Bloesch (2002a), in the first few months following arrival of the refugees, a growing stock of about 50 ha was used daily to cover the fuel wood demands of all refugees. Satellite and aerial photos taken in 1996 revealed more than 226 km² (20 600 ha) of completely deforested land and a further 470 km² (47 000 ha) of moderately deforested land (Anon., 1998; UNHCR, 2002b). The most affected areas included Gagoya in Ngara District, Kasogeye, Nyantakaraya and Biharamulo Forest reserves (KEP, 1997).

As another indicator of deforestation, woodcutting was selective in the early phase, with little or no cutting of low fuel quality species such as *Cussonia aeborea*, *Kigelia africana* and *Lannea schimperi*, trees of cultural significance (e.g. *Erythrina abyssinica*) and trees with large circumferences (Bloesch, 2002a). However, selective cutting was abandoned in the vicinities of the camps as fuel wood became scarce.



Woodland regeneration at site of former *Benaco* camp, Kagera

Credit: George Jambiya

⁷ According to De Montalembert *et al.* (1983) minimal fuel wood consumption per person per year lies within a range of 1 m³ to 1.5 m³ in developing countries under normal circumstances.

Due to the decreasing supply of wood resources in the vicinity of the camps and the introduction of improved clay stoves, the daily consumption of fuel wood per person dropped significantly from 2.7 kg to 1.65 kg (equivalent to about 580 t for the whole population of *Greater Benaco*) within two years. In contrast, the daily fuel wood consumption in Tanzanian villages in Kagera Region was about 1.9 kg per person (Bloesch, 2002a). In the context of the local population, there were other factors influencing the higher fuel wood consumption including easier access to free fuel wood and inefficient use of energy.

In some areas, even stumps were uprooted thereby exposing the soil to erosion and endangering soil fertility (Bloesch, 2002a). The effects of reduced vegetation cover included soil erosion on slopes, reduction in soil organic matter and nutrients, diminished water retention capacity, reduced soil depth required for root growth and uncontrolled bush fires (Bloesch, 2002b; Rutinwa *et al.*, 2003). The end result was a marked reduction in soil fertility.

In December 1996 after some 42 months in Tanzania, the refugees left the camps after being forcibly repatriated to Rwanda. The former camp sites and their immediate surroundings were completely deforested and were partially covered by bare soil (KEP, 1997). Bloesch (2002a) reported that the reduced vegetation cover in the area strongly changed the hydrology – the outflow from water sources had decreased and some open water surfaces had totally dried up. Fortunately, the clear-felled areas outside the camp sites had a continuous grass layer, which together with the remaining rooting system of many cut woody plants, helped to provide minimal protection of the soil against surface erosion. The impact of forest clearance, even with secondary growth beginning to emerge, was still evident during observations in mid-2005. To complicate matters, frequent destructive fires serve to endanger the natural recovery of the vegetation as well as the potential for wild animals to return to the area.⁸

⁸ Part of the reasons for fires is based on a local belief that when a person sets fire in the bush and the fire extends for a long distance, his life expectancy also increases. Another reason is that this is just an easy way of clearing land for farming and stimulating fresh grass growth for livestock.

TRAFFIC, the wildlife trade monitoring network, works to ensure that trade in wild plants and animals is not a threat to the conservation of nature. It has offices covering most parts of the world and works in close co-operation with the Secretariat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

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