DISCUSSION PAPER SERIES

Managing Forest Wildlife for Human Livelihoods in the Korup-Oban Hills region, West-Central Africa

Bushmeat and Livelihoods in Central and West Africa

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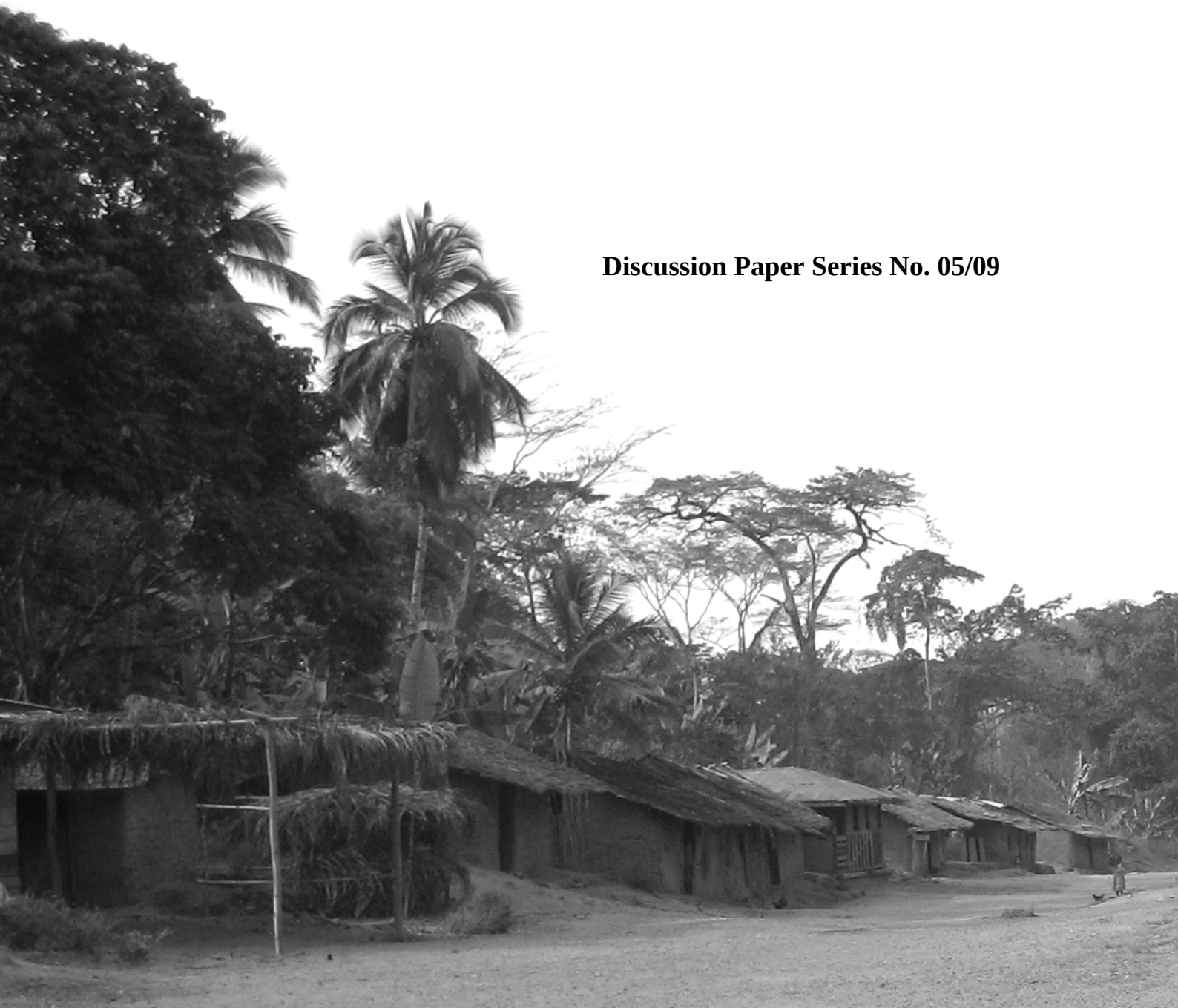

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Bushmeat and Livelihoods in Central and West Africa

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Abstract: The extent of hunting on the wildlife populations in Central Africa has reached dramatic proportions over the past decades, resulting in it being often referred to as the "bushmeat crisis". This paper briefly reviews a series of socioeconomic aspects of the bushmeat trade that affect the livelihoods of local rural communities; aspects that will have to be carefully addressed in any income generating alternatives or hunting management schemes planned by natural resource and rural development managers.

Keywords: bushmeat crisis, poaching, food security, protein sources, income generating activities for the rural poor

1. Introduction – the scale of the "Bushmeat" crisis

Livelihood is defined by access to the assets (natural, physical, human, financial, and social capital) and the activities that together determine the living gained by an individual or household (Sunderlin et al. 2005). In the tropical forests of Equatorial Africa where poverty is widespread, wildlife is central to the livelihoods of the poor (Trench 2000), who depend on it as a source of both food and income.

The bushmeat trade contributes substantially to the livelihoods of almost 150 million people (Robinson and Bennett 2000), and also supports a rapidly growing informal economy (Wilkie et al. 1992; de Merode 1998 in Tschombe 2000). Yet, the informal and often illegal nature of bushmeat harvesting and consumption makes the degree and strength of poverty linkages unclear (Ashley et al. 2002).

In many areas in Africa, bushmeat is the only source of animal protein and is an open access resource open to anyone willing to hunt (Wilkie and Carpenter 1999) making it especially attractive to the poor. Where other meat is available, bushmeat may be chosen because it is often cheaper, such as in Cameroon, Democratic Republic of Congo (DRC), and Central African Republic (CAR) where it is 1/10 to ¼ the price of domestic substitutes (Gally and Jeanmart 1996 in Wilkie and Carpenter 1999). Also, it could simply be the result of taste or cultural preferences even when alternatives exist (Bennett 2002). In fact, many urban elites view bushmeat as a cultural heritage luxury item and are actually willing to pay a price premium (Wilkie and Carpenter 1999).

The scale of the African bushmeat trade is enormous, estimated at between 1 and 3.4 million tonnes per year (Wilkie and Carpenter 1999; Fa and Peres 2001 in Bennett 2002). Central Africa alone may be responsible for harvesting over 2 million tonnes of bushmeat per year (Fa et al. 2003). Recently, the exploitation of bushmeat has increased as a result of growing human populations, greater access to undisturbed forests, changes in hunting technology, and scarcity of alternative protein sources (Robinson and Bennett 2000; Robinson et al. 1999).

For instance, the rainforests of the Congo Basin have been the focus of many studies regarding depletion of wildlife and its consequences. Human population in the region has doubled since the 1920s (Hothschild 1998 in Wilkie and Carpenter 1999) and at an average growth rate of 2.7%, is expected to double again in 25-30 years (Wilkie and Carpenter 1999). Bushmeat protein supply in the region may drop by

81% in less than 50 years if current rates of harvest continue, resulting in a dramatic increase in protein malnutrition (Fa et al. 2003), since bushmeat constitutes 30-80% of the protein consumed by forest-dwelling families (Koppert et al. 1996). Estimates of bushmeat consumption for countries in the Congo Basin can be seen in Table 1.

Table 1. Urban and rural bushmeat consumption in the Congo Basin.

Country	**Forest Area**	**Population**		**Bushmeat consumption**	
	Km^2	**Forest**	**Urban**	**Kg/yr**	**Kg/km^2/yr**
Cameroon	155 330	1 424 000	2 214 620	78 077 172	503
CAR	52 236	219 599	539 775	12 976 507	248
DRC	1 190 737	22 127 000	3 782 369	1 067 873 491	897
Equatorial Guinea	17 004	183 000	227 500	9 762 838	574
Gabon	227 500	181 700	227 500	9 762 838	574
Congo	213 400	219 500	1 245 528	16 325 305	77
Total	**1 856 207**	**24 354 700**	**8 591 232**	**1 196 395 911**	**645**

(Wilkie and Carpenter 1999)

Effective management of wildlife, therefore, must be pursued if the resource is going to be available for future generations. Although the scope is quite limited, community wildlife management (CWM) models may be one of the key mechanisms to engender support for attempts to make the trade more sustainable (Ashley et al. 2002; Bowen-Jones et al. 2002), but the focus must be on enhancing the livelihoods of the local population. According to Brown (2003), a human livelihoods focus is not only a moral fundamental, but also a practical necessity.

2. Positives of Bushmeat Exploitation

Brown and Williams (2003) identified many positive characteristics of the bushmeat trade that make it an attractive option for the poor. First, bushmeat has a low barrier to entry and offers high returns with minimal investment, perfect for risk-averse small farmers whose main constraint is labor. Second, it requires low-level extractive technology and can be undertaken flexibly year round. Third, when dried it has excellent storage qualities and can be easily transported, with a high value to

weight ratio. Fourth, the gender aspects of the trade are surprisingly positive as the men hunt, but the women do virtually all of the downstream processing and commerce. Finally, the trade is mostly unregulated and decentralized and so a considerable proportion of the product value remains with the hunter. Despite the fact that the bushmeat trade is a multi-million dollar industry in West-Central Africa, most policy makers turn a blind eye to these positive attributes. However any attempts at managing the bushmeat industry should preserve these attributes as fundamental parameters (Brown 2003).

3. The Value of Bushmeat

Much research has been done regarding bushmeat harvesting, but literature regarding bushmeat's contribution to household economies, and hence its value in poor people's lives, is sparse (Ashley et al. 2002; Brown and Williams 2003; Hladik et al. 1993 in Wilkie and Carpenter 1999). However the following studies have shown that bushmeat is an important source of income for the poor. For instance, it enables households to buy medical supplies and procure assets that will enhance their livelihood strategies (de Merode et al. 2004).

In strictly economic terms, Noss (1998) found that snare hunters in the Dzanga-Sangha special forest reserve in Central African Republic earn between $400 and $700 per year, which is more than minimum wage and equivalent to the wage of guards employed by the park. In the CIB logging concessions in northern Congo, two villages were determined to generate an income of $300 per household per year from the sale of bushmeat (Wilkie et al. 1999b in Wilkie and Carpenter 1999). Dethier (1995 in Wilkie and Carpenter 1999) in the Congo and Ngnegueu and Fotso (1996 in Wilkie and Carpenter 1999) in Cameroon found that by selling bushmeat hunters could make $250-$1050 per year and $650 per year respectively. In Cameroon, Gally and Jeanmart (1996 in Wilkie and Carpenter 1999) reported the annual economic returns to hunters as well above the national average at $330-$1058, and found that the hunter netted 30% profit from the sale, while the trader made 19% and the restaurateur 21%.

de Merode et al. (2004) conducted an important study, which tried to assess the value of wild foods for a community of 128 households living in extreme poverty (less than $1 US per day) in the Democratic Republic of Congo. They attempted to

answer three important questions: 1) Are wild foods valuable in terms of both household consumption and market sales? 2) Are wild foods more valuable in the lean season? and 3) Are wild foods more valuable to the poorest in the community?

de Merode and colleagues found that bushmeat contributed very little to the diet - 0.04kg (3.1%) per capita per day compared with 0.13kg/day, which is more typical of the Congo Basin (Wilkie and Carpenter 1999). Two explanations are offered for this discrepancy. First, since the people of the community are living in extreme poverty, many may not be able to afford the tools to hunt or have the income necessary to purchase meat. Second, those who *can* afford the tools to hunt tend to sell it since there are very few alternative ways to generate income. In fact, 90% of all bushmeat was sold at the market and comprised 25% of all household sales. When agricultural products are scarce and households are extremely vulnerable to food shortages ("lean season"), they found that sale and consumption increased by 155% (though not statistically significant) and 75% respectively. Comparing the value of bushmeat between the wealthy and the poor, de Merode et al. found the value to be greater for the wealthy. Their findings are contradictory to other studies (Scoones et al. 1992 and Dei 1989, 1991 in de Merode et al. 2004), which they attribute to a variety of social and economic factors that determine differential access to wild resources, both within and between communities.

4. Bushmeat as Food Security

The prevailing opinion is that bushmeat is an important contributor to food security (Fa et al. 2003); however, its role tends to be underestimated and its importance to different social groups is not well understood (Ashley et al. 2002).

Nevertheless, Bennett (2002) gives some important insights into the matter. Two distinct groups of people can be seen: those who *do not* depend on the bushmeat resource and those who *do*. In most cases, wealthier urban consumers are able to switch to other forms of protein, such as fish or domestic meat, if the supply of bushmeat is diminished. In this case, bushmeat is a luxury item, whose price may be greater than that of domestic meat. This group would not suffer nutritional hardship if bushmeat was no longer available.

More importantly, many traditional forest peoples completely depend on bushmeat, lacking either alternatives or the skills and cultural context with which to

produce them. The decline of bushmeat will cause distress for these people because of several factors including: remoteness from markets; lack of cash coming into the community; lack of neighboring communities with whom they have a good relationship and can learn farming skills; and cultural difficulties (adapted from Langub 1996 cited in Bennett 2002).

In between these two discrete groups, though, are the majority of consumers whose future in the absence of bushmeat is poorly understood. For many of these people, bushmeat serves an important safety-net function, as a fallback supply of food in times of personal, environmental, or economic crises (Fimbel et al. 2000; Hart 2000). Hence, decline in bushmeat as a *potential* food source presents a food security threat in the long term for those people who haven't yet developed sustainable livelihoods to see them through times of crisis.

5. Alternative Sources of Protein

Finding a substitute for bushmeat as a source of protein is a logical solution to try to curb the dwindling wildlife population while satisfying the needs of the human population. Unfortunately, for most tropical forest communities this has proven to be quite difficult. Fish and domestic meat are the only plausible substitutes, since certain crops (e.g. cassava, Gnetum leaves) may have high protein content, but lack a full complement of amino acids (Pagezy 1993 in Wilkie and Carpenter 1999). Unlike in West Africa, seafood (fish) is not really an option in Central Africa due to the large landmass and a rapidly expanding human population (Bennett 2000).

According to Fa (2000), intensive farming of livestock and other forms of domestic protein is the only way to provide a sustainable source of food. In addition to this being both a logistical and an ecological challenge for densely forested regions, substitution with domestic meat through livestock rearing involves a switch from a livelihoods-based activity of poor young males (who do the hunting) and females (who do the downstream processing and trading), to a capital-intensive industry benefiting capitalist entrepreneurs (Brown and Williams 2003). In most cases, the economics of livestock rearing are simply too prohibitive for small-hold farmers (Brown and Williams 2003).

Domestication of bushmeat species has also been attempted as an alternative to hunting. Wild game farming is an established and growing industry in arid Southern

and East Africa, most attempts in West-Central Africa have met with economic, technical, and livelihood obstacles (Ashley et al. 2002) and consequently have failed, or at least failed to alleviate the problem (Bennett 2002; Brown and Williams 2003). An exception is the Nazinga Game Ranch established in 1979 in Burkina Faso. The ungulate population was regenerated from 1000 to 20 000 individuals, and at the same time generated income for the human population through cropping employment opportunities, beekeeping, cottage industry and other activities (Zeba 1998). A GTZ-funded project in Benin involving giant cane rats has also had some success. Generally though, like livestock rearing, lack of capital, market access, and enterprise management skills are major impediments to the domestication of wild game and therefore is not an accessible livelihood strategy for the poor (Ashley et al. 2002).

6. Infrastructure and Bushmeat

One of the principle constraints on livelihoods for many rural people is a culmination of inadequate infrastructure and poor public transport (Davis 2001). Roads that provide access to markets are highly valued by rural communities and can serve as powerful incentives (Wells and Brandon 1992). The timber industry in West-Central Africa creates an extensive network of roads which link to the national road system, thus allowing increased access to markets and previously isolated areas of forest, and consequently greatly facilitates the bushmeat trade. (Wilkie et al. 1992, 2000; Robinson and Bennett 1999; Robinson et al. 1999; Trench 2000; Davies 2002).

Households situated in the forest with no alternate sources of income, will tend to increase bushmeat hunting for sale with increased access to roads and transportation (Wilkie et al. 2000). A study by Takforyan (1996 in Trench 2000) illustrates this with a comparison of two villages in southeast Cameroon, one close to a logging road and one without access. In the village without access to a logging road, for 95% of the population, less than 5% of income came from hunting. By contrast, 10-20% of income for the village near the logging road came from bushmeat for 50% of the population. Hence, with improved infrastructure, the economic situation of entire villages can improve significantly (Wells and Brandon 1992), but in the absence of wildlife management projects, to the detriment of wildlife populations. Therefore improvement to infrastructure necessitates improvement to wildlife management.

7. Community Wildlife Management

Community wildlife management projects have the potential to contribute to sustainable management of the bushmeat trade, and may help to reduce poverty and enhance livelihoods (Ashley et al. 2002). However, those involved must be able to see the short-term benefits of such ventures (Zeba 1998). The value of the wildlife resource must be sufficient to serve as an incentive for all community members to actively manage it (Inamdar et al. 1999; Tshombe et al. 2000). In addition, the proceeds from management must be fairly equitably distributed, and future access to the resource must be sufficiently well guaranteed (de Merode et al. 2003).

In their report "Wildlife and Poverty", Ashley et al. (2002) identify seven factors that are necessary if community wildlife management is going to have a positive impact on livelihoods:

1. Wildlife must be an economically attractive land use.
2. There must be commercially viable enterprise opportunities, with access to markets, infrastructure, skilled labour and training that can deliver tangible short-term and sustainable long-term benefits.
3. There must be a supportive legislative and policy environment.
4. Livelihood improvement must be the primary goal, and must be tracked and monitored.
5. There must be a viable wildlife population, and established and legally binding community land use rights over wildlife resources.
6. Communities must be coherent, stable, and relatively small, with established natural resource management institutions, established benefit sharing mechanisms, and experience with managing community businesses.
7. There must be an established relationship between community, local private landowners, and potential private sector partners.

Sadly, lack of qualitative socioeconomic data and criteria for evaluation makes it difficult to estimate the scale of poverty impact that general CWM initiatives to date have had (Wells and Brandon 1992; Roe and Jack 2001; Ashley et al. 2002). Emphasis has been placed on the financial benefits, and even though access to food through employment or income generation is important, there are other incentives

based on intrinsic cultural and religious values (Jones 1999; Infield 2001; Roe and Jack 2001). Improved physical, spiritual, and cultural wellbeing is largely underestimated but in fact is one of if not *the* most important outcome for poor people (Ashley et al. 2002). Empowerment of local communities – the sense of being in control of wildlife resources – is widely valued irrespective of benefit flows, and unfortunately cannot be quantified (Ashley et al. 2002).

The CWM program in the Kunene region of Namibia provides an excellent example. Stemming from a true desire to stop the obvious decline in wildlife populations, Kunene poachers turned gamekeepers and accepted responsibility for a resource over which they felt some cultural ownership (Jones 1999). This inherent sense of responsibility did result in some economic benefits, but more importantly increased the pride of the community through increased control over their own resources and livelihoods (Jones 1999). Other non-financial benefits of the program included new and adaptable institutions with a defined and committed membership, accountable leaders and a participatory decision-making process (which includes women), new skills, integrated management resource systems, and experience and confidence in dealing with outsiders **(**Jones 1999 in Roe and Jack 2001).

More specifically, though, CWM models for *bushmeat* in Africa are essentially non-existent (Bowen-Jones et al. 2002; Brown 2003). According to Bowen-Jones et al. (2002) who reviewed almost 600 pieces of literature regarding bushmeat, there is a lack of examples of areas or projects where attempts to control the bushmeat trade have been successful. This lack of bushmeat management models in Africa can be attributed to a number of different factors listed by Ashley et al. (2002). First, it is difficult to empower hunter, trader, and consumer groups to manage resources due to the difficulty of excluding outsiders. Second, low human population densities in management areas result in high transaction costs of intervention. Third, there is little cohesion in peri-urban settings, where much of the bushmeat trade takes place, which thus constrains attempts to intervene along the supply chain. Lastly, legislative weaknesses and ambiguities are common, and institutions at the local level are often weak or corrupt.

The most successful and well-documented cases of wildlife management in Africa come from the dry savannah zone in the south rather than the Guinea-Congolese forest zone (Bowen-Jones et al. 2002) and these tend to rely mainly on tourism.

Savanna Models

In Southern and East Africa, wildlife tourism is a booming industry for several reasons such as: guaranteed viewing of charismatic species; easy, comfortable, and safe access to sites; and proximity to international airports or major tourist centres (McNeely et al. 1992 in Wilkie and Carpenter 1999a).

The best-known example is CAMPFIRE (Communal Areas Management Programme for Indigenous Resources) in Zimbabwe (Mofson 2000 in Bowen-Jones et al. 2002), which generates funds for the community predominately from tourism activities such as safaris and trophy hunting (Hasler 1999 in Roe and Jack 2001). Contracts are drawn up between Rural District Councils and private sector operators, and after subtracting a management fee and levy, Councils direct the money to villages and wards where it is used for community development projects or distributed to households in dividends (Hasler 1999 in Roe and Jack 2001). Of course benefits at the household level are highly variable, depending on distance from the protected area, but in 1996, 89 475 households received dividends, while others benefited from the establishment of schools, health clinics, and grinding mills (Hasler 1999 in Roe and Jack 2001).

A similar approach is being developed in Zambia, with the ADMADE programme (Bowen-Jones et al. 2002). ADMADE's goal is for wildlife management units within Game Management Areas (GMAs) to support their own management costs and to generate funds for community projects (Brandon and Wells 1992). A revolving fund returns 35% of revenues from safari and other hunting fees to community projects, 40% to wildlife management activities within the GMA (including the village scout program), 15% to the national park system, and 10% to the Zambian Tourist Bureau (Brandon and Wells 1992). Although local employment has been high, community involvement in decision-making and the distribution of local benefits has not been widely participatory at the local level (Brandon and Wells 1992).

In the Okavango Region of Botswana, a Natural Resource Management Program enables communities to choose between subleasing their land for tourism (e.g. hunting, photography, wildlife viewing) or using it directly (Boggs 2000 in Roe and Jack 2001). The Sankuyo village chose the former and has generated P2 million over 3 years, while the Khwai village chose to build and run their own photographic and hunting operation creating benefits which included income selling souvenirs,

meat from the hunting quota, and some employment in the tourist lodge (Boggs in Roe and Jack 2001).

Pilot projects from the Maswa Game Reserve, Makao Open Area, and Ngorongora District in the Western Serengeti, Tanzania indicate benefits from tourist hunting could generate over $12 500 per village—though this has yet to be realized (Emerton and Mfunda 1999 in Roe and Jack 2001). In addition to direct compensation to villages for use of land, the Wildlife Department has introduced a voluntary levy on tourist hunting that hunting companies use for community development and anti-poaching expenses (Emerton and Mfunda 1999 in Roe and Jack 2001). A community-hunting scheme is also part of the plan where meat cropped by the Wildlife Department is sold to households at low prices with money going to the Village Natural Resource Fund (Emerton and Mfunda 1999 in Roe and Jack 2001). Other benefits to villagers include: culling licenses and a share of game meat from the tourist hunting; income from supplying tourist establishments with food; creation of new markets for game meat from community cropping quotas; and casual employment by tourist companies (Emerton and Mfunda 1999 in Roe and Jack 2001).

It is most unlikely, though, that tourism will feature systematically in the management of hunting in West-Central Africa within the next decade, therefore the above listed models have limited relevance for forest zones in the present context (Bowen-Jones et al. 2002). Whereas the visitors to North, East, and Southern Africa number in the hundreds of thousands, the average to West and Central Africa is below 5000 (Sournia 1996 in Trench 2000). Moreover, Abbot et al. (2000) and Sournia (1996 in Trench 2000) identify several factors that are likely to continue to inhibit international tourism in the future, including remoteness of viewing sites, poor visibility of wildlife, harsh climate, poor human and structural capacity in the tourism sector, lack of infrastructure, and political instability.

Non-Savannah Models

Outside of variants of the savannah community-hunting model, options are rather limited (Bowen-Jones et al. 2002). Very few instances exist in the literature of the active management of bushmeat harvesting and sale, and the few that do exist are too recent to allow for meaningful lesson learning (Bowen-Jones et al. 2002). The DFID-supported Mount Cameroon Project has had some successes in supporting development of necessary institutions and incentives for community bushmeat management, resulting in positive local impacts on food security and livelihoods

(Ashley et al. 2002). However, quantitative monitoring of the impact on livelihoods has not occurred (Olsen et al. 2001), and elsewhere in the sub-region management models have figured more as theoretical propositions than established fact (Bowen-Jones et al. 2002). Hence, there is no socioeconomic data on their impacts.

8. Research Needs

For an extensive list of questions that need to be answered in regard to bushmeat and livelihoods (also bushmeat in general), see Bowen-Jones et al. (2002). The main researchable constraints they identify are listed below:

- Work with hunters as a critical entry point for improving sustainability of the trade.
- Engage urban consumers as a critical entry point for managing the bushmeat trade.
- Improve management of the bushmeat commodity chain as an entry point to increase the sustainability of the overall trade.
- Increase the positive management role that the logging industry should be playing with regards to the bushmeat trade.
- Increase community involvement in wildlife management whilst ensuring sustainability as a common objective.
- Carry out a realistic assessment of the practical alternatives to hunting as a source of income and food.
- Clarify the health issues surrounding bushmeat as a crucial protein source for the rural poor.

9. Conclusion

It is well known that bushmeat has significant impacts on the livelihoods of the rural poor, providing both an affordable source of animal protein and a livelihood opportunity for men as hunters and women as traders (Bowen-Jones et al. 2002). However, it is of the utmost importance that the impact of declining bushmeat supplies on poor people's livelihoods and the effectiveness of coping strategies is assessed (Ashley et al. 2002). At present, research is driven by conservation, rather than livelihood concerns, therefore the extent of livelihood linkages is not well understood (Ashley et al. 2002). Without incentives to manage their wildlife

resources, communities will continue the unsustainable harvesting currently occurring throughout West-Central Africa resulting in local extinctions that ultimately could lead to global extinctions (Bowen-Jones et al. 2002) and adverse consequences for their livelihoods.

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