



The impact of forest governance arrangements on the livelihoods of bushmeat actors in Ghana's High Forest Zone



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Abstract

The forests in Ghana face increasing degradation. Many people are directly dependent on these forests for their livelihood support. Bushmeat hunters and traders are among them. In order to protect the forest while maintaining extraction possibilities for forest-fringe communities, various governance arrangements are in effect. This study focuses on the effects of forest governance arrangements on the livelihoods of actors in the bushmeat commodity chain in Ghana's High Forest Zone.

To that purpose, I have administered a survey among all categories of bushmeat actors, i.e. commercial hunters, farmer hunters, wholesalers, market traders and chopbar owners (totalling 88 surveys). Additionally, semi-structured interviews and open group interviews have been held with these bushmeat actors to specify and interpret the outcomes of the survey. Also, semi-structured interviews were held with various government actors.

This study makes clear that three different sets of governance are in place, which regulate access, use and trade. Access rights have the most impact on bushmeat actors. They consist of permanently closed areas, such as forest and wildlife reserves and sacred groves, and temporary closure, like the closed season from 1 August till 1 December and traditional taboo days. Use rights focus on hunting licences, hunting methods and species that are not allowed to be hunted. All hunters require a licence that states what amounts of species they will shoot in this season, for which they have to pay in advance. It is not allowed to exceed these quota. The use of a gun is the only allowed hunting method, but in practice many hunters use snares as well. Banned species are categorized in three groups: those that need year-round full protection, those that are reproducing and the rest of the species (except for the grasscutter) that are protected during the closed season. An additional customary limitation on use rights is the institution of totem species, which are different for every clan or village and fully protected for religious reasons. Regulations on trade rights include the necessity for bushmeat traders to have a trading licence, which states from whom the bushmeat is bought. This requires a permanent trading relationship with a hunter. Finally there are environmental NGOs which used to play a role in bushmeat rearing, but at the time of the study none of them were still active in this field. In practice, bushmeat actors do not entirely comply with these regulations, mainly because the Wildlife Division has insufficient resources for effective monitoring of the regulations.

The contribution of bushmeat to the livelihoods of the five actors in the bushmeat commodity chain differs per actor. To commercial hunters, bushmeat is especially important to their monetary income, as they have farmlands for subsistence. Farmer hunters see the trade in bushmeat as a welcome extra to their farming activities. Wholesalers do not have other activities in their portfolio, and thus bushmeat is very important to their livelihood. Market traders have access to farmland too, yet bushmeat makes up a substantial part of how they earn a living. To chopbar owners bushmeat is important to retain certain customers who prefer traditional dishes, but they serve other dishes as well, which increases their resilience against the unstable bushmeat market.

As becomes clear from this study, traders are much further away from nature than hunters, as a result of which they do not perceive to what extent the natural resources are dwindling. Combined with the importance of bushmeat to their livelihood, this information shows how vulnerable traders, and especially wholesalers, are to trends concerning the bushmeat commodity chain. Because of this vulnerability, governance arrangements that limit their possibilities for bushmeat trade have a big impact on their livelihood. This gives traders a reason to oppose governance regulations as much as possible, which makes these regulations less effective. In contrast, hunters, and to some extent chopbar owners, are more

flexible in their livelihood portfolio, as a result of which they are less affected by governance arrangements and even see the positive effects of them. With this in mind, it is argued that future governance arrangements should focus more on the trade side of the bushmeat commodity chain and help create a more diversified livelihood portfolio for the actors involved. This should reduce vulnerability to trends in the bushmeat trade and increase compliance with regulations that help preserve the natural environment.

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List of Abbreviations

Abs.	Absolute (numbers)
CBNRM	Community Based Natural Resource Management
CREMA	Community Resource Management Area
DFID	(UK) Department For International Development
ed.	editor
eds.	editors
e.g.	exempli gratia
et al.	et alii
etc.	et cetera
FC	Forestry Commission
FSD	Forestry Services Division
FWG	Forest Watch Ghana
GACON	Ghana Association for the Conservation of Nature
GPID	Human Geography, Planning and International Development
GPS	Global Positioning System
GWS	Ghana Wildlife Society
Ha	Hectare
i.e.	id est
IUCN	International Union for the Conseration of Nature
JHS	Junior High School
Km	Kilometer
KMA	Kumasi Metropolitan Assembly
KNUST	Kwame Nkrumah University of Science and Technology
LI	Legislative Instrument
N	Total population
n	Part of population
NGO	Non-Governmental Organization
NRCD	National Redemption Council Decree
NTFP	Non-Timber Forest Product
PhD	Doctor of Philosophy
PROFOR	Program on Forests
RHT	Resource and Habitat Taboo
RMSC	Resource Management Support Center
SHS	Senior High School
SUV	Sports Utility Vehicle
TBI	Tropenbos International
UN	United Nations
UNESCO	United Nations Educational Scientific and Cultural Organization
US	United States (of America)
UvA	Universiteit van Amsterdam (University of Amsterdam)
WD	Wildlife Division

1. Introduction

1.1 Background and justification

For many people living in West Africa, bushmeat – which is wildlife hunted for human consumption – is the main source of protein. Especially for those living in rural areas it is a direct source of affordable animal protein, because the wild resources are nearby and easily accessible, while the market can be far away and expensive. Other livestock is not always present, especially not in forested areas. For rural people bushmeat also functions as a safety net in times of economic hardship, in terms of consumption as well as a tradable good (Bowen-Jones *et al.*, 2003). In urban areas, where the prices of bushmeat can be very high, it is often regarded as a luxury item, for which people are willing to pay more than for other sources of animal protein. It connects people to their traditional background, and as such it is often consumed at special occasions. Given this value, bushmeat may provide a steady income for hunters and traders.

However, the human population in forest areas has grown over the past decades, which has increased the pressure on the natural environment. Between 1900 and 1990 Ghana has lost 80% of its forest cover, a trend that is set to continue at a fast rate (Opoku, 2006). Logging practices, expanding villages and the construction of roads through forest areas have not only resulted in a loss of habitat for wild animals, but have also increased the accessibility for hunters to previously untouched forests. Also, improved hunting equipment, i.e. the use of shotguns, besides passive hunting methods such as setting wire snares, has added to the amount of bushmeat coming from the forests. All in all, this has resulted in a vast decline of numbers of wildlife species and even the extinction of some of them (e.g. the West African red colobus monkey) (Oates *et al.*, 2000; Barnes, 2002). A study from Brashares *et al.* (2001) shows that between 1970 and 1998, the numbers of 41 mammal species in five nature reserves in Ghana have declined rapidly (see Figure 1.1).

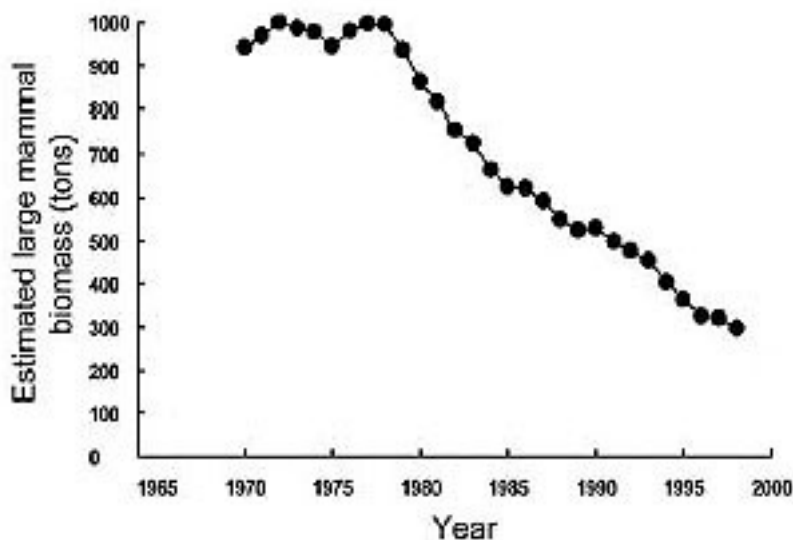


Figure 1.1: Decline of mammals in Ghana

Estimates of mammal biomass, based on abundances of 41 species observed in ~700 wildlife counts per year in six nature reserves in Ghana.

(Source: adapted from Brashares *et al.*, 2004)

The alarming situation of strongly degraded forests is not only an environmental problem, but also a social problem, as it affects the people dependent on its resources, such as bushmeat hunters and traders. Already, most of the bushmeat sold on market places is from smaller animals (such as giant rats, grasscutters and small antelopes), as the larger mammals (e.g. monkeys and large antelopes) are simply not there anymore (Bowen-Jones *et al.*, 2003). And as bushmeat becomes more scarce, the prices will probably increase. This may not only affect the animal protein intake of less wealthy people, but can also drive more people to start hunting, thereby increasing the pressure on the remaining wildlife even further (Barnes, 2002).

If no measures are taken, the wildlife in Ghana will practically vanish and, ultimately, the people depending on it will lose their livelihood opportunities. However, if measures are taken to protect the wildlife, these people will be affected too. Governance arrangements addressing forest and wildlife degradation as well as access to forest resources have a strong impact on rural livelihoods, although not always negative (Marfo *et al.*, 2002; Crookes & Milner-Gulland, 2006). It is therefore important to investigate what role bushmeat plays in the livelihoods of people living in forest-fringe communities and how governance arrangements affect their possibilities to benefit from bushmeat. This study aims to provide an insight into these questions, by focusing on the bushmeat trade in the High Forest Zone in Ghana.

1.2 Research objectives and questions

This study is carried out within the framework of a PhD project that is part of a cooperative programme between the University of Amsterdam (Amsterdam Institute of Social Science Research), Kwame Nkrumah University of Science and Technology in Kumasi and Tropenbos International, that aims to generate insight into and formulating recommendations on governance arrangements that enhance forest-related livelihoods so that they contribute to sustainable forest management and poverty alleviation. Up to now, most research within this programme has focused on vegetation resources and not so much on animal resources. Therefore a study on bushmeat was considered to be a welcome addition.

Given this arrangement, the objectives of this study are evidently similar to the overall objectives of the PhD project. As mentioned, the main aim is to generate insight into and formulate recommendations on governance arrangements that enhance forest and tree-related livelihoods. Specifically for this study, that means providing insight into governance arrangements focused on people who live from hunting and/or trading bushmeat. Secondly, this study aims to generate insight into the livelihoods of people who hunt and/or trade bushmeat. Thirdly, when bringing the first two objectives together, this study aims to provide insight into how the governance arrangements affect the livelihoods of people hunting and trading bushmeat. Finally, the aim is to formulate recommendations on bushmeat-related governance arrangements so that they contribute to sustainable forest management and poverty alleviation.

Based on these objectives, the following research questions are the foundation of this study.

How do forest governance arrangements in Ghana's High Forest Zone affect the livelihoods of actors in the bushmeat commodity chain?

1. What policies and governance arrangements are in place to regulate people's access to wildlife for bushmeat?
2. What does the bushmeat commodity chain look like under these arrangements?

3. What is the contribution of bushmeat to the livelihoods of actors involved in the bushmeat chain, both in terms of domestic use and trade,
4. How are these livelihoods affected by trends and the governance arrangements in place?

1.3 Study area

The overarching research project focuses on the High Forest Zone, which is situated in the southwest of Ghana (see Map 1.1), therefore this is also the study area for this research. The High Forest Zone is part of an evergreen, but heavily degraded, tropical forest stretching from Sierra Leone to Central Ghana.



Map 1.1: Ecological Zones of Ghana

The three forest zones (deciduous, moist evergreen and wet evergreen forest) together are called the High Forest Zone. The north, east and south of Ghana are savannah areas, and in between these two ecological zones there is a transition zone.

(Source: adapted from <https://www.uni-hohenheim.de/respta/pics/agriczones.jpg>)

Like all tropical rainforests, the High Forest Zone is potentially home to a large amount of wildlife species. However, the human population in this area has grown substantially. At a national scale the population increased from around 3 million at the beginning of the 20th century to around 26 million people at this moment¹. The Ashanti region and the Brong Ahafo region, which are the main regions in the High Forest Zone, together had around 800.000 inhabitants in 1948. Nowadays these two regions are home to over 5 million people². Such a

¹ URL: <http://www.populstat.info/Africa/ghanac.htm> - accessed 6 December 2010

² URL: <http://www.populstat.info/Africa/ghanap.htm> - accessed 6 December 2010

population growth combined with the continuous practice of eating bushmeat, has severely increased the pressure on the wildlife base in the High Forest Zone.

There are several well-known trading spots for bushmeat within and outside the High Forest Zone, most of which are located in the larger cities, such as Kumasi (Crookes *et al.*, 2005), Takoradi (Cowlshaw *et al.*, 2005b; Mendelson *et al.*, 2003), Techiman (Swensson, 2005) and Mankessim (Yvonne, 2007) (see Map 1.2). The capital of the Ashanti Region, Kumasi, is the largest city in this area and hosts the biggest market place for fresh bushmeat in the High Forest Zone, called Atwemonom. This bushmeat market plays a central role in this study. It is a wholesale market for fresh bushmeat. Dried bushmeat is sold at the Central Market. Dried bushmeat comes mostly from the northern part of Ghana, while most of the fresh bushmeat comes from the surrounding areas in the High Forest Zone. Therefore, the focus in this research will be on the fresh bushmeat market. Hunters were interviewed in three villages where hunter associations were active, i.e. the villages of Goaso and surroundings (Brong Ahafo region), Jackie (or Gyakyi) and Kwaman (both in Ashanti region) (see Map 1.2; see also Chapter 3).



Map 1.2: Bushmeat research sites

Some of the bushmeat research locations, including those of this study

(Source: adapted from CIA World Factbook)

1.4 Thesis outline

The outline of this thesis is structured around the main research questions. In Chapter two will be explained what theoretical framework underlies this study. This framework consists of the three major theoretical concepts behind the research questions: environmental governance (in particular forest and wildlife governance), commodity chains (specifically focused on

bushmeat) and livelihoods (in particular forest-based livelihoods literature and the sustainable livelihoods framework).

Chapter three deals with the methodology that was used for this study. It first presents the conceptual scheme, after which the four major concepts (livelihoods, trends, governance arrangements and commodity chain relations) in the conceptual scheme are explained. Then it will discuss the research methods that were used, including its difficulties. Finally, there will be some attention to the ethical aspects of the study that had to be taken into account.

The focus of Chapter four is on wildlife governance and answers the first research question, which deals with the governance arrangements that regulate people's access to wildlife for bushmeat. It is divided into three parts that cover the different governance actors involved: the national government, customary governance actors and NGOs.

Chapter five is the main part of the study. This chapter covers the second, third and fourth research question, which are about the commodity chain relations, the contribution of bushmeat to the livelihood of the various actors, and the extent to which these are affected by trends and the governance arrangements described in Chapter four. After an introduction on the various actors that are involved in the bushmeat trade, each of them will be explored in further detail, making use of the sustainable livelihoods framework (see *Section 2.3*). Also attention will be given to a few actors who operate on the margins of the bushmeat trade. The third part of this chapter explains in further detail what impact forest degradation, conservation aims and market changes have on the bushmeat trade and the actors involved.

Finally, in Chapter six the four research questions come together in order to answer the main research question how forest governance arrangements affect the livelihoods of actors in the bushmeat commodity chain. Conclusions will be drawn from the research findings and discussed in relation to the theoretical framework. Based on the conclusions and discussion, recommendations will be provided for policymakers in the field of bushmeat-related livelihoods. Finally, recommendations will be given for further research.

At the very end of this thesis, a number of appendices are included to provide more detailed information on how this study was carried out or other background information. Among these appendices are the original survey that was used for the quantitative part of the research, as well as a number of tables that came out of the analysis of the survey, which are not featured in the text itself, in order to keep it readable. Also attached are a number of lists concerning bushmeat species and their protection status.

2. Theoretical framework

Within the situation outlined in Chapter one, one can identify three major theoretical concepts. These are environmental governance (in particular forest governance), commodity chains (focused on bushmeat), and livelihoods (in particular forest-based livelihoods and the sustainable livelihoods framework). In the following sections I will discuss the main trends and issues in these research fields, and zoom in on the Ghanaian bushmeat sector.

2.1 Environmental and forest governance

As with all common pool resources, there are many different stakeholders who want to ‘use’ forests. In order to reduce conflict of interests, governance arrangements are put in place to regulate the use of forest resources. As Lemos & Agrawal (2006: 298) define it, environmental governance refers to “the set of regulatory processes, mechanisms and organizations through which political actors influence environmental actions and outcomes”. Applied to forests it means the whole of “decisions on how and to what ends forests are managed, who are involved in these decisions, and what is done to enforce forest laws and policies on the ground” (Ros-Tonen and Kusters, in press). This includes not only the regulatory and institutional frameworks for forest conservation and use and trade of forest products, but also the principles that guide the interactions between those taking part in the design and implementation of different kind of arrangements (Kooiman and Bavinck 2005 cited in Ros-Tonen and Kusters, in press). Governance is therefore more than government, as it also includes the actions by and interactions with non-state actors like communities, businesses and NGOs. These can consist of traditional and cultural practices on the use of natural resources, business-society partnerships or international treaties.

The scientific debate on environmental governance over the past two decades has to a large extent focused on the role of different actors and institutions and a constant reconfiguration of their importance. Especially the role of the state has been subject to discussion. This fits into the larger discussion between neo-liberal and socialist thinking of state-led versus market-led approaches. Initially, the central government was attributed an important role to reconcile the various interests, but there was a growing critique on the lack of neutrality of state actors and the ineffectiveness of fragmented, decentralised bureaucratic state apparatuses. Government policies regarding forest and wildlife use often came into conflict with other mandates, as the state was supposed to promote the exploitation of the same resources it had to protect (Davidson & Frickel, 2004). On the other hand, in more market-led approaches problems arise with power relations and insufficient means to address environmental problems.

Two trends that have a major impact on environmental governance are globalization and decentralization. The process of globalization has increased the number of actors, intensified the use and depletion of natural resources and increased socioeconomic inequalities and vulnerability. Thereby it has further complicated effective governance systems. At the same time, globalization has increased information and communication flows and has enabled less powerful parties to raise their voice and get international support. International environmental treaties and institutions are forcing governments and actors to take action and stimulate the creation of partnerships (Lemos & Agrawal, 2006; Ros-Tonen *et al.*, 2007).

Kooiman and Bavinck (2005) identify three forms of governance: self-governance (in which actors set their own rules and regulations without intervention from the government), hierarchical governance (which is a top-down approach from state to citizens, without them

having much of a say in the policies) and co-governance (in which all actors cooperate with equal power to reach mutual goals). A loss of faith in the central government as an effective manager of local issues has led to increased decentralization, to bring decision-making closer to those affected by governance. This should lead to more participation and accountability and also help decision-makers to gain from more precise information. However, decentralized governance systems (co-governance) come across many obstacles as well, such as accounting to both higher-level units within the administrative hierarchy and to their own constituents, and balancing power differences (Lemos & Agrawal, 2006).

New forms of governance are resulting from partnerships between state, market and community. The figure below (Figure 2.1) shows the various mechanisms and strategies through which these parties are collaborating.

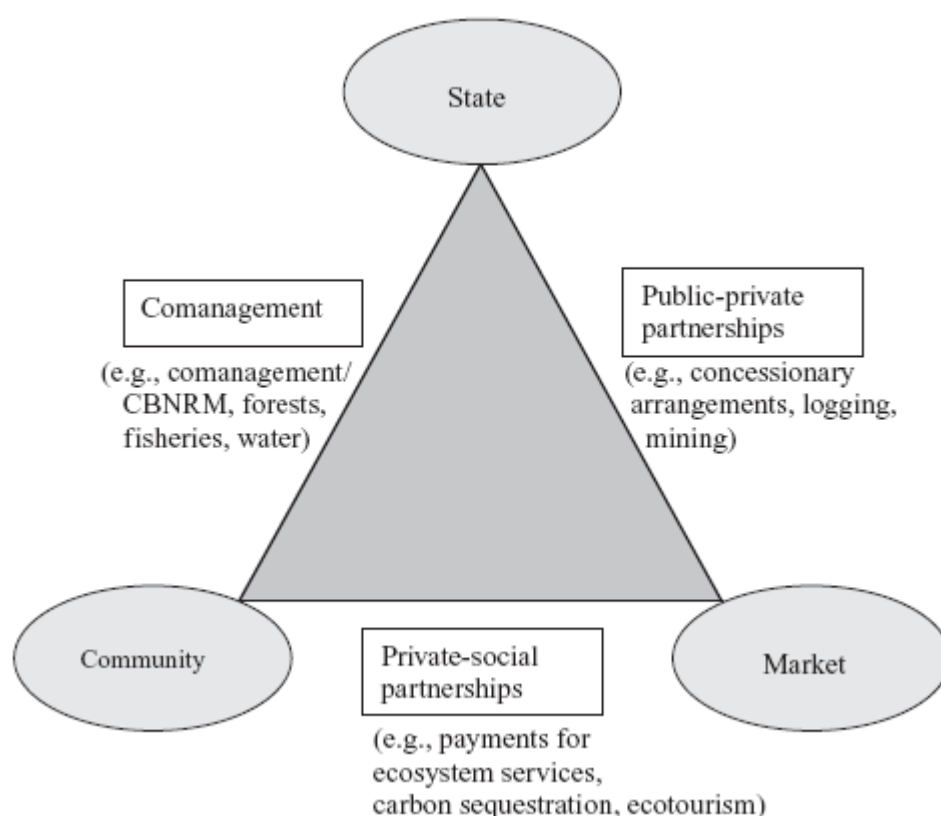


Figure 2.1: Governance mechanisms through partnerships

(Source: Lemos & Agrawal, 2006:310)

Long before central governments came into place, local communities were governing their resource use through customary regulations. One of the main governance arrangements in customary practices are social taboos. A taboo can broadly be defined as “a prohibition imposed by social custom or as a protective measure” (Merriam-Webster’s Collegiate Dictionary, 1993). Although less common in western societies nowadays, social taboos are still in effect in more traditional societies in many developing countries. Some social taboos are focused on access and use rights of natural resources. Colding and Folke (2001) call them resource and habitat taboos (RHTs). They are especially frequent in regimes with community property rights towards common pool resources (Berkes, 1989). RHTs do not always originate from ecological values, but can also stem from social or religious values. Colding and Folke (2001) distinguish between six categories of RHTs:

- **Segment taboos:** bans on the utilization of particular species for specific time periods for a particular age, sex or social status. They are also known as *specific food taboos*,

and frequently concern pregnant women, children or menstruating females. Such taboos often stem from cultural beliefs of human health risks.

- Temporal taboos: bans on access to resources during certain time periods (e.g. sporadically, daily, weekly or seasonal, such as a closed season). They often serve to conserve subsistence resources, but of course other species in the food chains benefit as well.
- Method taboos: bans on the use of certain methods and techniques for withdrawal of species. The reasons for such taboos can be either to prevent overexploitation or to provide equal access to the resource.
- Life history taboos: bans on the use of certain vulnerable stages of a species' life history based on its age, size, sex or reproductive status. These taboos often serve conservation goals.
- Specific-species taboos: bans on the killing and detrimental use of specific species in both time and space. These taboos are also known as *general* or *permanent food taboos*. These taboos often have a religious background: the species serve as religious symbols (totem) or represent reincarnated humans. Other reasons may be perceived toxicity of the species or their behavioural and physical appearance.
- Habitat taboos: regulations on access and use of resources from particular habitats in space and time. In most cases, such areas are considered sacred. It is important to notice that there can be differences between sacred areas: while in some areas all harvest and hunting activities are prohibited, in others some resource harvesting may be permitted, e.g. during religious festivals or ceremonies.

Although they are not always meant to serve conservation goals, they do often contribute to nature conservation. As such they should be well in line with many other environmental governance arrangements, but they are often overlooked by formal institutions, which makes an integrated approach difficult (Colding & Folke, 2001; Hens, 2006). When different actors do work together, they might face the problem that they do not necessarily have the same motivations, interests, goals or understandings (Saj *et al.*, 2006).

In Ghana, one can witness a similar history of forest governance. Initially, through the Forest and Wildlife Policy of 1948, the forests were centrally governed without the involvement of local stakeholders. This policy act was driven by a need for commercial timber production, mainly for export, and had many negative results (Boakye & Baffoe, 2008). The new Forest and Wildlife Policy of 1994, which is presently in effect, is more focused on conservation and sustainable development, and allows for more stakeholder involvement. However, in practice there are many struggles with regard to the land inheritance system (which does not necessarily include tree tenure rights) and ownership issues in off-reserve forests (Boakye & Baffoe, 2008). Despite increased possibilities for community involvement under the Forest and Wildlife Policy of 1994, there is a lack of effective participation of resource owners and local communities in forest management decision-making to overcome this clash between customary and statutory arrangements (Boakye & Baffoe, 2008). Some argue that the timber producers still hold most of the power (Opoku, 2006), others that the top-down approach to governance is still the most common, both for statutory and customary governance arrangements (Ros-Tonen *et al.*, 2010).

To address these problems, there is a need for new institutional arrangements between the various actors present in the Ghanaian forest management system to get to effective co-governance. The actors involved are the central government through its Ministry of Lands and Forestry (especially the Forestry Commission which is part of this ministry), traditional

authorities (such as stool³ landowners), local forest-fringe communities, associations, NGOs, timber contractors and (local and international) private plantation developers (Boakye & Baffoe, 2008; Ros-Tonen *et al.*, 2010). These actors belong to different governing structures (see Figure 2.2). The Forestry Commission falls in the category of statutory governing structures. Stool landowners and other traditional authorities are customary governors. The civil society governing structure consists of various kinds of NGOs, both those focused on environment and those focused on human development. Timber contractors and private plantation developers belong of course to the market governing structure. Then there is also a hybrid governing structure, which refers to any combination of these (in essence co-governance). An example of such a governance structure is CREMA (Community Resource Management Area), in which local communities are to a large extent in control of wildlife management, guided by conditions set by the central government, and with a role for traditional authorities too (Collaborative Resource Management Unit, 2004).

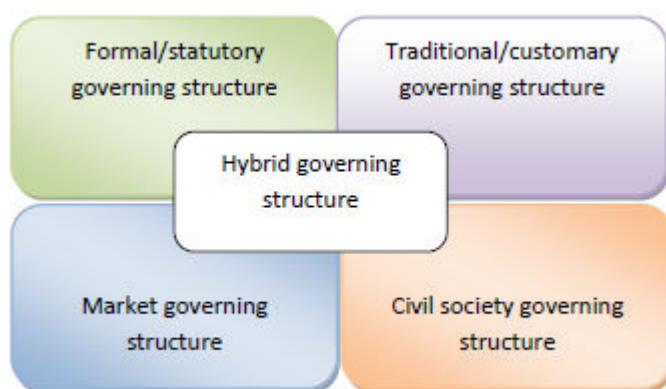


Figure 2.2: Governance structures
(Source: Ros-Tonen *et al.*, 2010: 65)

Governance arrangements determine who and under what conditions has access to forest and wildlife resources, and therefore have an impact on the assets (in particular natural capital) that people have at their disposal to build their livelihoods. Before addressing this livelihood aspect, it is however necessary to first identify the actors involved in the bushmeat trade. That brings us to the second theoretical strand in this study, that of the bushmeat commodity chain.

2.2 The bushmeat commodity chain

Because of the complexity of the bushmeat trade, it is helpful to use a commodity chain approach for both the identification of actors in the bushmeat trade and the analysis of impacts of various governance arrangements. Commodity chains can be defined as the ‘network of labour and production processes whose end result is a finished commodity’ (Hopkins & Wallerstein, 1986: 159, in: Leslie & Reimer, 1999). ‘Chains constitute sets of interorganizational networks clustered around one commodity or product, linking households, enterprises and states’ (Gereffi *et al.*, 1994: 2, in: Leslie & Reimer, 1999). Throughout the chain there are different entry points (nodes) for governance interventions. The effectiveness of such interventions depends on the combination of initiatives at different entry points and

³ In Ghana, the stool refers to the local king. Originally, all lands were communally owned and held in trust by the king on behalf of the community, and called ‘*stool lands*’. The stool is one of the symbols of the king’s power of office and authority. In the northern part of Ghana this is represented by a skin, hence the communal lands are there called ‘*skin lands*’ (Buah, 1998).

the level of understanding of the trade from a multi-dimensional perspective (biological, livelihoods and institutions) (Bowen-Jones *et al.*, 2003; Cowlshaw *et al.*, 2005b).

Every actor in the chain and every transaction between actors is an entry point. Based on the research of Cowlshaw *et al.* (2005b) in the southwestern city of Takoradi, five main actors can be identified in the Ghanaian bushmeat trade:

- Commercial hunters: full-time hunters financially depending fully on the proceeds of hunting. Hunting is their primary source of income. They sell only directly to urban traders. There are two types of hunting: active hunting through the use of shotguns and passive hunting through the use of wire snares and traps. Hunters generally use shotguns for larger game, and use wire snares and traps for smaller game. The highest costs are in transportation. To reduce costs they often cooperate (through family ties), e.g. shared shotguns and/or shared transportation costs.
- Farmer hunters: these are part-time hunters for whom hunting serves only as a supplement to their primary income from agricultural produce. Some farmer hunters only hunt seasonally (due to the seasonal nature of crops), others through the use of wire snares to control crop raiding, and some do both. If they don't consume the meat themselves, they generally sell directly to urban traders. Farmer hunters mostly use wire snares, instead of guns, to avoid the costs of a gun and the required licences. Unlike commercial hunters, farmer hunters also sell invertebrates (e.g. bush crabs and snails), usually gathered by the women and children of the household.
- Wholesalers: wholesalers purchase and sell in bulk and aim for rapid turnover, usually within 4 days. Otherwise the game meat will be stored in freezers. Not in every city there is a wholesale marketplace, due to the small volumes of bushmeat, but in Kumasi there is one. For others, the home is used as a business premise. Wholesalers tend to specialize in either smoked meat or fresh meat. They focus on larger vertebrates, for their higher value per kg and because of limited storage space availability.
- Market traders: these are usually women, who sell bushmeat in informally arranged stalls along domestic meat and fish stalls, or they travel around and visit regular chopbars to supply them. They sell all sorts of bushmeat regardless of size, since they usually sell in small quantities. For some traders the bushmeat stall is secondary to a primary occupation. Bushmeat is also often one of many commodities that they sell.
- Chopbar owners: these are local restaurants specialized in cooking traditional meat stews, locally known as *fufu*. They vary in size from 10 up to 100 seats, and vary in number of employees from 1 up to over 20. These chopbars are usually owned and run by women, except for *fufu* pounders (a cassava dish that needs to be pounded with force) who are usually male because of physical demands.

Another potentially upcoming group mentioned in the literature (Cowlshaw *et al.*, 2005b) are animal husbanders. This is a relatively new group of actors. They are usually young men living in urban areas, who purchase living animals (mostly rodents and duikers) from hunters and keep them in captivity (up to a year) before selling them. They have other full-time jobs and do this for fun. They usually only sell the animals at special occasions, such as Christmas or celebrations. They pay twice the amount for a living animal than a market trader would pay for a dead one. This group is, however, not featured in this study.

The figure below (Figure 2.3) demonstrates the linkages between these actors and the traded volumes, as came forward from the research of Cowlshaw *et al.* (2005b).

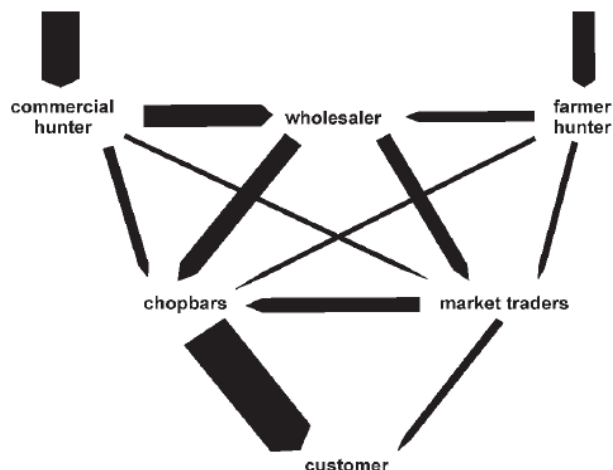


Figure 2.3: Actor linkages in the bushmeat trade

(Source: Cowlishaw *et al.*, 2005b)

In their study on the garment industry, McCormick and Schmitz (2001: 19) identify four different types of relations between market players in core transactions in a value chain:

- Market-based relations, in which actors deal with each other in ‘arms-length’ exchange transactions;
- Balanced networks, in which actors form networks, but no actor exercises more power over the others;
- Directed networks, in which actors form networks and one actor directs the others;
- Hierarchy, in which actors are vertically integrated and the lead actor has control over the other actors.

In short, these are increasing steps of power disparity. In order to make interventions in a commodity chain effective, it is important to investigate what kind of relationship exists between the various actors. Governance arrangements focused on actors who turn out to be at the lower end of a hierarchy, may not be effective at all. In such a relationship it is best to focus on the lead actor.

As for Kumasi, there are two different bushmeat commodity chains, one for fresh bushmeat and one for smoked bushmeat. Fresh bushmeat usually comes from the southern forests and is handed over from hunter to wholesaler at the bushmeat wholesalemkt. Smoked bushmeat typically comes from the northern savannahs, and has been smoked for preservation reasons because of the long distances for transportation. As these northern savannah hunters are often not able to cover the high transportation costs to the Kumasi marketplaces, the wholesalers have to travel there to collect the bushmeat. As a result, smoked bushmeat is more expensive than fresh bushmeat (Cowlishaw *et al.*, 2005b). This study will only focus on the fresh bushmeat trade.

Although bushmeat figures are rarely featured in national economics statistics or nutritional data, it is estimated to be often amongst the most economically significant trade sectors in the countries involved (Bowen-Jones *et al.*, 2003). In Takoradi alone, the annual urban bushmeat sales is estimated to comprise 160,000 kg fresh mass (Cowlishaw *et al.*, 2005a). Based on calculations by Ntiamoa-Baidu (1998), it is estimated that the total annual value of the bushmeat harvest is approximately US\$ 350 million. But due to the difficulty of establishing the actual number of hunters this estimate might be even on the low side, and the bushmeat sector in Ghana could be worth up to half a billion US dollars per year (Ntiamoa-Baidu, 1998).

There is a number of reasons for the popularity of bushmeat. For rural populations it provides a flexible source of income and is an affordable (and often the only) direct source of animal protein with good storage qualities. It also functions as a safety net in difficult times. For urban consumers bushmeat is a luxury item that people can buy to show off their newly acquired wealth. Also, it reconnects people to their village origins and traditions. (Bowen-Jones *et al.*, 2003)

The importance of bushmeat differs throughout the commodity chain. Of course for hunters it is very important, especially for commercial hunters, as farmer hunters do have other sources of subsistence and income. However, also for them revenues from bushmeat sales can be important to make ends meet. Nowadays, most people hunt for commercial purposes rather than for subsistence, and those who do hunt for subsistence will sell the extra catch for money. For wholesalers and market traders, bushmeat might be less important, as it can be one of many commodities in which they trade. However, this may differ per region, depending on the size of the bushmeat market. In Kumasi there is a specialized bushmeat market where traders do sell only bushmeat. For them, of course, bushmeat is very important. For chopbars bushmeat is very important too, as it is a key ingredient for many traditional meals they are expected to serve. Especially in cities with a large population of male migrant workers, this food is in high demand (Bowen-Jones *et al.*, 2003; Cowlshaw *et al.*, 2005b). However, they have the possibility to sell other meat products or fish instead, when bushmeat becomes hard to get by.

As mentioned before, to create changes in a commodity chain, for example to make the trade more sustainable, decision-makers can intervene at various entry points. As for the bushmeat commodity chain, it seems to make sense to focus interventions on the wholesalers and traders, because of their relative low number and high power in the chain, which would be a cost-effective and appropriate entry point for governance interventions. However, they are 'just' middlemen and not the source of the problem. As long as demand and supply remain the same, bushmeat will find a way from hunter to consumer, if necessary along illegal ways. Therefore it is suggested that it is most effective to focus interventions on both demand and supply (Bowen-Jones *et al.*, 2003). In order for the bushmeat trade to become more sustainable, the demand should be shifted away from vulnerable and threatened species to more common and fast reproducing species, such as grasscutters (*Thryonomys swinderianus*). At the same time, hunters need to be provided with incentives to hunt more selectively (selective traps, if available), check their traps more often (so untargeted species can be released relatively unharmed) and incentives to focus on alternative livelihood opportunities to shift away from bushmeat hunting altogether (Bowen-Jones *et al.*, 2003).

It is also important to notice that different commodity chains can be interconnected. In Ghana there is evidence that the bushmeat commodity chain is connected to the fish commodity chain. As fish is another important source of animal protein, changes in fish supply can influence the price of bushmeat. Brashares *et al.* (2004) have pointed out that years of poor fish supply coincided with increased bushmeat sales. Consumers demand for animal protein remains high, so whenever the fish supply diminishes, the demand for bushmeat will increase and as a result the pressure on land ecosystems increases. This connection may work the other way around as well. When bushmeat availability decreases, the demand for fish may increase proportionally, creating more pressure on the marine resources.

2.3 The sustainable livelihoods framework

Eventually, this research focuses on the importance of bushmeat to peoples livelihoods and the impact of governance interventions in the bushmeat commodity chain on them. Therefore,

it is useful to adopt the sustainable livelihoods approach. Since the early 1990s livelihood analysis has become an important feature in research on the understanding of how people gain a living. A livelihood is defined as comprising ‘the capabilities, assets (including both material and social resources) and activities required for a means of living’ (Carney, 1998; Rakodi & Lloyd-Jones, 2002). It is considered sustainable when ‘it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base’ (Carney, 1998). Although livelihood analysis is often used in the context of poverty, it is important to emphasize that it deals with more than poverty alone. It is also used to understand the complexity of livelihoods and the trade-offs people have to deal with when shifting to alternative livelihood options. As such it should be seen as a tool, rather than as a theory.

The main components of the sustainable livelihoods framework are assets, vulnerability context and structures and processes. They have been captured in the figure below (Figure 2.4).

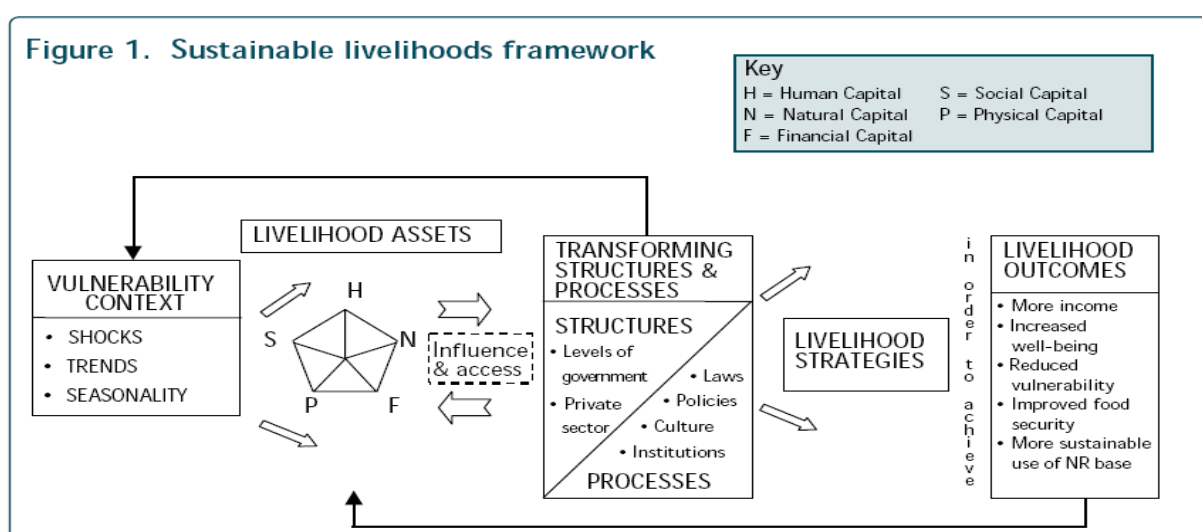


Figure 2.4: Sustainable livelihoods framework

(Source: DFID, 1999)

The assets that make up a livelihood can be divided into **five capitals**. In short these are (Rakodi & Lloyd-Jones, 2002):

- **Human capital**: labour resources, both quantitative (number of household members and time available for income-generating activities) and qualitative (education, skills and health).
- **Social capital**: all social resources (networks, membership of groups, relationships of trust and reciprocity, etc).
- **Physical capital**: basic infrastructure (transport, shelter, water, energy, communications) and production equipment and means.
- **Financial capital**: all financial resources available (savings, credit, remittances, pensions)
- **Natural capital**: natural resource stocks (land, water, other environmental resources), especially common pool resources.

These capitals are interlinked, as assets from one capital can lead to other capitals. For example, if you are good friends with your neighbour (social capital), you might be able to use their car (physical capital) to transport your products to the market.

The second component in the sustainable livelihoods framework is the **vulnerability context**. This refers to the sources of insecurity to which people and their assets are vulnerable. There are two aspects to vulnerability: external, the shocks and stresses to which livelihoods are subject; and internal, people's capacity to cope with these shocks and stresses (Chambers & Conway, 1991).

Shocks are changes that happen suddenly. Often they come unexpected, and are unpredictable. They can be natural (floods, drought, fires, epidemics of crop pests or of animal diseases), economic (market collapse), social (conflict, persecution), physical (theft) or health-related (accidents, illness). Shocks can have both direct and indirect impact on people's livelihoods.

Stresses have a much longer time-span, happen gradually and are cumulative and more predictable. Examples of such stresses are rising human population trends, declining resources, declining employment, indebtedness, erosion and ecological change. Some stresses have a cyclical (e.g. day and night: light and dark) or seasonal character, such as dry and wet seasons, with corresponding employment levels, transportation difficulties, prices and availability of food.

The extent to which a livelihood is vulnerable to these shocks and stresses depends on people's ability to cope with them. The ideal way to cope with shocks and stresses is to avoid them at all. However, in most cases it is a matter of withstanding and recovering. Chambers and Conway (1991) list seven strategies, often mixed, that people can adopt to avoid, withstand and recover from shocks and stresses. These are to *stint* (withhold levels and quality of consumption), to *hoard* (store food and other assets), to *protect*, to *deplete* (draw upon stores or sell assets), to *diversify* (develop a varied portfolio of assets), to *claim* (from relatives or organisations, political action) and to *move* (disperse family members, livestock, assets).

The third component in the sustainable livelihoods framework consists of **structures and processes**. These include both formal and informal institutions that shape people's choices and behaviour and influence their use of and access to assets. For example, laws on gun possession (e.g. a licence) can influence people's hunting methods; the creation of protected areas will limit people's access to hunting grounds; and local cultural beliefs may prevent people from hunting specific species (so-called totem species, see Chapter 4). However, these structures and processes do not only limit people's behaviour. They also provide certainties, including access rights to particular assets or political rights. People can also use their assets (mostly social and, to a lesser extent, financial capital) to influence the structures and processes, in order to obtain more assets or reduce vulnerability. The total of strategies adopted by individuals and households result in greater or less well-being (Rakodi & Lloyd-Jones, 2002).

This sustainable livelihoods framework helps to provide a detailed and fundamental insight into the livelihoods of poor people. Messer and Townsley (2003: 15) put it very clear: "Poverty is the result of "unsatisfactory" livelihood strategies, because the strategies are based on insufficient livelihood assets, they are vulnerable to shocks and changes, and/or the policies, institutions and processes they are subject to do not support effectively". The framework helps understand why they are poor and where interventions might be needed. Through its use, those aiming at poverty alleviation should be able to pinpoint the weaknesses in a livelihood and focus on enhancing the strategies people can use to overcome these particular weaknesses.

As Scoones (2009) points out, especially rural livelihoods are usually not built out of one single activity, but a combination of different activities and interactions in an often complex

portfolio to maximize benefits and cope with vulnerability. Knowledge of the composition of such portfolios will enable decision-makers to adjust governance arrangements effectively to change people's behaviour. For example, if a regulatory body wants to protect a certain kind of animal species from overhunting, and they know the main components of the hunters livelihood portfolio, they can take measures that discourage the hunting on the species at stake (e.g. a heavy fine for selling its meat) and stimulate the activities of other livelihood components (e.g. through tax cuts). However, if the species at stake is generally only used for own consumption and not for sale, governance arrangements focused on the marketing of the meat will not generate satisfactory results. Instead, a fine for hunting, rather than selling, the species at stake should then be more effective (provided there is a proper monitoring system).

2.4 Summary

There are three main theoretical concepts and strands that form the basis for this research: environmental governance (especially forest governance), commodity chains (focused on bushmeat) and livelihoods (especially forest-fringe livelihoods).

As Lemos and Agrawal (2006) pointed out, environmental governance is the “set of regulatory processes, mechanisms and organizations through which political actors influence environmental actions and outcomes”. This means it includes both statutory and customary arrangements, as well as civil society interactions. In recent years in Ghana there is a policy trend from hierarchical governance (a top-down arrangement between state and citizens) towards co-governance (in which all actors cooperate to reach a mutual goal). In practice, however, there are still many obstacles to overcome, and the main governance structure remains hierarchical.

This too seems to be the case for the bushmeat sector. Although there is little hard data available, it is estimated that the bushmeat trade has a national value of a few hundred million US dollars per year, making it one of the largest industries in Ghana. There are five types of actors involved in this commodity chain: commercial hunters, for whom bushmeat hunting is the main source of income; farmer hunters, who get their main income from farm activities and passively hunt on the side for additional income or own consumption; wholesale traders, who purchase and sell in large volumes; market traders, who usually sell smaller quantities directly to consumers, and for whom bushmeat trade is often a side-activity; and chopbar owners, who serve traditional dishes including bushmeat in local restaurants. Each of these actors and their linkages are entry points for governance arrangements to intervene. However, it is important to understand what kind of relations there are between the actors. If there are unequal power relations between actors, then it is more effective to focus on the most powerful of the actors.

In order to see how important bushmeat is to the actors in the bushmeat commodity chain and see what impact governance arrangements have, it is necessary to investigate what livelihood options these actors have. In order to do so, the sustainable livelihoods framework is a valuable tool. This framework consists of five capitals (human, social, physical, financial and natural capital) that need to be mapped. Next to that the vulnerability context should be investigated. This consists of shocks and stresses, and the capacity that people have to cope with these. The third and final component consists of the structures and processes that shape people's choices and behaviour and influence their use of and access to assets. Analysis of people's livelihood is important, because especially in rural areas many people construct their livelihood out of a portfolio of activities. With this information in mind, governors can focus more effectively on certain activities, either to discourage some behaviour or to stimulate other activities. It also shows how vulnerable people can be to changes in governance arrangements.

3. Methodology

In this chapter, I construct a conceptual scheme, based on the theoretical framework and the research questions. On the basis of the operationalization of the major concepts from the conceptual scheme (see Appendix 1), the appropriate research methods were chosen to answer the research questions. This chapter will furthermore explain how the study has been conducted, and also what ethical issues had to be dealt with.

3.1 Conceptual scheme

Figure 3.1 shows the conceptual scheme of the research. Drawing from the main research question, the dependent variable is the livelihood of the main actors in the bushmeat chain – the various types of hunters and traders. There are three main independent variables that affect their bushmeat-related livelihood options:

- Various trends, like forest degradation (which includes decline of forest cover, loss of biodiversity richness, pollution and human activities) and market changes;
- Governance arrangements, consisting of statutory regulations (at various scales), customary regulations based on tradition and culture, and civil society interactions (for example alternative livelihoods projects or conservation awareness schemes);
- Commodity chain relations, such as the length of the chain, type of buyers (trader and/or consumer), number of buyers, kind of relationship with the buyer, and organizational structure of the market.

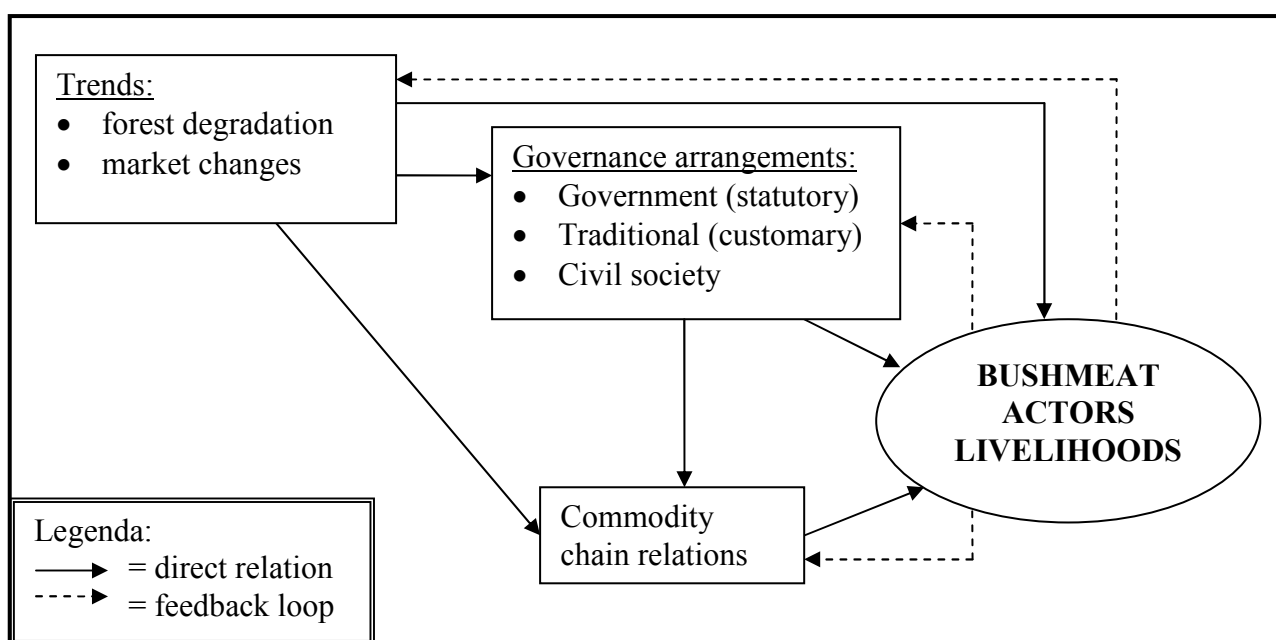


Figure 3.1: Conceptual scheme

All three independent variables have a direct relation with the dependent variable, i.e. the livelihoods of the actors in the bushmeat chain. However, some of them also affect other independent variables. The various trends have an impact on the other two variables – governance arrangements and commodity chain relations – as well. All these trends, including market fluctuations, affect the commodity chain relations. If, for example, one species is becoming scarce through forest degradation and overexploitation, then the price will probably

increase. In that case the government (possibly because of civil society pressure) might call for a ban on the trade in this species or create a protected area where the remaining population of this species lives, which will affect both the commodity chain relations (because it might cause certain specialised actors to stop their work in the bushmeat sector) and affect the bushmeat actors livelihood options directly (because hunters become more limited in their hunting possibilities and traders might lose customers or have less meat to sell).

The relations are also not always one way. The way bushmeat actors construct their livelihood influences all the other variables as well (see the dotted lines⁴ in the conceptual scheme). If all hunters decide to stop hunting in the wild and start rearing bushmeat species, the trends, governance arrangements and commodity chain relations will all change. The forest may get a chance to restore itself, while the market may become more steady due to constant and calculated input from bushmeat farms, which will ease the relations between 'hunters' and traders. New governance arrangements will then become necessary to regulate and enable the farming of bushmeat species.

3.2 Operationalization of major concepts

3.2.1 Livelihoods

In order to measure the livelihoods of actors in the bushmeat chain I have used the sustainable livelihoods framework as discussed in the theoretical framework (Section 2.3). This means I have mapped the actors' assets that make up the five capitals (human, social, physical, financial and natural capital), the vulnerabilities (shocks and stresses) they have to cope with and the strategies they adopt to cope with them (see Chambers & Conway, 1991: stint, hoard, protect, deplete, diversify, claim and move), and the structures and processes they are subject to. The shocks and stresses are partially covered in the next section on trends (Section 3.2.2), although it does not include the extent to which it affects specific actors. Structures and processes to which actors are subject will be covered in the section on governance arrangements (Section 3.2.3).

3.2.2 Trends

Trends are the hardest to measure. However, for this study they don't need to be measured very precisely, for they are general trends. I have identified two major trends that may have an effect on bushmeat hunters and traders' livelihoods: forest degradation and market trends (Cowlshaw *et al.*, 2005b; Bowen-Jones *et al.*, 2003). Forest degradation refers to impacts that affect many but not all species, and that may be temporary. It is generally measured in terms of decline of forest cover, loss of biodiversity richness (i.e. number of species), levels of pollution and level of human activity within the forest, including infrastructure (Groom *et al.*, 2006). Market trends are all fluctuations in supply, demand, costs, benefits, labour and inflation.

3.2.3 Governance arrangements

As cited in Section 2.1 of the theoretical framework, environmental governance is referred to as "the set of regulatory processes, mechanisms and organizations through which political actors influence environmental actions and outcomes" (Lemos & Agrawal, 2006). This means

⁴ These lines are dotted, because they point at independent variables, which are by definition not influenced by other variables. However, in reality these variables operate in an ever-changing context, which may be the result of the dependent variable.

that governance arrangements can be operationalized as all regulations (written and unwritten, formal and informal), institutions and interactions between societal actors (government and non-governmental actors). In relation to this both statutory and customary arrangements have to be taken into account.

3.2.4 Commodity chain relations

There are multiple measures to analyse commodity chain relations, but not all of them were needed for this research. I have focused on the following features:

- Structure:
 - Actors: the trading actors and institutions (e.g. unions, market queens, trade organisations) that are involved in the chain
 - Length of the chain: the number and type of actors between hunter and consumer
- Power and relations:
 - Dependency: the number of clients (buyers and sellers) as an indicator to assess whether the actor is dependent on one or more people for supply and/or demand;
 - Trading relationship: to determine whether the hunter has an exclusive selling contract with one buyer or can sell to anyone

A more detailed overview of indicators used for operationalizing the major concepts can be found in Appendix 1.

3.3 Research methods

The main units of analysis in this research are the actors in the bushmeat chain, i.e. different types of bushmeat hunters and traders. The importance of bushmeat hunting and trade for their livelihoods and the effect of various bushmeat-related governance arrangements on their livelihoods is the focus of this research. To answer the various subquestions I have used a number of methods for data collection, which will be explained below. The data collection took place from February to April 2010 and in early August 2010 (just after the start of the closed season on 1 August – see Chapter 4).

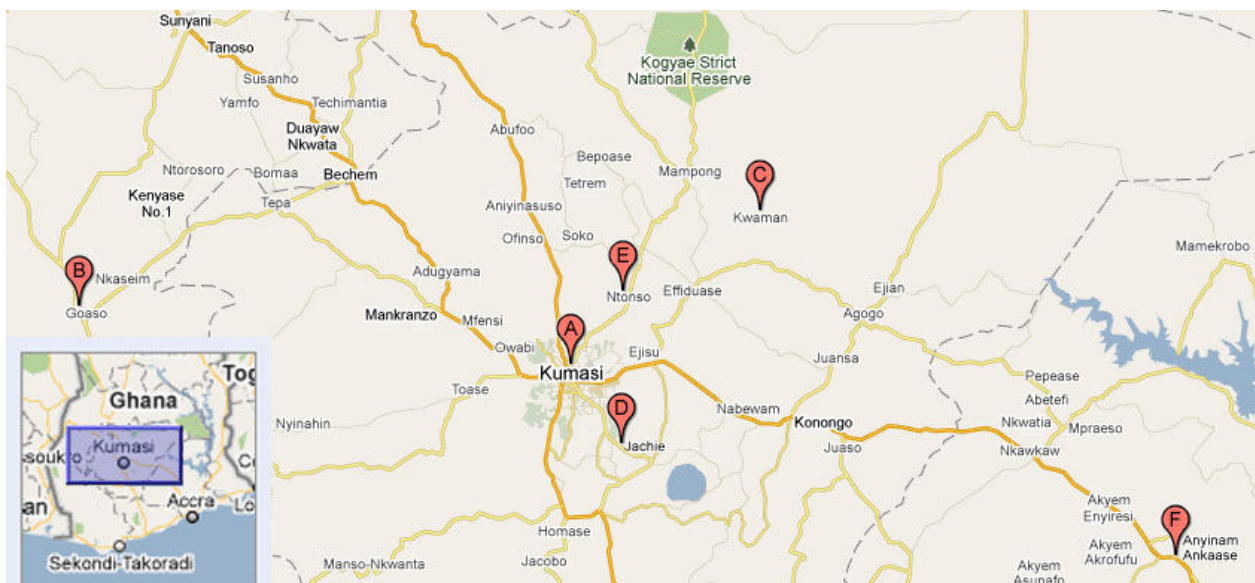
For the first subquestion on policies and governance arrangements, I have conducted semi-structured interviews with government officials from national and regional offices of the Wildlife Division (WD), the Forestry Services Department (FSD) and the Resource Management Support Centre (RMSC). I have tried to get into contact with various NGOs active in environmental issues and development issues, but unfortunately this has failed. After making a list of all NGOs possibly involved with bushmeat actors, I sent all of them an email interview of ten open questions. Only three of them have replied, all of them stating not to be involved with bushmeat actors. I knew beforehand that email interviews usually have a low response rate, but the lack of overview of which NGOs are active in the bushmeat arena and the limited time available during fieldwork to call or visit all of them, resulted in an attempt to try email interviews anyway. Phone calls have been made to a few NGOs most likely to be involved in projects on alternative livelihoods for bushmeat actors, but to no avail: phone numbers had changed, calls were not answered or they simply stated not to be involved in any bushmeat-related activities.

To get information on local governance, customary arrangements and local leadership, I planned to arrange semi-structured interviews with local chiefs of the three bushmeat hunting areas. Unfortunately, this too has not been possible, due to stays of very limited

duration in the respective research areas⁵ and the difficulties surrounding interviewing local chiefs (e.g. arranging meetings and traditional customs to meeting chiefs).

Furthermore, I have made use of document analysis, especially with regard to the formal regulations, acts and various trends (see conceptual scheme).

For the second subquestion on the bushmeat commodity chain and the third subquestion on the contribution of bushmeat to the livelihoods of bushmeat actors, I had planned to carry out a commodity chain analysis, which means to start at the consumer end of the chain and follow the actors along the chain back to the very source of the bushmeat, by asking them from whom they have bought the bushmeat. By repeating this analysis several times, I would have made sure to cover all actor groups identified in the literature (Cowlshaw *et al.*, 2005b). However, on second thought this would be very impractical. Considering that bushmeat from all directions is sold in Kumasi, I would have ended up travelling to all kinds of directions for one trading chain at a time, involving maybe two actors and possibly the same actors over and over, while missing out on the others. This would be a very time-consuming method (because of all the travelling) with very limited results (because it provides only a few interviews at a time). Instead, I decided to interview all actors separately, given the fact that the bushmeat literature is very clear on which actors are involved, so I could identify them easily. I consulted the Wildlife Division for areas with a large number of hunters. They suggested three villages with a bushmeat hunters association, which I could visit. These villages are Goaso and surroundings (in Brong-Ahafo region), Jachie and Kwaman (both in Ashanti region) (see Map 3.1).



Map 3.1: Study areas

A: Kumasi, B: Goaso, C: Kwaman, D: Jachie, E: Ntonso, F: Anyinam Ankaase (roadside traders).

(Source: Google Maps, 2010)

⁵ I spent four days in Goaso and surrounding areas, did two one-day visits to Jachie (one separate day for an open interview with hunters) and a one-day visit to Kwaman. The reason for these short visits was a combination of practical issues, such as availability of drivers and transport, a limited amount of time that could be ‘taken’ from the respondents who had work to do as well, and a limited budget for payment of translators, drivers and respondents.

In each of these areas, I carried out a survey among hunters (see Appendix 2) based on the sustainable livelihoods framework (DFID, 1999) and, if present, among traders and chopbar owners as well. This survey has also been carried out at the bushmeat wholesale market in Kumasi, called Atwemonom, where I interviewed mostly wholesalers, but also a few chopbar owners and market traders. Furthermore I carried out the survey among a number of chopbars in the city centre of Kumasi, called Adom. The results from this survey provided an overview of the livelihood options within the bushmeat sector and their linkages. However, it should be noted that this method of interviewing different actors at different places, who were not necessarily trading with each other, means that the surveys have not been administered in a closed commodity chain. This gives statistical difficulties when calculating certain figures concerning commodity chain relations. The hunters from Goaso may be operating in a different chain than the hunters from Kwaman or the wholesalers at Atwemonom. This method is fine for zooming in on each actor on its own, but proves to be difficult when trying to link the actors to each other.

Another drawback to the method used for identifying hunters (i.e. by approaching groups of registered hunters from the files of the Wildlife Department), is that all hunters included in the research have a licence. Therefore no illegal hunters have been included in the study. However, hunters who make use of illegal practices are less likely to participate in such a study anyway. Also, it does not make much sense to analyse the impact of governance arrangements on the livelihoods of those who evade these very arrangements.

Although the survey featured mostly closed questions, any comments and interesting details that came up during the survey were written down in the sidelines. Table 3.1 shows how many surveys and other interviews have been held among the different bushmeat actors.

Table 3.1: Number of surveys

Actor	Survey (n)	Semi- structured interviews (n)	Group interviews (n)*
Commercial hunters	23	0	3 (55)
Farmer hunters	20	0	1 (10)
Wholesale traders	14	2	0
Market traders	11	0	0
Chopbar owners	20	3	0
Roadside traders	0	0	2 (~10)
Middlemen	0	2	0
Total	88	7	6

** The number indicates the number of group interviews; the total number of respondents involved is indicated in parentheses.*

Because the survey was very detailed and provided enough room to write down extra information in the sidelines, and time in the field was also limited, I decided to limit the number of semi-structured interviews. These were meant to fill in a few general gaps and to see if I had missed out on any important information. During the semi-structured interviews with wholesalers, other wholesalers sat next to us and listened to the interview. They generally agreed to what was said or intervened occasionally to express their view. Therefore, I left it at two interviews, and limited the time that I was taking from them.

In total, I have conducted two semi-structured interviews with wholesale traders, three with chopbar owners and two with middlemen. In addition, semi-structured group interviews

were held with 10 ‘farmer’⁶ hunters in Anyimaye (near Goaso), 14 commercial hunters in Jachie, about 35 commercial hunters (and 3 market traders) in Kwaman, and, later during a second visit to Ghana in early August, again a group interview with 6 commercial hunters in Jachie, to fill in the details. Additionally, two open interviews have been held with two small groups of roadside traders, although one of them was very short and chaotic because the group mistrusted my intentions.

Most interviews have been conducted with the help of translators. In total, eight different people have helped (to various extents) with translating questions and answers from and to English and the respective language (mostly Twi). There are several drawbacks to using translators, the most important of which is the possible loss of information in the translation process. In order to keep information loss to a minimum, I have informed the translators beforehand on the research goals in general and the survey questions in particular. Also, I have always carefully listened to the answers in Twi, looking for words that I recognized, so that I could ask the translator for any irregularities or extra explanations.

Another drawback to the use of translators is that the contact with respondents is less direct. This could potentially result in a lack of engagement from the respondent, which means that they are less willing to share information. In order to establish a connection between myself and the respondent, I learned a few basic words and sentences in Twi to open up a conversation and create interest with the respondent. After all, the more you tell about yourself, the more they are willing to tell about themselves. Also, in the majority of the interviews, I asked the questions myself every time and then had them translated, even though the translator knew which questions would be asked and could do it all by him- or herself. This also allows for small interventions when answers need extra clarification.

Initially, it had been planned to make use of two PROFOR⁷ tools as well. These tools were meant to analyse the livelihoods of forest-dependent people, and the impact of trends on these livelihoods. The use of these tools, however, would have cost a lot of extra time from the participants, who had already lost a day of work to answer the survey questions⁸. Therefore, it would also have been necessary to compensate⁹ the participants for one or two extra days (depending on how much time one PROFOR tool would take in practice). The costs that this would have involved were not in line with the benefits, taking in mind that the survey had already provided most information needed on livelihoods and the impact of trends.

I did do one transect walk with a commercial hunter, to observe first hand what it takes to hunt for bushmeat. I have accompanied a hunter in Atonsu (Ashanti region – see Map 2, mark E) on a nightly hunting trip to see how it all works, what hunting methods are used, and what kind of problems one might face. It served mostly to get a general impression of what it means to hunt. Afterwards I accompanied the middleman to the market and observed how the catch from the hunting trip (a bushbuck and a small grasscutter) was sold to his respective wholesaler.

⁶ This group called themselves farmer hunters, but in hindsight they turned out to be commercial hunters. Still, throughout this thesis, they are being referred to as farmer hunters.

⁷ PROFOR (Program on Forests) is a multi-donor trust fund hosted by the World Bank, dedicated to (a) harnessing the potential of forests to reduce poverty; (b) integrating forests in sustainable economic development; and (c) protecting global forest values (see: <http://www.profor.info>).

⁸ Despite the fact that I had informed the association leaders beforehand that the survey may take anywhere between 15 minutes to 50 minutes per person and it was possible to come in shifts, they all came at once, waited for their turn to take the survey and stayed until the group interview at the end of the day.

⁹ Besides arranging for drinks and a snack, each participant was paid 5 Ghana cedi (€ 2.50) as a compensation for giving up their time and as incentive to participate. This amount was also paid for some of the semi-structured interviews.

3.4 Ethics

During this study, there have been a number of issues for which it was important to think about ethics. The most important ethical aspect in this research has been the guarantee of anonymity of the respondents. For that reason respondents were never asked to provide their name or residential specifics. Only the names of key informants at the Forestry Department were known, but these have not been used in any of the final writings. In the few cases that interviews were recorded (three open interviews with government officials), permission was asked before recording. In addition, all interviews were held with informed consent, meaning that all respondents were informed about the research goals beforehand and had the right to abstain from participation.

One of the big ethical issues that one can come across in a study on bushmeat, is illegal hunting or trade. In this respect I had decided to remain the observing outsider for as long as no big crimes were committed. I would (and did) not tell specific illegal activities to regulating agents. As far as the use of information on illegal activities in this study is concerned, this has been done only in general terms and never in specific terms as a result of which the people concerned could get into trouble. However, I learned that many hunters are very open about their activities. On one occasion a hunter even told a Wildlife Officer, who was translating for me at that moment, that he hunts in a nearby Forest Reserve every now and then. In relation to the transect walk I had to make sure that the hunter whom I would accompany for a hunting trip, would not use illegal hunting methods or accesses illegal areas. There was one exception to this: the rule that it is forbidden to hunt at night with the use of an electrical searchlight could be broken. Even though this is illegal, it is widely known that almost all commercial hunters do so, and permission for this hunting trip had been granted from the Wildlife Division beforehand.

There was one occasion on which I deliberately broke the rules under which I was authorized to conduct the survey. To interview the wholesale traders, I had to obtain permission from the queen mother¹⁰. She acts as a spokesperson for the entire group of wholesalers at the wholesale market at Atwemonom. Out of fear for a tax increase when the results of this study would become public, the queen mother did not allow me to ask questions related to their income. After a few interviews, I learned that most respondents did not bother at all about questions on their income. I realized that the decision of the queen mother was taken on behalf of the whole group, but not in consent with all of them. Therefore, I re-introduced the questions on income and let the respondents decide for themselves whether they would like to answer or not. It turned out that most of them did answer the questions, and thus I felt that I could use the data, the more since I do not believe the data found will be ground for a tax increase for this group of people. An explanation for the initial scepticism of the queen mother might be that she did not know me and my intentions well enough when I first arrived to ask for permission. After becoming a regular visitor at the bushmeat wholesale market, the initial scepticism decreased a little.

¹⁰ The queen mother is usually the oldest (and/or most experienced) trader of a market, or even of one commodity group on a market. She acts as the spokesperson of the group and is the first to be consulted when planning to do interviews.

4. Wildlife governance

There are a number of governance arrangements by different actors that have an impact on the bushmeat sector. Some of them are national laws meant to regulate the sector, some are local cultural traditions under customary law, and others are voluntary projects aiming to improve certain aspects of the bushmeat sector. In this chapter the various actors in wildlife governance will be introduced and their arrangements will be explained in further detail.

4.1 National government

Bushmeat as a wildlife issue falls under the responsibility of the Wildlife Division (WD), which is part of the Forestry Commission of the Ministry of Lands and Forestry. Their mission is to “ensure conservation, sustainable management and development of Ghana’s wildlife resources for socio-economic benefit to all segments of society” (website of Wildlife Division Ghana, 2010)¹¹. As such the WD is responsible for creating and managing protected areas for wildlife, enforcement of wildlife laws, and interacting with all stakeholders whose activities have an impact on wildlife (such as bushmeat hunters and traders), including awareness creation and education on wildlife issues and regulations.

The Wildlife Division was created in 1965, then known as the Department of Game and Wildlife. Before that it had been just a branch of the Forestry Department of the Ministry of Agriculture, which by then was responsible for wildlife issues. Since the adoption of the latest Forestry and Wildlife Policy of 1994, the department got its current name. The ministry under which it fell, has changed names during the years, but has always been responsible for lands and natural resources, rather than agriculture, where it originated from (website of Wildlife Division Ghana, 2010)¹¹.

The Forestry Services Division (FSD), which is also part of the Forestry Commission, is (amongst others) responsible for the creation and management of Forest Reserves. They do not deal directly with wildlife issues, but they do regulate and enforce access rights to Forest Protected Areas, which could impact the possibilities of bushmeat hunters.

4.1.1 Access rights

There are two types of regulations that determine the access rights of hunters to hunting grounds: those limiting access on a permanent basis and those which do so on a seasonal basis. Permanent restrictions come in the form of protected areas, of which there are two types: forest reserves and wildlife reserves. Access rights are different for both types of reserves, and thus they don’t overlap. Protection of forests is regulated through the Forest Protection Decree (National Redemption Council Decree (NRCD) 243) of 1974 and the Amendment Act 624. Forest reserves are owned by the original owners (i.e. stools), but managed by the FSD in cooperation with them. People are allowed to access these reserves, but they need a permit from the FSD to extract resources, such as timber (under specific circumstances) or non-timber forest products (NTFPs, but not bushmeat), from reserves. The revenue for the FSD from forest reserves comes from these licences. Hunting, capturing and/or destroying any wildlife in these reserves is not allowed.

Wildlife reserves are regulated through the Wildlife Reserve Regulations of 1971 (Legislative Instrument (LI) 710) and its amendments (LI 881, LI 1022, LI 1085, LI 1105, LI 1283 and LI 1525). Wildlife reserves are owned by the central government and managed by

¹¹ http://www.fcghana.com/forestry_commission/wildlife.htm (accessed on 2 December 2010)

the Wildlife Division. Access to these reserves and extraction of any of its resources is strictly prohibited. Revenue from these reserves should be created through eco-tourism.

The seasonal restriction that affects access to hunting grounds is known as the closed season (see Plate 4.1), and is regulated through the Wildlife Conservation Regulation of 1971 (LI 685) and its amendments (LI 1284, LI 1357 and LI 1452). This is a four-month period from 1 August to 1 December during which it is not allowed to hunt for any animal, except for grasscutters (*Thryonomys swinderianus*). Grasscutters are so abundant that they do not need any protection, and even require pest control. This closed season should roughly overlap with the breeding period of most target animals, and thus allow them to reproduce. As this period also overlaps with the harvesting season for most farmers, hunters with farm grounds generally don't hunt at all during this period, and many even wait another month before they start hunting again (Wildlife Officer WD, Kumasi, pers. comm.). But other hunters need to beware restrictions during the closed season. Wildlife Officers cannot know whether or not one is only hunting for grasscutters or also for other species. Therefore in practice they will arrest everybody whom they suspect is hunting.



Plate 4.1: Announcement of closed season on Forestry Commission website
(Source: www.fcghana.com)

It is difficult to monitor large areas for illegal access, especially since most hunters hunt at night. Often monitoring capacity is a combination of limited staff and equipment. However, social issues may also have an impact. One manager of the Wildlife Division in Kumasi stated that they “don’t have too few staff, but it is difficult to make sure that they [WD staff, *ed.*] do as they are told.” According to him it is not easy to be a Wildlife Officer. They live quite isolated from the villages and often don’t have very good housing, which is difficult for family life. The monitoring staff are also replaced frequently, in order to prevent them from mixing in with local communities too much. When they make local friends or even fall in love with local girls, they become more vulnerable to turning a blind eye to illegal activities. All in all, the job of wildlife officer is not among the best, and therefore they sometimes don’t bother to patrol the whole area. Now the staff have been equipped with a GPS, so it can be monitored where they have been during their patrols. Over the last years there has also been

more training for Wildlife staff, such as physical training, patrol techniques and motivational training. This is all said to have helped improve the monitoring of wildlife reserves (Wildlife Manager, WD Kumasi, pers. comm.).

Still, monitoring is not waterproof and some hunters do hunt in forest reserves every now and then. Out of the 43 hunters who were interviewed in this study, three of them admitted to sometimes hunt in a forest reserve. Also, a few (farmer) hunters (partially) agree with the proposition that there is no monitoring of illegal hunting in forest and wildlife reserves. However, the Wildlife Division is not entirely on its own when it comes to monitoring. During semi-structured interviews with hunters in the village of Jachie it became clear that there is also monitoring through social control. The 35 hunters who are member of the local bushmeat hunters association will always keep an eye on the 65 or so unregistered hunters. Whenever they spot hunters in areas where hunting is not allowed, or during the closed season, they will hand them over to the police or local authorities. As far as the traders are concerned, they are less likely to cooperate so easily with the authorities when it comes to the closed season. In general they sell mostly grasscutters, but other species do turn up every now and then during the closed season. Wildlife Officers do check the bushmeat market at Atwemonom in Kumasi regularly during the closed season, but they cannot be too strict, since they need the traders' trust. Therefore they usually only confiscate the illegal bushmeat and give a warning. They focus mostly on awareness creation and only take real measures when traders break the laws repeatedly.

4.1.2 Use rights

There are many regulations to comply with before one is allowed to hunt for bushmeat. These regulations are enforced through the Wild Animals Preservation Act from 1961 (Act 43) and the Wildlife Conservation Regulation of 1971 (LI 685) and its amendments (LI 1284, LI 1357 and LI 1452). There are three sorts of regulations: licences, hunting methods and species. Everybody who wants to shoot an animal needs a hunting licence (see Plate 4.2), also when one is not a commercial hunter. This licence can be obtained from the Wildlife Division. For this licence one needs to pay a fixed amount of 5 Ghana cedi (€ 2.50) plus a fee per animal that one is planning to kill in the coming season. Every species used to have its own price, which was higher the bigger or rarer the animal. Nowadays, the WD uses just two fee prices: 15 Ghana cedi (€ 7.50) for a grasscutter, and 10 Ghana cedi (€ 5) for any other animal. Hunters therefore need to be very confident of their hunting abilities and have good insight into the possibilities of their hunting area. If a hunter has not been able to kill as many animals as he paid for in his licence, it is bad luck for him. Also, if he comes across an animal for which he has not paid in his licence, he is not allowed to shoot it. Every hunter has to apply for a licence. Normally this means that one has to travel to the nearest office of the Wildlife Division, which for many hunters can be quite far away, since the Wildlife Division does not have that many offices across the country. When hunters have organized themselves in a bushmeat hunters association, the Wildlife Division may come to them to issue the licences.

Hunting is only allowed with a gun. Therefore, hunters are also required to possess a gun licence, granted under Regulation 59 or 60 of the Arms and Ammunition Regulation of 1962 (LI 200). Other hunting methods that were (and sometimes still are) being used, like the use of snares, clubs, dogs, fire or hunting in a group, are illegal. Especially snares are still frequently used, but it is difficult for Wildlife Officers to control this, because it is almost impossible to establish who the owner is of a certain snare. Other illegal hunting methods are less common, although group hunting, often with dogs, still happens. Group hunting can be very dangerous, because it increases the chances of getting (fatally) injured by gun shots of fellow hunters. The Wildlife Division is therefore very strict on banning this practice.

There is one illegal hunting method that is ignored by almost all commercial hunters, which is the use of artificial light. By banning the use of artificial light, the government wants to prevent hunters from hunting at night, since one cannot hunt in the dark without a flashlight. This is to prevent hunters from mistakenly injuring each other, as it may be difficult to distinguish an animal from a person in the dark. However, most target species are active at night and not during the day. Therefore, it is much more effective to hunt at night. All commercial hunters hunt at night and thereby make use of a flashlight. The Wildlife Division knows this and does not take action against it.

GAME LICENCE
(Fee: \$5.00)

In pursuance of the Wildlife Conservation Regulations, 1971 (L.I. 685), I hereby license

Name: _____
 (of Address): _____

holder of a licence to bear a firearm. No. KAL/101/6 to hunt/capture/destroy (delete inapplicable words) the following animals, however to the restrictions and special conditions specified in this licence.

Number of Animals	Species	Restrictions
Three (3) <u>OYUD</u>	<u>Black duikers</u>	① Do not hunt in
Four (4) <u>OFWE</u>	<u>Maxwell's duikers</u>	<u>Kakum National</u>
Four (4) <u>KWAKWO</u>	<u>Mona monkeys</u>	<u>Park or etc</u>
Five (5) <u>NYANTU</u>	<u>Grasscutters</u>	<u>equivalent</u>
		② Do not hunt
		<u>wholly protected</u>
		<u>animals</u>
		③ Do not hunt animals
		<u>accompanied by young</u>
		④ Group hunting is
		<u>prohibited</u>

*Restrictions—Here state any special restrictions, e.g. in relation to females

Authorized means of hunting/capturing/destroying (delete inapplicable words)

SB SHOT GUN

Special conditions Do not keep pets. See overhead
Valid in Assin District only

Date of issue March 10, 1997
 Place of issue Abrafo - Odumasi

I up Arayahor
 Game Officer
 SWPO

Plate 4.2: Hunting licence

The owner of this hunting licence is allowed to hunt three black duikers, four Maxwell's duikers, four Mona monkeys and five grasscutters during this hunting season. The licence also shows the hunting regulations.

(Photo: Andy Bell)

Finally, there are restrictions on the species one is allowed to hunt. Some species have full protection, others are partially protected and some may be considered a pest animal and have no protection at all. The Wildlife Conservation Regulation of 1971 (LI 685) includes three schedules of animals with different levels of protection (see Appendix 4). The first schedule includes species that are fully protected at any time, and hunting of these species is therefore not allowed all year round. Among the species in this list are many primate species, all cat species, several large ungulates and reptiles and all birds of prey. The second schedule consists of species whose young and adults accompanied by young are protected at any time. This list includes not only species that are vulnerable, but also many common species that are important for the bushmeat sector. The third schedule consists of species that are not allowed to be hunted during the closed season from 1 August till 1 December. This list includes all

species except the grasscutter. This species is so abundant that it does not need any protection whatsoever.

Again, monitoring of these regulations is difficult. Since most hunting takes place at night and in large areas, the only feasible place to monitor is the central bushmeat market and occasional visits to other known trading places (such as roadside trading spots). During the year the monitoring at the bushmeat market at Atwemonom takes place irregularly, but during the closed season there is daily monitoring.

4.1.3 Rights to trade

In order to trade bushmeat one has to have a trading licence. This licence can be obtained from the Wildlife Division and costs 10 Ghana cedi (€ 5). A trading licence is only required by people who trade bushmeat, not by consumers. Chopbar owners do not need a licence, since they process the bushmeat into meals, and as such they are considered consumers rather than traders. One of the requirements to get this licence is to have a permanent trading relation with a hunter. This way the Wildlife Division can check where the meat comes from. Officially, traders can have only one trading relation, but in practice they buy bushmeat from multiple hunters, as one hunter cannot provide enough catch for them to live from.

4.2 Customary regulations

In Ghana lands are usually communal property, held in trust for the people by the stools and skins. Since the Forest Ordinance of 1927, the national government holds the land in trust for the stools and skins (Boakye & Baffoe, 2008). This means the stools and skins still have the ownership rights over the land, but they do not have access rights. Ideally, the government should seek the advice of local stool landowners for the implementation of new governance arrangements. In practice though, this does not always happen. As a result, there can be quite some local resistance to the creation of a new reserve, for example. Landowners have a lot of power when it comes to establishing new reserves or getting revenue from the exploitation of the land's resources. Therefore, the government sometimes decides to purchase the land from the original landowners, in order to be in full control.

Stool landowners can enforce regulations of their own. Usually these regulations are embedded in local culture and customary law. It is interesting to notice that there is great similarity between these local regulations and statutory laws (Forestry Commission, 2008). Both regulate access rights and use rights, but the rationale behind it is different. Access rights may be limited by traditional laws, when certain areas are considered sacred land, which falls into the category of habitat taboos from Colding and Folke's (2001) list of resource and habitat taboos (see Section 2.1). This usually means that access is either completely forbidden at all time, or only on special celebration or festival days. Otherwise, only certain people, like traditional fetish priests, may be allowed to enter these lands for religious purposes, but other users may not. Hunting is definitely not allowed in these areas. Not far from the village of Jackie is a no-go area. This area is protected because it is home to a large number of butterflies, but it is unknown whether this area also serves for religious purposes. It is also not clear whether there are any sacred lands close to the other two study areas (Goaso and Kwaman).

Another limitation to access rights, comes in the form of 'taboo days' (or sacred days), when the spirit of the forest is believed to be resting (Appiah-Opoku, 1999). On taboo days entry into the forest is not allowed. Such days can be frequent, as is the case in Kwaman, where the taboo days are on Wednesdays and Sundays. These fall in the category of temporal taboos (see Section 2.1). However, hunters cannot hunt everyday, because they hunt at night,

but usually also have a day job, so with a bit of good planning they can schedule their hunting trips around the taboo days. Another example of a temporal taboo (or arguably a life history taboo) is described by Appiah-Opoku (1999), who writes about a customary closed season for hornbills in January and February, because this is the period in which the females are incubating the eggs and in doing so cannot leave the nest. The male hornbill has to feed the female. Killing a (male) hornbill in this period will result in the starvation of the female bird and thus the eggs will not hatch either.

Just like statutory law, according to which certain vulnerable species are not allowed to be hunted at all, most local cultures have a so-called totem. This is a specific species that is regarded sacred in local culture. Out of religious reasons, rather than ecological reasons, the totem species is not allowed to be hunted or consumed at any time. It thus falls in the category of specific-species taboos (see Section 2.1). The totem species in Kwaman, for example, is the African wild dog, which is also an endangered species and possibly even extinct in the whole of Ghana (IUCN Red List¹²). The totem species in Goaso and Jachie are unknown.

An interesting case where both habitat taboos and specific-species taboos are in effect is the Boabeng Fiema Monkey Sanctuary. In the villages of Boabeng and Fiema (Brong Ahafo region), two primate species are tabooed: both the near-threatened¹³ ursine black and white colobus (*Colobus vellerosus*) and the Campbell's monkey (*Cercopithecus campbelli lowei*) are totem species. The taboo does not only imply a hunting ban, but also the requirement of "caring for the monkeys" (Saj *et al.*, 2006: 286). Therefore, the villagers created a monkey sanctuary, managed by a local committee, which also runs a small eco-tourism programme. Inside the sanctuary is a small sacred grove, where only religious activities are allowed. The combination of both a (small) protected area and a hunting ban has helped the monkeys survive. However, it is important to note that this does not necessarily imply the protection of other species, nor protection of the monkeys' habitat (Saj *et al.*, 2006).

Other customary regulations that limit the possibilities for hunting, can be a prohibition of killing any slow-moving and/or defenceless animal, like a tortoise or chameleon (Forestry Commission, 2008). It can also be prohibited to hunt on pregnant or nursing species (just like statutory law), or even species drinking from a stream or those which are mating (life history taboos, see Section 2.1) (Appiah-Opoku, 1999). Method taboos (see Section 2.1), or at least customary regulations concerning hunting methods, are also in place in the Ashanti region. In some places hunters are required to present the thigh of any hunted animal larger than a grasscutter to the chief (Forestry Commission, 2008). Not too long ago, some hunters performed a small funeral service for certain killed species. Not only did that serve a religious purpose, but it also acted as a discouragement for young, inexperienced hunters, to kill such animals (Appiah-Opoku, 1999). However, the species for which such funerals were performed, such as elephant, bongo and some duiker species, are now illegal to be hunted and are often very rare too.

4.3 Non-gouvernmental organizations

There are various NGOs in Ghana that focus on wildlife and/or local community development. However, very few of them focus on bushmeat actors or bushmeat-related issues specifically. In the last two decades there has been quite some interest among NGOs in bushmeat rearing, especially grasscutters, but giant rats and duikers have also been used to this end. This seems to make sense, since these are the main bushmeat species. The idea behind these initiatives is that if hunters rear their animals instead of hunting them, the

¹² <http://www.iucnredlist.org/apps/redlist/details/12436/0> (accessed on 13 December 2010)

¹³ <http://www.iucnredlist.org/apps/redlist/details/5146/0> (accessed on 13 December 2010)

pressure of hunting on the natural resource base would seriously decline. This would also make life easier for hunters, since they would not need to hunt at night, hoping to come across an animal, but have the catch at home where they can take care of them during the day, until the animals are big enough to sell. A number of NGOs started to provide stock animals to interested hunters and farmers, as well as training in how to rear and breed the animals, and materials for cages. At this moment very few NGOs seem to be still involved in these activities, due to many setbacks.

The rearing of grasscutters has proven to be very difficult. One of the problems is that these rodents can often find ways to escape. Other problems that make it difficult to benefit from rearing, are difficulties with finding the right food, keeping the animals alive until they are mature enough to be sold, and the difficulty to breed animals for offspring. Even if one manages to produce adult bushmeat species, one faces a marketing problem as many people claim to taste a difference between wild and reared animals, which probably has a negative impact on the price. Finally, one of the main problems is that the rearing of bushmeat species requires large investments that may take a long time to recover.

All in all, the rearing of bushmeat is a difficult task to take up, and as a result most NGOs involved in bushmeat rearing have stopped their projects, despite a lot of enthusiasm amongst hunters. Some of them still try to do it on their own, but at this point it is hardly a viable alternative to hunting.

Although not specifically focused on bushmeat-related issues, there are various NGOs in Ghana active in nature conservation, such as Forest Watch Ghana (FWG), the Ghana Association for the Conservation of Nature (GACON) and the Ghana Wildlife Society (GWS). These organizations promote the protection of ecological habitats and the conservation of wildlife resources. They also have public awareness-raising programmes on environmental problems. Some of them also focus on fair access to forest resources and the fair distribution of benefits from forest exploitation. However, the survey respondents were not familiar with any of the NGOs. Some have been involved in grasscutter rearing projects that were initiated by a few NGOs, but after the NGOs stopped with these projects, the respondents had to quit too.

4.4 Summary

From a governance perspective, the national government has the biggest impact on the bushmeat trade, followed by customary regulations. Civil society organizations have mostly left the scene, where they used to be active in bushmeat-related projects. The government regulations are relatively new and have a fundamental impact on the way the bushmeat trade is organized. These regulations will therefore receive ample attention in this study.

The three major governance arrangements related to the bushmeat sector are those regulating access, use and trade. The limitation of access rights is the most fundamental regulation for hunters, as it prohibits them to access the best hunting grounds (forest and wildlife reserves) and it seriously limits their options to hunt during one third of a year (the closed season). The latter also affects the traders, who have much less to sell during the closed season. On the other hand, the reserves may have spill-over effects, as they function as a safe breeding ground for animals. One can, however, have serious doubts about the effectiveness of the monitoring systems in place. Most protected areas are quite large and illegal activities take place at night, so it is very difficult for ill-equipped staff to monitor effectively.

The limitation of use rights also interferes substantially with the way hunters can earn their living. It limits their hunting methods to only one tool: a gun, which means they need to hunt actively, rather than passively like they would do with snares (see Plate 5.2, p. 51), for example. It also means that they cannot shoot every animal they come across, especially not

when it is accompanied by a young, but neither when their licence doesn't allow for it. But again the monitoring system is not water-proof. Based on the observations and answers from respondents, I got the impression that the enforcement of the regulations is not very strict. Hunters and traders without a licence may be prosecuted when caught. But with those who do have a licence, the WD staff often prefers to maintain a good relationship, rather than giving fines or prosecute people. Now they only confiscate the catch and explain the regulations to the offender, in order not to drive the people against them and into illegal activities. As a result, protected animals appear regularly at the bushmeat markets, especially at roadside trading places. The subtle approach of the Wildlife Division is understandable, but may be considered too soft to be effective.

The need to have a licence seems to be more difficult for hunters than for traders. Hunters face the difficulty of making a good estimation of what they think they can catch in a year. Traders just need to establish a trading relation with a hunter before they can start selling bushmeat. Their only limitation lies in what their hunters can bring. More on the effects of government arrangements on the livelihoods of bushmeat hunters can be found in the next chapter.

Customary regulations that concern the bushmeat sector come mostly in the form of social taboos. The main social taboos are specific-species taboos (or totems), habitat taboos and temporal taboos. All villages have a totem species the hunting of which is prohibited. However, for some villages this is a species that is very rare anyways, so the effects of such a ban may be limited. Also, the protection of one species does not necessarily help protect other species, nor does it necessarily imply protecting that species' habitat. This is better arranged in sacred groves (habitat taboos), where access is prohibited for anybody, except for fetish priests who perform religious acts. Next to that, there are also taboo days (temporal taboos), which are certain days that access to the forest is prohibited. These could be as often as twice a week. Very few respondents in this study ever spoke about the effects of customary regulations, in contrast to statutory regulations, which suggests their impact is much lower than the regulations by the government.

NGOs used to be active in the field of bushmeat rearing, which was considered a viable alternative livelihood option for bushmeat hunters. However, because of bad results and financial constraints, it seems that all NGOs have stopped these projects, to the dismay of many hunters. At present, most environmental NGOs are working on environmental education, awareness raising and promotion of fair forest use.

5. Bushmeat-related livelihoods

In order to understand what the livelihoods of the various actors involved in the bushmeat trade look like, a survey has been carried out. This survey contained questions about biodata, livelihood factors, trading relations and the impacts of shocks, stresses and regulations. Almost all questions were quantitative, but additional information and remarks have been written in the sidelines, to help explain why people gave certain answers. Also, semi-structured individual and group interviews have been carried out to help analyse and interpret the quantitative data. The results of the survey and open interviews will be analysed and discussed in this chapter. First the various actors involved in the bushmeat commodity chain will be briefly described, after which a more detailed analysis of their livelihoods will be made, using the sustainable livelihoods framework. Finally, some of the main trends and their effects on the bushmeat trading actors will be described.

5.1 Actors and the bushmeat commodity chain

There are different actors involved in the bushmeat trade. Cowlshaw *et al.* (2005) identify five types of actors: commercial hunters, farmer hunters, wholesale traders, market traders and chopbar owners. In some cases throughout this thesis, the two hunter types are mentioned together as ‘hunters’, and the wholesalers and market traders are sometimes referred to as ‘traders’, often including chopbar owners.

The idea behind the distinction between commercial hunters and farmer hunters lies in their livelihood diversification: for commercial hunters hunting would be their main source of income, whereas for farmer hunters it would be a side-activity along their farming work. However, in practice this distinction is not very strict. Most commercial hunters do have a farm and some may even get more income from their farming activities than from their hunting trips. In a group discussion with six commercial hunters they said that farming is for subsistence and considered their main job, hunting is for money and considered their main source of income. Still, when asked if they consider themselves primarily a hunter or a farmer, they all immediately answered: ‘hunter’¹⁴. It therefore appears to be more useful to make the distinction on basis of the hunting method used. Usually, commercial hunters actively go out to hunt (mostly at night), whereas farmer hunters go to their farm during the day and carry their gun, just in case they come across an animal. According to the six commercial hunters in the group interview there are very few (if any) people who hunt like the latter, hence they didn’t entirely agree that there is such a category as ‘farmer hunters’.

Another difference between these two types of hunters is suggested by Bowen-Jones, *et al.* (2003), who state that farmer hunters use snares around their farmland to prevent crop raiding (especially by rodents). I did, however, not come across this practice so specifically. This suggests that farmer hunters use passive hunting methods in contrast to the active hunting trips that commercial hunters undertake, which is in line with the distinctions mentioned above. I would suggest to use this ‘active-passive’ division as the main distinction between commercial hunters and farmer hunters. In hindsight I have to conclude that in this sense, no real farmer hunters have been included in this research. The ones now described as farmer hunter are most likely commercial hunters who got confused by the definitions, since they do have farm grounds on which they work most of the time.¹⁵

¹⁴ This may be caused by the fact that hunting is what unites them, and what makes them stand out in an area where almost everyone has a piece of land to farm on. Also, they were interviewed in their role as hunter.

¹⁵ As these were the first hunters I interviewed, I was not yet fully aware of the subtle distinction between the two types of hunters, and thus kept on treating them like farmer hunters.

Wholesale traders generally buy their meat from the hunters, with or without interference of a middleman. They buy whole animals in bulk. In Kumasi they are situated at a special bushmeat market, called Atwemonom. Special employees at Atwemonom will burn off the hairs and disembowel the carcasses, after which the small animals are sold as a whole and the bigger animals are chopped into pieces and sold to either chopbars, market traders or direct consumers.

Market traders sell the smaller pieces of bushmeat to direct consumers and chopbars. They are situated on the regular food markets throughout the city, or they travel to different chopbars to which they sell the meat. Almost all market traders included in the survey (9 out of 11) were situated in rural areas, where they more or less take over the role of wholesalers. Most urban market traders in Kumasi sell the dried bushmeat that comes from the north of Ghana. This type of bushmeat has already been smoked, so that it is still edible when it arrives from the remote north. This research only deals with fresh meat and these types of market traders have therefore not been included in the research. The two urban market traders who are involved in this study, operate at Atwemonom and buy most of their meat from wholesalers.

Chopbars are small restaurants where local and traditional dishes are served. Bushmeat is part of many traditional dishes (especially *fufu*, which is the main staple food in the Ashanti region), but is not available in every chopbar. It is often signposted outside if bushmeat is served. Chopbars in rural areas are usually more likely to serve bushmeat than those in urban areas. Because of increased bushmeat prices, many urban chopbars have stopped selling it, since many of their customers cannot afford it anymore.

There are a number of other actors who play a minor role in the bushmeat commodity chain, such as wholesale market workers, middlemen/transporters and roadside traders. They will be discussed in Section 5.2.6.

The bushmeat commodity chain can include all actors mentioned above, but can also be shorter. This generally depends on the type of area, as Figures 5.1 to 5.6 show. The division between ‘rural setting’ and ‘urban setting’ in this case is rather delicate and subjective. I have chosen to distinguish between surveys from the Goaso area, which is quite far from any big city, and the surveys from Kumasi, Jachie and Kwaman. The last two villages are quite rural, but they trade a lot with the markets in Kumasi and are therefore included in the urban setting. This involves one crucial consideration: the differences found in this research may not be caused by the distinction between a ‘rural’ or ‘urban’ setting, but rather by place specificity, because there is only one rural area included, or by actor specificity, because all hunters in the rural area identified themselves as farmer hunter.

One should also note that the surveys were not administered in a closed commodity chain, because of methodological difficulties (as explained in Chapter 3). This means that the actors included in this research are not necessarily trading with each other. Neither one of these figures can be seen on itself. Also, direct consumers were not included as respondents in the research, therefore it is unknown from where most of them get the meat. It is for this reason that the sales to direct consumers have been depicted in dotted arrows of equal sizes. Trade within the same actor group (which is very rare) and own consumption of bushmeat is depicted with arrows that lead back to the same box.

Figure 5.1-6: Actor linkages through trade (Source: survey February – April 2010)

Fig. 5.1 - Percentage of meat SOLD TO other actors [TOTAL]

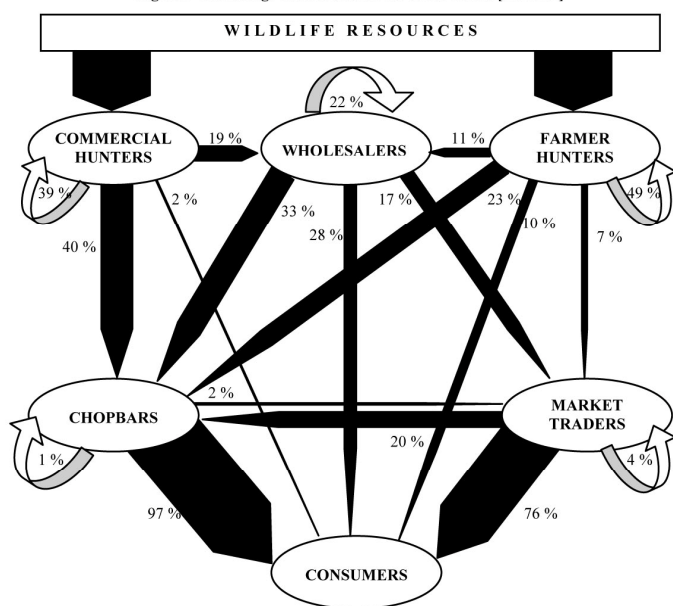


Fig. 5.2 - Percentage of meat BOUGHT FROM other actors [TOTAL]

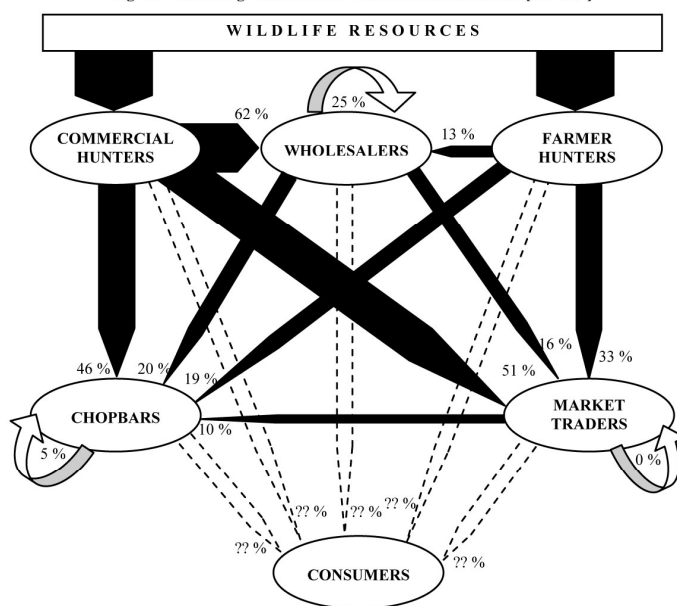


Fig. 5.3 - Percentage of meat SOLD TO other actors [URBAN]

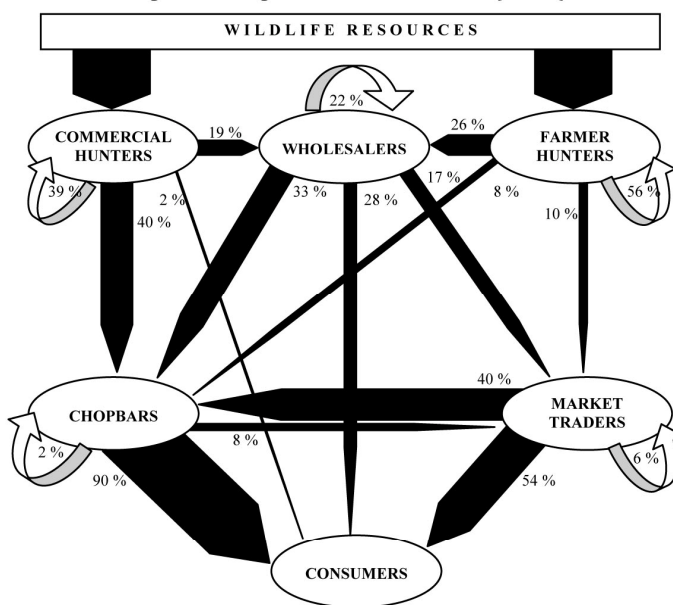


Fig. 5.4 - Percentage of meat BOUGHT FROM other actors [URBAN]

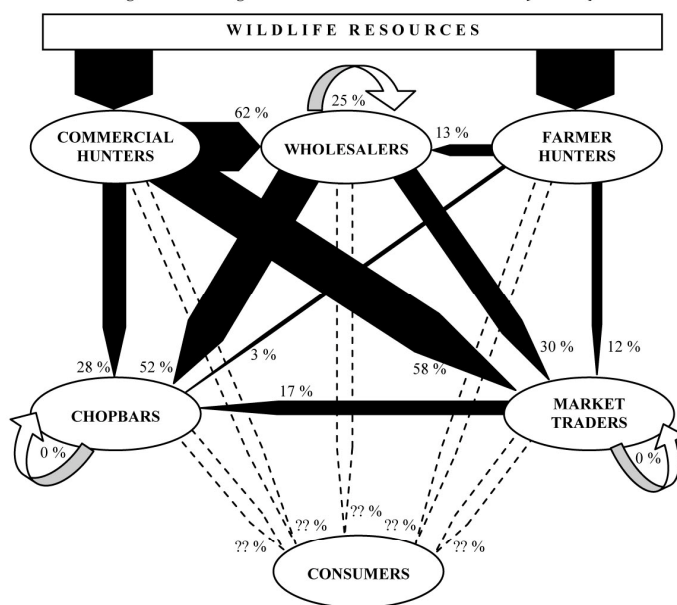


Fig. 5.5 - Percentage of meat SOLD TO other actors [RURAL]

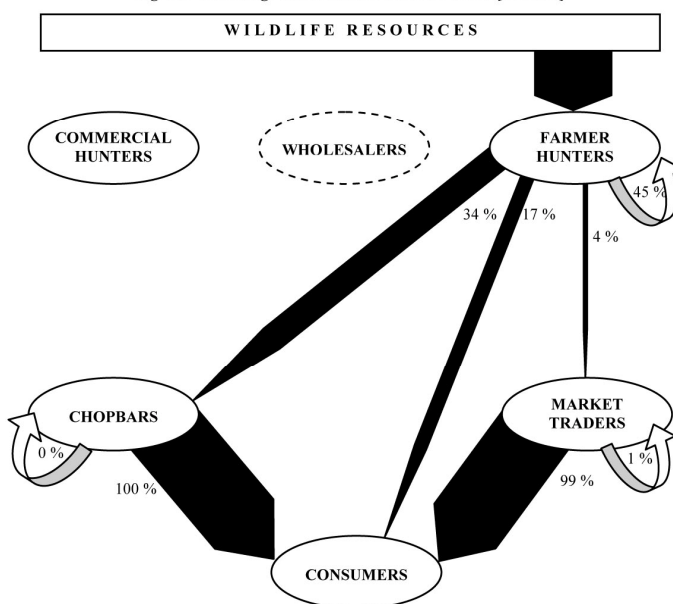
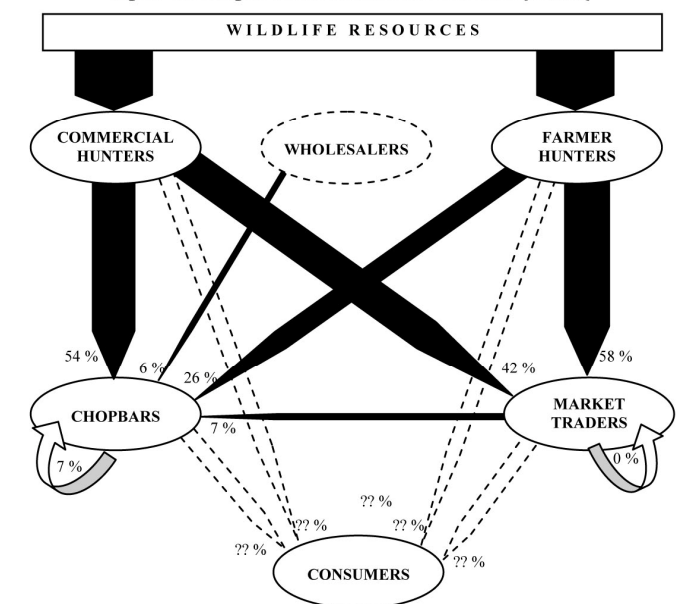


Fig. 5.6 - Percentage of meat BOUGHT FROM other actors [RURAL]



There are multiple routes from resource to consumer. The chain can be very short – direct consumption by the hunters themselves or directly from hunter to consumer – but usually passes more actors in between. In general, one of the most common routes is from hunter to chopbar to consumer. Especially in rural areas wholesalers don't play a role at all, since there simply are no wholesalers in rural areas, only in Kumasi¹⁶. In the city wholesalers play a much bigger role. Although the Figures 5.3 and 5.4 don't show it (due to the delicate distinction between 'rural' and 'urban' trade), most bushmeat in Kumasi comes in through the wholesale bushmeat market Atwemonom. The wholesalers get most of their meat from commercial hunters and are the main suppliers to the urban chopbars, which are the most common place for urban citizens to get bushmeat.

Market traders play a minimal role in the chain. They are mostly active in rural areas, but much less so in urban areas (with the exception of smoked meat market traders). The figures show that market traders get most of their meat directly from hunters: in urban areas mostly from commercial hunters and in rural areas mostly from farmer hunters, which is in line with the general trend.

5.2 The importance of bushmeat to livelihoods

I have used the sustainable livelihoods framework to analyse the livelihoods of the various actors involved in the bushmeat trade. In this section I will discuss each group of actors and the contribution of the trade to their livelihood in terms of the five capitals (human, social, physical, financial and natural capital), if applicable.



Plate 5.1: Bushmeat Actors

Clockwise: commercial hunter, farmer hunter, wholesaler, market trader, consumers, streetside traders, chopbar owner.

(Photos: Jochem Bokhorst)

¹⁶ The only case of a rural chopbar owner buying from a wholesaler is a doubtful one, since it was the daughter who answered the survey questions, rather than the owner herself, who was not around at the time. It also was a rather big and popular chopbar, so they might get special or extra deliveries from the city. The reason for not asking about their trade with wholesalers was that it was one of the first interviews with a rural chopbar owner, and I wasn't aware of the normal practice yet.

5.2.1 Commercial hunters

Human capital

As in most cultures, all hunters are males. The average age of the commercial hunters included in this research is quite high: 54 years old, with a range from 39 to 73 ($n = 23$). This might have to do with the skills needed to be successful. Most of the commercial hunting takes place at night, since most of the animals (especially the valuable animals, like bushbuck, grasscutter, duikers and brush-tailed porcupine) are nocturnal. Almost half of the commercial hunters hunt exclusively at night, about 17% only hunt in daylight, and about 35% hunt either day or night. In order not to get lost in the dark, one has to know the hunting area very well, which takes time. Also, effective hunters have to know a lot about the biological characteristics of the animals they are hunting, including their behaviour and the sounds they make. All these skills take time and practice to master, hence the high average of 26 years they are involved in bushmeat hunting, with a minimum of 5 and maximum of 60. However, this is not completely backed by the statistics, since there is a significant (0,012) negative correlation (Pearson correlation of -0,514) between the number of years a commercial hunter is active and the number of successful hunting trips. That would mean that the longer a commercial hunter is active as such, the less successful he becomes. This can be explained by increasing age, which affects the physical condition and thus stamina and level of concentration. Older hunters generally hunt for shorter periods of time. They need to sleep a few hours in between, whereas the younger hunters go on all night long in one trip. Therefore the older hunters hunt closer to home, in areas that are more degraded by human activities and are thus less often frequented by animals. The average number of successful hunting trips is still quite low: out of every five times a commercial hunter goes out to hunt, he only comes back with catch twice.

Remarkably, commercial hunters have a high educational level: 83% of them claim to have finished JHS (Junior High School) or higher. Two of the respondents even say to have finished a tertiary education degree (e.g. university). However, it remains strange that the educational enrolment appears to be so high in a group of people with such a high average age, whereas school enrolment used to be lower 60 years ago than it is today (Quist, 1999; UNESCO, 2007). As there is no evidence to suggest that socially desirable answers were given, an explanation might be sought in a change in Ghana's educational system in the past, as a result of which the respondents may have misclassified their educational level.

For all hunters, hunting is not their only job. It can be regarded their main commercial activity or main source of income, but it is usually not a full-time job. Commercial hunters go for hunting two to five times a week, with an average of at least three times. However, when they hunt, it takes on average more than 13 hours. The rest of the time they work on the farm or in other jobs (e.g. a drinking spot or family shop).

On average, the nucleus household of commercial hunters consists of about 8 people, of whom 4 to 5 are older than 18 years, and can thus be expected to contribute to the household income.

Hunting is not a typical job that one takes over from his father. Only 13% of the commercial hunters have (or had) a father with the same job. The majority (65%) have a family background in agriculture.

Social capital

Social capital doesn't play a very important role for commercial hunters. Everyone can apply for a gun licence and a hunting licence and start hunting. However, those who want to sell all or part of the meat, which most commercial hunters (95%) do, need to find a trader, if they choose to comply to the law. As discussed in Section 4.1.3, every trader has to have a

permanent trading relationship with one hunter, for which social capital is needed. The hunters and traders select each other by reputation and attitude, and break the relationship whenever they are unhappy with it. The permanent trading relationship means that these actors have to trade with each other. When a hunter has a good relationship with the trader, for example because they live in the same village, then they might easily agree on a price, because they are both willing to give in. However, for commercial hunters who sell a large part of their meat to wholesalers in the city, the distance (physical, and as a result also social) can be longer, and thus the relationship more difficult. They do have to come to an agreement on the price, which can lead to difficult situations: what to do if the trader really doesn't want to pay a higher price? The hunter cannot sell his meat to another trader who offers a better price, so the only option is to not sell the meat at all, and eat it himself. On average almost 40% of the meat ends up being consumed by the commercial hunters themselves, but not all meat is necessarily intended to be sold in the first place. The feeling that wholesalers are the ones who have the most power in this trading relationship, is backed by the fact that 70% of the commercial hunters agree that wholesalers control the entire chain. However, when hunters come often into conflict with their trader, they will choose another trader within the association. From the survey it became clear that most hunters do trade with more than one trader, so disputes over prices should not occur too often. On average commercial hunters sell to two different traders.

All commercial hunters involved in this research were member of a hunters association, which is logical, since the respondents were identified through this association. The advantage of being an association member, is that you don't need to travel to the nearest office of the Wildlife Division to obtain a licence, because the Wildlife Division stays in contact with bushmeat associations and sends a Wildlife Officer every year to issue these licences. This can save considerable travel time, since the Wildlife Division doesn't have that many offices across the country.

Hunters associations are also the main contact between hunters and the Wildlife Division. On average, commercial hunters have contact with the Wildlife Division twice a year. Usually the reason for this contact is the issuance of licences and creating awareness of the regulations. It is also the moment when hunters can interact with the Wildlife Division in case there are any problems or questions.

Physical capital

The most important physical capital for (commercial) hunters is the hunting equipment. As discussed in Chapter 4.1.2, only hunting with a gun is allowed. Ten to fifteen years ago 9% of the commercial hunters were still only using snares¹⁷, and 39% both gun and snares, leaving a little more than half of the commercial hunters (52%) using only a gun (Table 5.1). Nowadays there are no hunters left who only use snares. Instead many hunters have started to use both gun and snares. It is not exactly the case that the former 'snare-hunters' have just bought a gun to complement their hunting equipment, nor that they have completely switched to 'gun-hunting'. Some former 'gun only hunters' have now started to use snares as well, thus the use of snares has relatively increased in the meantime. Nowadays, a small majority (52%) of all the commercial hunters in this research use both gun and snares (Table 5.1). This means that more than half of the commercial hunters are using illegal hunting methods. The number of snares a hunter uses at the same time can range from 15 to 300.

¹⁷ A snare is a piece of wire that has been folded in such a way that an animal passing through it will be trapped. They are usually set for small mammals, who will get stuck with their head and usually suffocate while trying to escape. It is sometimes called a trap, although a trap is usually considered a device that entraps an animal alive.

Table 5.1: Hunting equipment transition (for commercial hunters only)

			Type of hunting now		Total
			Gun	Gun and snare*	
Type of hunting 10-15 years ago	Gun	Abs. %	10 83.3%	2 16.7%	12 100.0% (52.2%)
	Snare*	Abs. %	1 50.0%	1 50.0%	2 100.0% (8.7%)
	Gun and snare*	Abs. %	0 .0%	9 100.0%	9 100.0% (39.1%)
Total		Abs. %	11 47.8%	12 52.2%	23 100.0%

* Prohibited since 1994 (see Section 4.1.2)

(Source: *bushmeat actors survey, Feb-Apr 2010*)

On average a commercial hunter spends about 25 Ghana cedi (€ 12.50) on his equipment (gun), plus an additional 97 Ghana cedi (€ 48.50) on yearly returning costs, which includes bullet cartridges (à 25 Ghana cedi (€ 12.50) per cartridge, which contains 25 bullets) and replacement of snares. The price of bullets is considered very high, and many hunters complain about the costs of it. Therefore they often try to get funding for the bullets. About 10% of the commercial hunters sometimes receive bullets (or a loan, mostly used to buy bullets) in advance from their traders. However, many traders say they have stopped providing these services, since they often don't get the money back. From the ones that still do, especially chopbar owners keep providing bullets and small loans for bullets: 37% of them do so every once in a while, of which 86% to commercial hunters.

Some commercial hunters (18%) use bait for hunting. This can be all kinds of food and the quantities used are very small, so there are usually no costs involved. The hunters who use bait are all commercial hunters, and all of them are hunters who use both gun and snares. However, the proportion of this group using bait is only 29%. Of the entire group of hunters (commercial and farmer) it is only 10%, so it remains a relatively small group.

The distance to their hunting grounds is not so big: between 3 and 6 miles (5-10 km) for more than half of the hunters, hence almost all commercial hunters walk. Only one commercial hunter uses his own bicycle to reach his hunting area.

Financial capital

The average daily income of commercial hunters is not very high (see Table 5.2): almost 45% earn less than 5 Ghana cedi (€ 2,50) a day, and another 25% earn between 5 and 10 Ghana cedi (€ 2,50-5). However, this is not all generated by bushmeat-related activities. In fact, there is no commercial hunter who lives entirely from bushmeat, though the minimum contribution of bushmeat to the overall income is 29%. On average the trade in bushmeat makes up about 80% of their total income.

As mentioned before (see *human capital*), the average number of adults in the household of commercial hunters is four to five, whom can all be expected to contribute to the household income. They also have relatively large extended families, from whom they might get support in times of difficulty: the average extended household size is almost 17 people, of whom about 10 are adults.

Table 5.2: Average daily income

Average daily income (in Ghana Cedi)								
			< 5	5 - 10	10 - 15	15 - 20	> 20	Total
Type of actor	Commercial hunter	Abs.	10	6	5	0	2	23
		%	43.5%	26.1%	21.7%	.0%	8.7%	100.0%
	Farmer hunter	Abs.	7	7	2	3	0	19
		%	36.8%	36.8%	10.5%	15.8%	.0%	100.0%
	Wholesaler	Abs.	0	4	1	0	1	6
		%	.0%	66.7%	16.7%	.0%	16.7%	100.0%
	Market trader	Abs.	4	5	0	0	0	9
		%	44.4%	55.6%	.0%	.0%	.0%	100.0%
	Chopbar owner	Abs.	1	7	4	4	3	19
		%	5.3%	36.8%	21.1%	21.1%	15.8%	100.0%
Total		Abs.	22	29	12	7	6	76*
		%	28.9%	38.2%	15.8%	9.2%	7.9%	100.0%

* Total population N = 88; non-response n = 12

(Source: bushmeat actors survey, Feb-Apr 2010)

Quite many commercial hunters consume part of their catch themselves (see Table 5.3). About 40% of them consume even more than half of the catch. There can be various explanations for this. First, they may not get a fair price for the meat and decide to then consume it themselves. Another reason might be that animal proteins can be difficult to come by in rural areas, hence they have no option but to eat some of the catch themselves. About 10% of the commercial hunters sell everything. The overall average consumption for commercial hunters is 39%.

Table 5.3: Proportion of catch used for own consumption

			Clustered percentages of catch used for own consumption						Total
			0 %	1 - 24 %	25 - 49 %	50 - 74 %	75 - 99 %	100 %	
Type of actor	Commercial hunter	Abs.	2	2	7	7	0	1	19
		%	10.5%	10.5%	36.8%	36.8%	.0%	5.3%	100.0%
	Farmer hunter	Abs.	5	1	2	7	0	5	20
		%	25.0%	5.0%	10.0%	35.0%	.0%	25.0%	100.0%
	Wholesaler	Abs.	12	0	0	0	0	0	12
		%	100.0%	.0%	.0%	.0%	.0%	.0%	100.0%
	Market trader	Abs.	7	3	0	0	0	0	10
		%	70.0%	30.0%	.0%	.0%	.0%	.0%	100.0%
	Chopbar owner	Abs.	19	1	0	0	0	0	20
		%	95.0%	5.0%	.0%	.0%	.0%	.0%	100.0%
Total		Abs.	45	7	9	14	0	6	81*
		%	55.6%	8.6%	11.1%	17.3%	.0%	7.4%	100.0%

* Total population N = 88; non-response n = 7

(Source: bushmeat actors survey, Feb-Apr 2010)

Most commercial hunters have savings (76.2%), which is almost the highest percentage of all actors involved in the bushmeat trade (see Table 5.4), just behind the wholesalers (of whom 76.8% have savings). However, they are also among the most indebted of the bushmeat actors, with one-third having debts, again right behind the wholesalers (38.5%). More than one-third (38%) of the commercial hunters with savings also have debts and only 14% of the indebted commercial hunters have no savings to compensate the debts.

Table 5.4: Savings and debts

Savings and debts						
			Savings		Debts	
			Yes	No	Yes	No
Type of actor	Commercial hunter	Abs. %	16 76.2%	5 23.8%	7 33.3%	14 66.7%
	Farmer hunter	Abs. %	9 45.0%	11 55.0%	1 5.0%	19 95.0%
	Wholesaler	Abs. %	10 76.9%	3 23.1%	5 38.5%	8 61.5%
	Market trader	Abs. %	6 54.5%	5 45.5%	0 0.0%	11 100.0%
	Chopbar owner	Abs. %	11 55.0%	9 45.0%	6 30.0%	14 70.0%
Total		Abs. %	52 61.2%	33 38.8%	19 22.4%	66* 77.6%

* Total population N = 88; non-response n = 22

(Source: bushmeat actors survey, Feb-Apr 2010)

Natural capital

All commercial hunters included in this research, except for one, have access to own land on which they grow crops (see Tables 5.5 and 5.6). More than 40% of them have an area of 5 to 10 acres (2-4 ha), which is more than the overall average among bushmeat actors, and 30% is within the cluster of the average of 2 to 5 acres (0.8-2 ha). Almost 20% have less than 2 acres (0.8 ha), and only a few commercial hunters have more than 10 acres (4 ha). On average they have almost 6 acres (of farm land, which is even more than farmer hunters (5 acres) have. The most planted crop (see Table 5.7) among commercial hunters is cassava, which two-thirds of them plant, followed by plantain (57%), cocoyam and maize (both 43%), cocoa and palm nuts/wine (both 38%), and other fruits or vegetables, like oranges, peppers, tomatoes or garden eggs (24%).

Table 5.5: Access to land

Access to own or leased land per actor					
			Yes	No	Total
Type of actor	Commercial hunter	Abs. %	22 95.7%	1 4.3%	23 100.0%
	Farmer hunter	Abs. %	18 94.7%	1 5.3%	19 100.0%
	Wholesaler	Abs. %	5 41.7%	7 58.3%	12 100.0%
	Market trader	Abs. %	8 72.7%	3 27.3%	11 100.0%
	Chopbar owner	Abs. %	15 75.0%	5 25.0%	20 100.0%
Total		Abs. %	68 80.0%	17 20.0%	85* 100.0%

* Total population N = 88; non-response n = 3

(Source: bushmeat actors survey, Feb-Apr 2010)

Table 5.6: Acreage of land

			Acres of land					
			< 2	2 - 5	5 - 10	10 - 20	> 20	Total
Type of actor	Commercial hunter	Abs. %	4 18.2%	7 31.8%	9 40.9%	2 9.1%	0 .0%	22 100.0%
	Farmer hunter	Abs. %	4 22.2%	8 44.4%	5 27.8%	1 5.6%	0 .0%	18 100.0%
	Wholesaler	Abs. %	4 80.0%	1 20.0%	0 .0%	0 .0%	0 .0%	5 100.0%
	Market trader	Abs. %	2 25.0%	3 37.5%	0 .0%	3 37.5%	0 .0%	8 100.0%
	Chopbar owner	Abs. %	6 40.0%	4 26.7%	3 20.0%	1 6.7%	1 6.7%	15 100.0%
Total		Abs. %	20 29.4%	23 33.8%	17 25.0%	7 10.3%	1 1.5%	68 100.0%

* Total population N = 88; non-response n = 20

1 acre = 0.40 ha

(Source: bushmeat actors survey, Feb-Apr 2010)

All commercial hunters hunt off-reserve and a few also hunt on their own farm land. Although it is common knowledge that some hunters do hunt in forest and wildlife reserves, all commercial hunters included in this research claim to hunt outside the reserves. Probably, no hunter dares to make public that he hunts in prohibited areas, but there are clues that most hunters have answered the research questions quite honestly. A better explanation can be found in the way the data has been collected. As described in the methodology, it has been difficult to include hunters without licences in the research. Those hunters without licences are more likely to undertake illegal activities like hunting on-reserve.

The reason for being attracted to on-reserve areas is the high level of degradation in the off-reserve areas. 60% of the commercial hunters classify his hunting grounds as being fairly degraded. Almost 70% say that this degradation has a big impact on their hunting possibilities and thus on their income. More than half of all commercial hunters feels like there are no areas left to hunt, but 30% also totally disagree with that proposition.

Table 5.7: Type of crops planted

Type of crops planted							
Type of actor	Casava	Cocoa	Cocoyam	Maize	Palm (nuts/wine)	Plantain	Other
Commercial hunter (n = 21)	67%	38%	43%	43%	38%	57%	13%
Farmer hunter (n = 18)	33%	61%	17%	22%	28%	39%	6%
Wholesaler	xx	xx	xx	xx	xx	xx	xx
Market trader (n = 7)	71%	43%	43%	29%	43%	57%	0%
Chopbar owner (n = 14)	7%	57%	0%	0%	7%	0%	7%

* Total population N = 88; non-response n = 28

(Source: bushmeat actors survey, Feb-Apr 2010)

5.2.2 Farmer hunters¹⁸

Human capital

Just like the commercial hunters, all farmer hunters (n = 20) are male. However, they are much younger on average (45 years old). The reason for this lower average might be that fewer skills are required. Many farmer hunters just bring their gun to their farm land to shoot whatever animal they encounter while working on the land (70% also state that he works during daytime only). In that case they don't have to actively look for animals, so no skills for tracking are required. The average number of successful 'hunting trips' is also slightly lower than that of commercial hunters: only one or two out of every five hunting trips will generate catch. Generally, people start working on the farm from an early age onwards, so they might start hunting at an earlier age as well. The minimum age encountered in this study was 32 years, which is still not so young. This type of hunting can probably also be maintained for a longer time, hence the higher maximum age of 75 years and the maximum years involved in hunting of 62. However, the average number of years that people are hunting is much lower than for commercial hunters: 16 years against 26 – but this is probably due to the lower average age of the respondents (also around 10 years difference).

The fact that fewer skills are required for farm hunting and the lower average age, may be reflected by the lower percentage of farmer hunters who have finished Junior High School or higher (75%). One out of ten farmer hunters has had no education at all and one said to have finished tertiary education.

For farmer hunters, hunting is usually a corollary activity, with farming being the main activity. This is reflected in the lower average number of two to three hunting days per week, with a minimum of one and a maximum of five. When they go for hunting, they spend almost 10 hours hunting, which is on average three hours less than commercial hunters.

The average nucleus household of farmer hunters consists of seven people, of whom about three are older than 18 years and can thus be expected to contribute to the household income. The extended household consists of about 10 people, of whom 5 are adult. This is much lower than the average extended household of commercial hunters (17 people, of whom 10 are adult). Farmer hunters therefore have much less options to fall back to family members in times of financial hardship, compared to commercial hunters.

Farmer hunters have of course a strong familial background in agriculture: 95% stem from a agricultural family. However, only a quarter of them have (or had) a father who also hunts (or hunted) besides the farming activities.

Unlike the other actors represented in this research, where everybody is a Christian, there are some farmer hunters with a different religious background. One of the respondents was Muslim, and one a traditionalist or animist. Still the vast majority of the farmer hunters are Christian (90%).

Social capital

Social capital doesn't play a very important role for farmer hunters. Farmer hunters consume almost half of all their catch themselves, and a quarter of them even consumes it all (see Table 5.3). Therefore they are less embedded in (and affected by) the dynamics of the trade system. Only 11% of their catch is being sold to wholesalers and 7% to market traders, which means they generally also don't really perceive wholesalers as controllers of the entire chain. Neither do they ever receive any bullets or loans for bullets in advance from traders. On average they sell to about two different traders. Most of their trade (23%) is geared towards chopbars, but

¹⁸ As mentioned in Section 5.1, it should be noted that the information in this section is based on a group of hunters that identified themselves as farmer hunters, despite most likely being commercial hunters instead.

these are usually rural chopbars, so the social distances are often shorter. They also sell more of their meat directly to consumers (10%). Social capital is thus less important to farmer hunters.

Most farmer hunters included in this survey are member of a bushmeat hunters association. However, farmer hunters are probably less likely to join an association, since for many of them bushmeat hunting really is a side activity. Some of them are also unaware of the possibility to join such a union. The ones who are member, have contact with the Wildlife Division about twice a year, during which licences are issued and information on policies and regulations will be given.

Physical capital

The vast majority of the farmer hunters only use a gun for hunting (90%). The other 10% only used snares 10 to 15 years ago and have now bought a gun as well. On average farmer hunters spent about 30 Ghana cedi (€ 15) to buy a gun, which is slightly more than what commercial hunters spent. However, probably as a result of lower bullet usage, their yearly returning costs are slightly lower with 82 Ghana cedi (€ 41). No farmer hunter uses bait, which might be another indication that their hunting methods have a more passive character. This also makes sense when it is indeed the case that farmer hunters use snares around their farmland to prevent crop raiding, which some literature suggest (Bowen-Jones, *et al.*, 2003): of course they don't want to attract animals to their farm land. The few farmer hunters included in this research who do use snares, use less snares than commercial hunters, on average 40 (see also Plate 5.2). That too reduces the annually returning costs.

Many farmer hunters hunt on their own farm land. For the vast majority this is less than six miles (~10 km) from their home. Most of them therefore don't need special transport, and walk the distance. Still 30% use a bicycle, probably also in order to be able to transport farm equipment and/or produce.



Plate 5.2: Hunting equipment

Commercial hunters with guns and a set of snares

(Photos: Jochem Bokhorst)

Financial capital

Over one-third of the farmer hunters earn less than 5 Ghana cedi (€ 2.50) a day, and another third earn between 5 and 10 Ghana cedi (€ 2.50 – 5). The rest earns between 10 and 20 Ghana

cedi (€ 5 – 10) per day (see Table 5.2). This income includes the revenue from other income sources, most notably from the farm land. On average, farmer hunters earn about 42% of their income through bushmeat hunting, which is the lowest of all bushmeat actors. However, as mentioned before (see *social capital*), farmer hunters consume a large proportion of the bushmeat themselves, on average half of their catch (see Table 5.3).

The average household consists of seven people, of whom at least three are older than eighteen years, and can thus be expected to contribute to the household income. With an average of 10 extended household family members, of whom about half are adult, they have quite a large network of people to fall back to in times of hardship.

Monetary income is less important to farmer hunters, since they also consume a substantial part of the crops and meat themselves. A quarter of all farmer hunters included in this research consume all bushmeat themselves, and 35% consume 50% to 74% of the meat (see Table 5.3). However, not all farmer hunters consume the bushmeat they hunt: a quarter of them sell everything.

Almost half of the farmer hunters have savings (45%), which is the lowest percentage of all bushmeat actors. However, almost nobody (5%, which is just one person) has debts either (see Table 5.4). Also, those with savings, have no debts.

Natural capital

Of course all farmer hunters¹⁹ have access to farm land. Almost three-quarters of them have between 2 and 10 acres (0.8 - 4 ha) of land, with an average of almost 5 acres (2 ha) (see Table 5.5 and 5.6). The most planted crop among farmer hunters involved in this research (which might be skewed by the selected study area) is cocoa, which more than 60% cultivate. Other important crops are plantain (39%) and cassava (33%).

Almost all farmer hunters hunt off-reserve (90%). According to the survey outcomes, about 20% also hunt on privately owned land, however this is probably a too low percentage when informal information is also taken into account²⁰. Interestingly enough, 15% of the farmer hunters admit to hunt in forest reserves every once in a while. The reason for this might be that farmer hunters often live more isolated: their farmlands may border forest reserves, hence it is easier to enter. Indeed, none of them has come into trouble with the regulations. Still, only 10% agree that there is no (or not enough) monitoring of illegal hunting in forest and wildlife reserves.

Since many farmer hunters use their own farm land as hunting ground, they don't see as much degradation as commercial hunters do. More than 40% do not see any degradation at all, about 30% classify it as slightly to moderately degraded, and a quarter agree it is fairly degraded. However, the level of degradation has to do with perception, and since farm areas are degraded by definition (from an ecological perspective), it is no wonder more than three-quarters of them see no to little impact of degradation on their hunting practices. Another reason might be that the farmer hunters included in this research are all from the Goaso area, which is more rural and isolated than the areas where commercial hunters have been interviewed. As a result, these areas may actually be less degraded than the hunting areas that the commercial hunters in the survey were referring to.

¹⁹ Except for one. Maybe this person is a labourer on someone else's farm.

²⁰ Farmer hunters usually hunt while working on their farm. This low percentage might also be caused by the terminology used in the survey. The farm land on which most farmer hunters hunt can be both considered 'off-reserve land' and 'privately owned land'.

5.2.3 Wholesale traders

Human capital

Trading in general is an occupation predominantly performed by women, and this is also the case with bushmeat wholesalers: all of them are women ($n = 14$). Wholesalers have the highest average age of all bushmeat actors: 57 years, with a minimum of 40 and a maximum of 94. This might be caused by the fact that it is not easy to get a spot on the market place. The amount of bushmeat delivered to the wholesale market is limited, so not everybody will be allowed access to sell bushmeat. Almost half (43%) of the wholesalers have (or had) a mother who was selling bushmeat at the wholesale market. This suggests the importance of social capital to become a wholesaler. The average number of years that wholesalers are active is lower compared to the other actors: 22 years, with a minimum of 6 and a maximum of 60. This might prove that age and experience are required before one can enter the bushmeat wholesale market.

The average nucleus household size of wholesalers is the lowest of all bushmeat actors: it consists of four people, two of whom are adults. This means that 47% of the household members may be expected to contribute to the total household income, which is the lowest percentage of all actors.

Almost half of the wholesalers have not received any education (43%). The other half have finished either primary school (14%) or JHS (36%). This can either be explained through the high average age: 50 years ago it might not have been so common to go to school, especially not for women, or it can be explained by the fact that social capital and experience are more important than education.

Social capital

As mentioned in the previous section, social capital does seem to play a role for wholesalers in two ways. It is not easy to become a wholesaler, unless you have good contacts. This is both necessary to get a trading spot on the hierarchical wholesale market and to arrange a trading relationship with a hunter, which is necessary in order to get a licence. Half of the wholesalers have the same occupation as their mother, which might have helped them to become a wholesaler themselves.

Most wholesalers are member of a bushmeat traders association (85%). The wholesale market in Kumasi, Atwemonom, has a very hierarchical structure, with the *queen mother* in front. The queen mother is the first contact for outsiders and the most important figure within the group. She will settle or mediate possible conflicts and is a spokesperson towards outsiders. She has regular contact with the Wildlife Division, although not too intensive. The nature of this contact seems to be very sceptical with mutual distrust. The rest of the wholesalers also have regular contact with the Wildlife Division, although in the survey they state to have contact only once a year during the issuance of licences. However, a Wildlife Officer visits the bushmeat wholesale market regularly during the closed season, to check for illegal trade.

Wholesalers need a formal trading relationship with a hunter. This should be one person, in order to keep track of the bushmeat sales. However, according to the survey, the wholesalers at Atwemonom buy on average from about ten different hunters. Most of them buy their bushmeat from commercial hunters (62%). Only 13% of the wholesalers buy the meat from farmer hunters. A quarter also buy meat from other wholesalers, up to hundred percent of the meat. This can either mean that they are technically market traders, since these particular wholesalers also sell most of the meat to direct consumers, or they lack the social capital to set up a trading relationship with a hunter themselves.

Wholesalers generally don't really give out loans or bullets to the hunters. Only two people (14%) do so once in a while, especially to commercial hunters. They still do so, despite regular complaints about the lack of repayment.

Of course wholesalers don't see themselves as the controllers of the entire chain. Only one wholesaler admits to be the one who ultimately sets the price, but all others disagree and see the hunters as the ones to decide on the price.

Physical capital

The market stand of a wholesaler usually exists of no more than a small table (15 Ghana cedi - € 7.50), a wooden butcher's block (a mortar upside down at 15 to 20 Ghana cedi (€ 7.50 – 10) with yearly replacement), a cutlass (5 Ghana cedi (€ 2.50) – works for 4 months, including daily sharpening at 30 Ghana pesewas (€ 0.15), a large aluminium dish (20 Ghana cedi (€ 10) – replaced about every 3 years) with ice (about 1 to 2 Ghana cedi (€ 0.50 – 1) per day) to keep the meat cold. Also, they make use of freezers for all the meat that they don't sell. These are owned by a third party, and they have to pay about 50 Ghana pesewas (€ 0.25) to store a grasscutter and 3 to 4 Ghana cedi (€ 1.50 – 2) to store a big animal. The total of all this adds up to about 700 Ghana cedi (€ 450) per year.

Financial capital

As mentioned in the methodology, the wholesalers included in the research initially didn't want to share information about their income. However, after reintroducing the question on income into the survey, about half of the wholesalers had answered the question. Based on that information, their average income is around 15 Ghana cedi (€ 7.50) per day, although one third of them falls within the cluster of 5 to 10 Ghana cedi ((€ 2.50 – 5.00). This ranks them in second place, after the chopbar owners, who earn slightly more (see Table 5.2 and 5.3).

Table 5.8: Percentage of total income from bushmeat sales

Percentage bushmeat income			
Type of actor	Mean	Min	Max
Commercial hunter (n = 23)	79.17	29	98
Farmer hunter (n = 20)	42.30	0 ^a	93
Wholesaler (n = 13)	86.92	50	100
Market trader (n = 11)	79.73	39	100
Chopbar owner (n = 18)	89.56	57	100
Total	73.95	0	100

^a Minimum of 0 with farmer hunter: 100% own consumption of bushmeat

* Total population N = 88; non-response n = 3

(Source: *bushmeat actors survey, Feb-Apr 2010*)

However, wholesalers earn on average 87% of their income with the trade in bushmeat (see Table 5.8), and almost 70% of them earn all income with bushmeat trade (see Table 5.9). This makes them very vulnerable to changes in the resource base. Unlike the hunters or the chopbar owners, they don't really have any alternative source of income to fall back on. Their (nucleus) household is relatively small with only four people on average, so there are less mouths to feed. But that also means fewer people can contribute to the household income (47%, the lowest percentage of all actors). It should be remarked here that the number of wholesalers of whom the nucleus household size is known, is rather low (n = 4). The others only provided information about the number of extended household members, of which the average is 11 people, with about 5 adults (42%: again the lowest percentage of all actors).

Still, bushmeat trade does seem to provide a good income, as no wholesaler consumes any meat herself: they sell everything (see Table 5.3). More than three-quarters of them have savings (77% - see Table 5.4), but wholesalers are also the most indebted (39%), although those with debts also have savings. However, it is important to note that there is no information on the height of their debts and savings.

Table 5.9: Clustered percentual income from bushmeat sales

			Clustered percentage bushmeat income						Total
			0 %	1 - 24 %	25 - 49 %	50 - 74 %	75 - 99 %	100 %	
Type of actor	Commercial hunter	Abs. %	0 .0%	0 .0%	2 8.7%	7 30.4%	14 60.9%	0 .0%	23 100.0%
	Farmer hunter	Abs. %	5 25.0%	3 15.0%	3 15.0%	3 15.0%	6 30.0%	0 .0%	20 100.0%
	Wholesaler	Abs. %	1 7.7%	0 .0%	0 .0%	1 7.7%	2 15.4%	9 69.2%	13 100.0%
	Market trader	Abs. %	0 .0%	0 .0%	2 18.2%	1 9.1%	5 45.5%	3 27.3%	11 100.0%
	Chopbar owner	Abs. %	0 .0%	0 .0%	0 .0%	3 16.7%	7 38.9%	8 44.4%	18 100.0%
Total		Abs. %	6 7.1%	3 3.5%	7 8.2%	15 17.6%	34 40.0%	20 23.5%	85 100.0%

* Total population N = 88; non-response n = 3

(Source: bushmeat actors survey, Feb-Apr 2010)

Natural capital

Unlike most of the other actors, not even half of the wholesalers (42%) have access to own land. The ones who do have access, usually don't grow crops on their land, but have built a house on it, hence it is often a relatively small plot of less than two acres (80%).²¹

Natural capital plays of course a big role in the livelihood of any actor who is involved in the bushmeat trade. However, traders – and especially wholesalers – do not see a link between their activities and natural capital. They were not able to answer any questions with regard to the impact of changes in the natural resource base on their livelihood. The physical distance is simply too large. Although many wholesalers agree that bushmeat supplies are decreasing (79%), they blame the government and its regulations, rather than changes in the natural resource base. In their view, there will always be enough bushmeat available: they consider it to be an infinite resource.

5.2.4 Market traders

Human capital

Although generally most traders are female, which is also the case for bushmeat market traders (82%; n = 11), there are also some men involved. With an average age of 49 years they are close to the overall average of all actors. However, the minimum age of 29 is much lower than the minimum age of wholesalers, which might suggest that less experience, time and social capital is needed to become a market trader. Indeed only a quarter of the parents of the market traders were a bushmeat market trader as well, much less than wholesalers for

²¹ After a second series of interviews, during the closed season, it turned out that some wholesalers actually do have access to farm land, through family property. However, the trend remains the same that wholesalers have much less access to alternative sources of income.

whom social capital seems to be more important. However, most market traders involved in this research lived outside the city (Goaso area, Jachie and Kwaman, rather than Kumasi), which means they don't need to secure a place on the busy bushmeat market.

The average nucleus household of market traders consists of about six people, of whom three are older than eighteen. More than half of the market traders have finished JHS (55%), which is the highest number of the traders, but significantly lower than the hunters. There is also nobody with a higher education than JHS.

Social capital

One would expect that social capital plays as much a role for market traders as it does for wholesalers. This might be the case for market traders in the big city, where a place on the busy market can be difficult to secure. However, rural market traders are not dependent on wholesalers, and have stronger social ties with hunters (i.e. social distances are shorter), from whom they can buy directly. In that case they do need to have a permanent trading relationship with a hunter.

Just like wholesalers, market traders generally don't provide loans or equipment in advance to hunters. Only one market trader does so every now and then. One of the reasons market traders don't do this, is the common complaint that these loans are usually not paid back.

Most market traders (90%) are member of a bushmeat traders association. These associations don't have that much contact with the Wildlife Division: only once or twice a year. This is mostly related to the provision of licences, less so on information provision and raising awareness.

Market traders buy from much less people than wholesalers: on average they buy from about five people. Half of them are commercial hunters (51%), a third are farmer hunters (33%) and the rest comes from wholesalers (16%). Because of the low proportion of trade with wholesalers²², they don't see them as the controllers of the entire chain.

Physical capital

Market traders seem to be more mobile than wholesalers, as they are not necessarily tied to one single trading spot, especially not in rural areas. Except for the ones who operate at Atwemonom, who use exactly the same equipment as the wholesalers, most market traders don't have heavy equipment like a table or a chopping block (or mortar). They do need the large dish, a cutlass and ice. These go roughly at the same prices as the wholesalers. Also, they need to make use of freezers when they don't sell everything. However, they usually have smaller quantities of bushmeat and may therefore spend much less on freezing costs.

Financial capital

The average daily income of market traders is almost 4.50 Ghana cedi (€ 2.25), with a minimum of 2 (€ 1) and a maximum of 8 Ghana cedi (€ 4). This is by far the lowest average income of all actors (see Table 5.2). Only the hunters (especially farmer hunters) come close, but they have much more bushmeat and farm crops for own consumption. Market traders consume only about 4% of the bushmeat themselves (see Table 5.3). As mentioned before, many of them do grow crops, and probably they consume a substantial part of that, since they only get about 20% of their income from other sources than bushmeat. More than a quarter of them (27%) even earn no monetary income from other sources than bushmeat (i.e. earns hundred percent from bushmeat sales). This makes them quite vulnerable to any negative changes in the bushmeat sector.

²² Again, this has to do with the research methods as well: most market traders included in this research do not operate in Kumasi, where the wholesalers are active, but in the rural villages that were included in the research.

The average nucleus household of market traders consists of about six people, of whom about three are older than 18 years, and can thus be expected to contribute to the household income. However, their extended household consists on average of about 12 people, of whom 7 are adult, so there are people to fall back to in financially difficult times.

Despite their low income, almost 55% of the market traders have savings, and none of them has debts. This might mean that their income is not the main source of income for the household, which makes sense considering most of them are female and probably have a husband who contributes a considerable part as well.

Natural capital

Almost three quarters of the market traders have access to own land (73% - see Table 5.5). As one would expect, this is different for urban market traders at Atwemonom, who have no access to own land. From the ones that do have access, a quarter have not more than 2 acres (0.8 ha), 38% have between 2 and 5 acres (0.8-2 ha), and the same percentage have between 10 and 20 acres (4-8 ha) (see Table 5.6). They all grow crops on their land, of which cassava is the most popular (71%), followed by plantain (57%), cocoa, palm (nuts and/or wine) and cocoyam (each 43%), and maize (29%).

Just like the wholesalers, market traders don't really see a link between their activities and changes in the natural environment. The market traders at Atwemonom have the same view on environmental changes as the wholesalers, with whom they share a market place. The rural market traders are closer to the hunters and hence do see more of a link with environmental trends. Still their reactions are relatively moderate when compared to hunters.

5.2.5 Chopbar owners

Human capital

Almost all chopbar owners ($n = 20$) are female. In this research only one of the respondents was male. Their average age is 50, with a minimum of 25 and a maximum of 75. This minimum is the lowest of all three types of traders, however two of the respondents were actually the owners' daughters. The maximum of 75 is the lowest of all traders, which might be explained by the fact that running a chopbar is physically hard work. Indeed many chopbar owners have complained about backaches and other physical problems. They might hand over the chopbar to their daughters at an earlier age. This is backed by the fact that 50% of the chopbar owners have the same occupation as their mother, possibly the same chopbar. With an average family size of almost six people, of whom almost four older than 18, it should be no problem to find one of the children ready to take over. However, the average number of years that chopbar owners are active (21) isn't that low, compared to the other actors.

Chopbar owners have the lowest proportion of people who have finished JHS and higher education: 40%. One third of the remaining 60% (20%) have had no education at all.

Social capital

Social capital is less important for chopbar owners than for the other trading actors. They don't need to secure a spot on a busy market place, they just need their shop. They also don't need a bushmeat trading licence or permanent trading relationship with a hunter, since the government does not consider chopbar owners as bushmeat traders, but rather as consumers.

Buying bushmeat from wholesalers can be quite an obstacle: more than a quarter of the chopbar owners (26%) (partially) agree that wholesalers control the entire chain. This percentage is higher for urban chopbar owners than for rural chopbar owners (40% and 21% respectively, with $n = 5$ for urban chopbar owners and $n = 15$ for rural chopbar owners).

On average, chopbar owners buy from about three to four people, so they deal with fewer people than the other traders. It is interesting to notice that 37% of the chopbar owners do provide loans or bullets in advance to hunters. They do complain about not being repaid, but that doesn't really make them stop. In fact only 16% have stopped this practice in recent years. A good relationship with the supplying hunter(s) is very important and may apparently cost a little.

Compared to the other actors in the bushmeat commodity chain, a relatively high percentage of chopbar owners are not a member of a bushmeat traders association (20%). The reason for this is either a lack of knowledge of their existence, or that they don't really see the need to be a member. After all, they don't need a bushmeat trading licence, which is usually taken care of by an association. Still, chopbar owners claim to be in contact with the Wildlife Division more than twice a year on average. Another reason for the low percentage of membership of bushmeat trading associations is that it is unclear whether such an association still exists in Kumasi, after quarrels between some of the members several years ago. However, most chopbar owners are member of the general trading association facilitated by the Kumasi Metropolitan Assembly (KMA), which holds meetings twice a year and where they get information on hygiene and general shop keeping. This is also where they get their chopbar operator's licence, which costs 80 Ghana cedi (€ 40) per year.

Physical capital

The start-up costs of a chopbar are of course quite high. One has to buy a piece of land and build a restaurant, although in rural areas chopbars are usually not much more than a wooden semi-open covering. Still, one chopbar owner estimated the start-up costs at 1500 Ghana cedi (€ 750). Then there is also regular maintenance of broken furniture, fufu bowls, general repairs, and the costs for coals to cook the soup and electricity, which can all add up to 50 Ghana cedi (€ 25) a month.

Financial capital

The daily income of chopbar owners is the highest of all bushmeat actors, with an average of 16 Ghana cedi (€ 8). There is only one chopbar owner who earns less than 5 Ghana cedi (€ 2.50) per day, but as a group this is compensated by three people who say to earn more than 40 Ghana cedi (€ 20) per day. Chopbar owners consume almost no bushmeat themselves, on average only 1%. For them it is probably much more worthwhile to sell the meat.

Although Ghanaians prefer to eat at home, chopbars are popular spots to eat, especially for travelling people. For many people it is also the only place to eat bushmeat, since one can buy bushmeat for just one portion, rather than a whole animal to be prepared at home. However, they do not only sell bushmeat, but also other types of meat and fish. It is unknown what percentage of the menu and sales involve bushmeat, but one can assume that the proportion is quite high for the relatively few chopbars that do sell bushmeat. This might be explained by the fact that the number of bushmeat-selling chopbars seems to have decreased in recent years, and thus all customers who want to eat bushmeat come to the few places that still sell it.

On average the chopbar owners included in this research state to derive 90% of their income from their chopbar and 44% of them have no other sources of income. This would make them relatively vulnerable to negative changes in the bushmeat-related natural resource base. However, since they also sell other types of meat and fish, it is very easy for them to continue running the chopbar without bushmeat. At most, it might cost them some customers who used to come to them especially for the bushmeat. Therefore they are much less vulnerable than the other types of bushmeat traders.

With an average nucleus household size of almost six people of whom three to four are older than 18 years and can be expected to contribute to the family income, these families might be very well off, compared to the other bushmeat actors. These families don't really consume bushmeat themselves (95% - see Table 5.3), so apparently it is much more worthwhile to sell the bushmeat and eat other forms of animal protein yourself.

Strangely enough, considering the relatively high income, only 55% of the chopbar owners have savings, which is below the average of 61% for all actors (see Table 5.4). But the vast majority (82%) of those with savings, have no debts at all. However, of all chopbar owners, 30% are indebted, which is higher than the average of 22%. From this group of indebted chopbars, two thirds (67%) have no savings to compensate. These bad financial figures might be related to the high maintenance costs of keeping a chopbar.

Natural capital

Three quarters of all chopbar owners have access to farm land. Strangely enough, this percentage is higher for urban chopbars (83%) than for rural chopbar owners (71%)²³. However, the number of acres is relatively low, with 40% who have less than 2 acres (0.8 ha), a quarter with 2 to 5 acres (0.8-2 ha) and a fifth with 5 to 10 acres (2-4 ha), making an average of 5 acres (2 ha) (see Table 5.6).

On average 71% of the chopbar owners also plant crops on their land, although this number is much higher for rural chopbar owners than for those in urban areas: 100% and 20% respectively. The most popular crop is cocoa, which more than half of them cultivate (57% - see Table 5.7)²⁴. Some individuals (also) grow cassava, palm (nuts and/or wine), tomatoes and/or cabbage.²⁵

Just like the other types of traders, chopbar owners don't seem to really see a link between their activities and changes in the natural environment. For a large part they are dependent on natural capital, because of their need for bushmeat. However, if this becomes less available, then they can quite easily switch to domestic meat and fish, though probably to the dismay of their customers.

5.2.6 Other actors

There are a few other actors active in the bushmeat commodity chain. These are contributing actors who are not active in the (regular) bushmeat trade, but find employment at the sidelines of the chain. These were not included in the research, but are worth mentioning. Most notable are the people involved in preparing the carcasses, the transporters (or middlemen) and the roadside traders.

Wholesale market workers

The people preparing the carcasses are employed at the bushmeat wholesale market (Atwemonom), where they first burn off the hairs from the carcasses and then cut them into smaller pieces, at the request of the wholesalers and market traders. This is very hard work, since it requires a lot of physical strength and it all happens near the heat of fires. At Atwemonom there are about four to five of such people active. It is unclear what their livelihood looks like, how much they earn and who is paying them. However, it is clear that they are very dependent on bushmeat, and are thus vulnerable to any changes in the

²³ Note that n = 6 for urban chopbar owners and n = 14 for rural chopbar owners.

²⁴ This is most likely to be caused by geography: almost all rural chopbar owners included in the survey are from the Goaso area, where cocoa is the most planted crop among all farmers.

²⁵ Again, the types of crops planted are subject to the local geographical and geological situation.

bushmeat-related natural resource base, although they occasionally prepare domestic animals (goats) as well, which could serve as an alternative.

Transporters/middlemen

Transporters are people who bring the meat from several hunters in rural areas to the wholesale market in Kumasi. This allows the hunters to get some rest after a long night of hunting, without having the meat spoiled, and also enables hunters to work on their farm or other jobs. The transporter will do the price negotiations with the wholesaler or other type of buyer, but usually in consultation with the hunter. It is unclear what percentage of the price he will get in return for this. Transporters are highly affected by changes in oil prices, since it makes the travel more expensive. They are also charged an extra (negotiable) fare by the tro-tro²⁶ operators for the meat they transport (a large bushbuck may cost five Ghana cedi (€ 2.50)). They try to compensate this by increasing the price of the meat, and thus make the buyer pay for the transport. However, they generally see the wholesalers as the controllers of the chain: wholesalers will ultimately determine the price. For the one transporter who was interviewed for this research, this was not his main occupation. He earned 30 Ghana cedi (€ 15) per week with bushmeat transport, and also has some land to grow crops on. During the closed season this income drops to around 10 Ghana cedi (€ 5).

Roadside traders

Roadside traders are 'regular' traders (n=5, operating in one group), except that they sell their meat along the road. Although one may find individual traders anywhere along the road, there are some spots in Southern Ghana that are known trading spots. The nearest to Kumasi is near Anyinam Ankaase (Eastern Region) along the Accra-Kumasi road, about 90 miles (150 kilometres) from Kumasi. Other known bushmeat trading spots are near Nyanyano in the Central Region (17 miles / 27 kilometres west from Greater Accra) and along the road between Mankessim and Apam Junction in the Central Region.

The roadside traders seem to be a little younger than most of the regular traders in Kumasi or the villages. Also more men seem to be involved. They buy from hunters directly, sometimes from faraway places. They sell to people on the road, where they focus especially on the well-to-do. Whenever an expensive car, an SUV or pickup truck passes they jump up with a grasscutter or Maxwell duiker and try to entice the driver to buy it.

Everything they can't sell on the road, they will sell to the chopbars (which is about 40%). All along the road are chopbars where bushmeat is being served. They don't really like selling to the chopbars, because they usually get less money for it. Often they will be paid after the meat has been sold by the chopbars. Then the chopbar owners will say that they didn't get a lot of money for it or didn't sell a lot, and thus give less money to the traders as a result.

When roadside traders have more meat than they can sell, they will store it in a freezer. However, when there is a blackout (which happens often), they could lose a lot of meat (up to 60 or 70%).

All roadside traders included in the research state to have a licence, but there is not much monitoring by the Wildlife Division. They say that officers from the Wildlife Division come by once a year to issue licences and/or to check on illegal activities. But the traders are very nervous about these officers, since they sometimes come to check incognito. Although the roadside traders say to have them only once in a while, protected species seem to be sold quite regularly. Both dead and living tree pangolins (IUCN status: near threatened and

²⁶ A tro-tro is a minibus used for the transport of up to 16 people (in regular minibuses) or 23 people (in larger minibuses, often used over larger distances), and is a very common public means of transportation.

declining population trend²⁷) and a young bushbuck have been sighted during a single visit. They do seem to know the regulations and also say they think the regulations are good, because they realize that otherwise there would be much less bushmeat available. Still, they will sell protected species if they come across them, and they know how to sell them at a minimum risk. They feel that especially the closed season is a time of hardship for them.

The roadside traders complain about the rainy season, because there are many floods, which makes it difficult to hunt and therefore difficult for traders to get some meat. Like many other actors, they wish the government would give them money to start rearing grasscutters.

The group of roadside traders who were interviewed for this research said to earn on average about 50 to 70 Ghana cedi (€ 25-35) per week as a group, which consists of 5 people. This would mean they earn about 10 to 14 Ghana cedi (€ 5-7) per person per week. However, some of them do have access to land as well, where they grow crops. The interviewed group of roadside traders gave a number of reasons why the profits in their work are declining. First of all, the number of traders has increased due to a lack of employment. As bushmeat has a reputation of giving high profits, many people enter the business. The respondents themselves might be such profit seekers, since they have not been active in this field for a long time: the one who has the longest experience has only been active for six years. Secondly, the current economic recession makes it difficult to sell bushmeat. The meat is relatively expensive, so many people buy other types of meat or fish instead. The final reason they give, is that more children go to school these days. In order to pay for the school fees, most people start to cut back on their expenses. And again it is bushmeat that will have to make room for cheaper sources of animal protein.

5.3 Trends and their impact on bushmeat-related livelihoods

As explained in the theoretical context, a livelihood is prone to various shocks and stresses, which in the sustainable livelihoods framework is referred to as the vulnerability context. The extent to which a livelihood is vulnerable to these shocks and stresses depends on people's ability to cope with them. In this research three trends have been identified as having an impact on the livelihoods of people who live from bushmeat. These are forest degradation, conservation laws and campaigns, and market changes. These trends and their impact on the five²⁸ types of bushmeat actors will be investigated in further detail in this section.

5.3.1 Forest degradation

Forest degradation refers to impacts that affect many but not all species, and that may be temporary. It is generally measured in terms of decline of forest cover, loss of biodiversity richness (*i.e.* number of species), levels of pollution and level of human activity within the forest, including infrastructure (Groom *et al.*, 2006).

Over the last century Ghana's forested areas have decreased substantially. It has been assessed that at the start of the twentieth century about one-third of Ghana's land area was covered with original tropical forest, which is about 80,000 km² (Appiah *et al.*, 2009). At the end of that same century this number was estimated to have dropped to 15,000 km², or 7% of the land area (Wiggins *et al.*, 2004). That is a massive decrease which has a huge impact on the state of the forest ecosystems and the people dependent on it. This deforestation is still

²⁷ IUCN, 5 April 2010

²⁸ Or less when applicable

continuing at present, and the current deforestation rate is estimated to be 3% per year (IUCN, 2006).

Reasons for the ongoing decline in forest cover can partially be found in a growing population number, which increased from almost 5 million people in 1950 to almost 20 million people in 2000 (UN, 2008). Population numbers have not only risen in urban areas, but in rural areas as well (Wiggins *et al.*, 2004). As a result, forests needed to be cleared for both housing and farm land. Also contributing to the decline in forest cover, is the timber industry which was seen as one of the most important economic sectors for the newly independent country of Ghana, and consequently received a lot of political attention and stimulation in the second half of the twentieth century (Wiggins *et al.*, 2004).

Table 5.10: Perceived level of degradation of hunting area

Level of degradation of hunting area (scale 1 - 5) ^a			1	2	3	4	5	Total
Type of actor	Commercial hunter	Abs.	3	5	1	14	0	23
		%	13.0%	21.7%	4.3%	60.9%	.0%	100.0%
	Farmer hunter	Abs.	8	3	3	5	0	19
		%	42.1%	15.8%	15.8%	26.3%	.0%	100.0%
Total		Abs.	11	8	4	19	0	42*
		%	26.2%	19.0%	9.5%	45.2%	.0%	100.0%

^a1 = very little/none; 2 = little; 3 = moderate; 4 = substantial; 5 = severe.

* Non-response n = 1

(Source: bushmeat actors survey, Feb-Apr 2010)

Table 5.11: Perceived impact of degradation of hunting area

Impact of degradation of hunting area (scale 1 - 5) ^a			1	2	3	4	5	Total
Type of actor	Commercial hunter	Abs.	3	3	1	14	2	23
		%	13.0%	13.0%	4.3%	60.9%	8.7%	100.0%
	Farmer hunter	Abs.	9	6	1	2	0	18
		%	50.0%	33.3%	5.6%	11.1%	.0%	100.0%
Total		Abs.	12	9	2	16	2	41*
		%	29.3%	22.0%	4.9%	39.0%	4.9%	100.0%

^a1 = very little/none; 2 = little; 3 = moderate; 4 = substantial; 5 = severe

* Non-response n = 2

(Source: bushmeat actors survey, Feb-Apr 2010)

This decline of forest areas has a big impact on the people who live from bushmeat. As the Tables 5.10 and 5.11 show, commercial hunters consider their hunting area to be much more degraded than farmer hunters do, and feel more than the farmer hunters that this has a considerable impact on their livelihood. This obviously has to do with the actual hunting area of these two types of hunters. Commercial hunters usually hunt off-reserve, in areas that used to be densely forested, but are now mostly turned into farm land, fallow land or degraded forest. They may have seen the forest in a better state, harbouring much more target animals per square kilometre. Most farmer hunters, on the other hand, hunt on their farm land, which is degraded by definition. And since it is not seen as an area meant to be forest, they don't consider it as being degraded. Some farmer hunters do consider the hunting land as degraded, which may be caused by the fact that some of them occasionally hunt outside their farm lands too. However, there is a difference between the observed level of degradation and the experienced impact of degradation on their livelihood. Farmer hunters consider the impact of

degradation as very low²⁹, in contrast to commercial hunters who feel their livelihood as a hunter is suffering from the current state of the forest.

Table 5.12: Number of successful hunting trips out of 5

Number of successful hunting trips out of 5								
			1	2	3	4	5	Total
Type of actor	Commercial hunter	Abs.	5	13	3	1	1	23
		%	21.7%	56.5%	13.0%	4.3%	4.3%	100.0%
	Farmer hunter	Abs.	11	6	1	1	0	19
		%	57.9%	31.6%	5.3%	5.3%	.0%	100.0%
Total		Abs.	16	19	4	2	1	42*
		%	38.1%	45.2%	9.5%	4.8%	2.4%	100.0%

* Non-response n = 1

(Source: bushmeat actors survey, Feb-Apr 2010)

As a result of the level of degradation of the hunting areas, hunters are less likely to find target animals. This is reflected in Table 5.12, which clearly indicates that hunters have to put a lot of effort in their hunting activities. Out of every five times that a hunter goes out on a hunting trip, they only come back with catch about once or twice. It also clearly shows that commercial hunters are a little more effective than farmer hunters, although the numbers are low for all of them. Many hunters have stated that the success rate used to be a little higher when they started. However, hunting has always been a time-consuming and difficult trade. As mentioned in Section 5.2, hunting hours are long as well: on average a hunting trip takes over 13 hours for commercial hunters, and almost 10 hours for farmer hunters. Many hunters claim to spend more time in the bush now than they used to in the past. These are all signs that the forest ecosystem is degrading and that, as a result, it is getting harder for bushmeat hunters to get enough catch to earn a living.

Table 5.13: Agreement with statement on availability of target animals

“There are only small animals left in the forest”								
			Totally disagree	Partially disagree	Don't know	Partially agree	Totally agree	Total
Type of actor	Commercial hunter	Abs.	0	2	1	5	15	23
		%	.0%	8.7%	4.3%	21.7%	65.2%	100.0%
	Farmer hunter	Abs.	2	2	0	2	14	20
		%	10.0%	10.0%	.0%	10.0%	70.0%	100.0%
	Wholesaler	Abs.	7	2	0	3	2	14
		%	50.0%	14.3%	.0%	21.4%	14.3%	100.0%
	Market trader	Abs.	4	2	0	0	5	11
		%	36.4%	18.2%	.0%	.0%	45.5%	100.0%
	Chopbar owner	Abs.	5	9	2	2	2	20
		%	25.0%	45.0%	10.0%	10.0%	10.0%	100.0%
Total		Abs.	18	17	3	12	38	88*
		%	20.5%	19.3%	3.4%	13.6%	43.2%	100.0%

* Total population N = 88; non-response n = 0

(Source: bushmeat actors survey, Feb-Apr 2010)

²⁹ As explained in Section 5.2.2, this might be caused by the methodology, which resulted in the fact that all farmer hunters included in this research are from an area likely to be less degraded than the hunting areas of the commercial hunters included in this research.

Another sign of habitat degradation is the lack of large animals. When habitats become fragmented, the larger animals that need large areas to roam and forage, are the first to disappear. They are often also the most valuable target species for bushmeat hunters. At this moment the largest animal that bushmeat hunters catch regularly is the bushbuck, an antelope that can reach the size of a good deer. In some areas hunters used to hunt for even larger animals, like elephants, forest buffalo and certain hogs like the giant forest hog. Nowadays, hunters say these animals are not around anymore. As Table 5.13 points out, hunters generally complain about the lack of larger animals, whereas the traders (especially the wholesalers) don't really perceive such a trend. An explanation for this might be that wholesalers still see all kinds of animals on the market place, because out of the whole group of hunters every now and then one of them brings a large animal. On an individual level, the hunters apparently do encounter less of such animals.

As for the general decline of species numbers, it is more or less the same story: commercial hunters see more impact than farmer hunters. However, in this case the various types of traders also see their livelihood affected by this (see Table 5.14).

Table 5.14: Perceived impact of decline of species numbers

			Impact of decline of species numbers ^a						Total
			0	1	2	3	4	5	
Type of actor	Commercial hunter	Abs.	0	1	0	1	18	3	23
		%	.0%	4.3%	.0%	4.3%	78.3%	13.0%	100.0%
	Farmer hunter	Abs.	0	2	2	0	14	2	20
		%	.0%	10.0%	10.0%	.0%	70.0%	10.0%	100.0%
	Wholesaler	Abs.	0	5	0	4	4	1	14
		%	.0%	35.7%	.0%	28.6%	28.6%	7.1%	100.0%
	Market trader	Abs.	0	0	1	0	9	0	10
		%	.0%	.0%	10.0%	.0%	90.0%	.0%	100.0%
	Chopbar owner	Abs.	0	5	0	1	11	2	19
		%	.0%	26.3%	.0%	5.3%	57.9%	10.5%	100.0%
Total		Abs.	0	13	3	6	56	8	86*
		%	.0%	15.1%	3.5%	7.0%	65.1%	9.3%	100.0%

^a 0 = none; 1 = very little; 2 = little; 3 = moderate; 4 = substantial; 5 = severe

* Total population N = 88; non-response n = 2

(Source: bushmeat actors survey, Feb-Apr 2010)

Table 5.15: Agreement with statement on availability of hunting areas

"There are no areas left to hunt"								
			Totally disagree	Partially disagree	Don't know	Partially agree	Totally agree	Total
Type of actor	Commercial hunter	Abs.	7	3	0	2	11	23
		%	30.4%	13.0%	.0%	8.7%	47.8%	100.0%
	Farmer hunter	Abs.	14	1	0	2	2	19
		%	73.7%	5.3%	.0%	10.5%	10.5%	100.0%
Total		Abs.	21	4	0	4	13	42*
		%	50.0%	9.5%	.0%	9.5%	31.0%	100.0%

* Non-response n = 1

(Source: bushmeat actors survey, Feb-Apr 2010)

It is difficult for hunters to switch to other hunting areas. As it takes so many hours to get enough catch, they cannot spend too much time on travelling if they even have the means to do so. The question is also whether better hunting grounds are available at all, outside of the

forest and wildlife reserves. A majority of the commercial hunters agree that there are no good hunting areas left (Table 5.15). Farmer hunters generally disagree, but they hunt mostly on their farm lands, so the question is less relevant for them. They may also not know exactly in what state the lands around their farms are when it comes to hunting possibilities.

Human activities also affect the health of ecosystems. In this case one can think of activities that people undertake in the forest which scare animals away, but also when people start living and working closer to the forest edges, or when infrastructure (such as roads) is built in the forest. Table 5.16 shows that hunters, and especially commercial hunters, feel affected by these kinds of activities. As ‘end users’, chopbar owners are probably too far away from the resource to see any impact from human activities on their livelihoods. In fact, many of them see it as a good thing, because any increase in human activity may increase their potential customer base.

Table 5.16: Perceived impact of increasing human activity

			Impact of increasing human activity*						Total
			0	1	2	3	4	5	
Type of actor	Commercial hunter	Abs. %	1 4.3%	3 13.0%	2 8.7%	1 4.3%	15 65.2%	1 4.3%	23 100.0%
	Farmer hunter	Abs. %	6 33.3%	1 5.6%	2 11.1%	0 .0%	8 44.4%	1 5.6%	18 100.0%
	Wholesaler	Abs. %	0 .0%	0 .0%	1 50.0%	0 .0%	1 50.0%	0 .0%	2 100.0%
	Market trader	Abs. %	2 66.7%	0 .0%	0 .0%	0 .0%	1 33.3%	0 .0%	3 100.0%
	Chopbar owner	Abs. %	5 62.5%	0 .0%	0 .0%	2 25.0%	1 12.5%	0 .0%	8 100.0%
Total		Abs. %	14 25.9%	4 7.4%	5 9.3%	3 5.6%	26 48.1%	2 3.7%	54 100.0%

* 0 = none; 1 = very little; 2 = little; 3 = moderate; 4 = substantial; 5 = severe

Note: n = 2 for wholesalers and n = 3 for market traders, so nothing can be concluded from these numbers. The reason for the low response number among these actors (N = 88; non-response = 34) is that these kinds of traders had no clue about how human activities in the forests could have an impact on their livelihood. As a result, most traders could not answer this question.

(Source: bushmeat actors survey, Feb-Apr 2010)

5.3.2 Conservation laws and campaigns

Considering the negative developments in the state of Ghana’s forests, the government has adopted many regulations that are meant to prevent further forest degradation. They have to balance conservation aims with economic interests, and that also means that the bushmeat sector needs to give in a little. Some regulations are directly directed at bushmeat actors, others have a broader orientation³⁰. However, they all have an effect on the livelihoods of the bushmeat actors.

The closed season is specifically directed at bushmeat actors. This four-month period (from 1 August till 1 December) should provide most animals with time to give birth and raise their offspring, and means no hunter is allowed to hunt any animal, except for the abundant grasscutters. For bushmeat actors this implies that there is hardly any income during these four months. That must surely have a major impact on their livelihood. But actually, it

³⁰ See Chapter 4 for more information on the regulations.

depends per actor. The hunters (both commercial and farmer) see few negative impacts on their livelihood. This closed season generally coincides with the harvest season on their farm lands, hence they wouldn't have much time to go out hunting anyway. In fact, they see positive effects on their livelihood. Most hunters realize that the number of animal species is declining, and that if nothing is being done, they won't be able to hunt in the future anymore. Besides, right after the closed season their catches are usually much better again. As a result most hunters are very happy with the closed season and think it is a very effective regulation (see Table 5.17). Many hunters even think that the closed season should be extended with one additional month, as some animals are still nursing young when the hunting season opens again.

Table 5.17: Familiarity with, adoption of and effectiveness assessment of government regulations and awareness campaigns

Regulation / Awareness campaign	Actor	Known (1 = yes, 2 = no)		Adopted (1 = yes, 2 = no)		Effectiveness (scale 1 – 5)	
		Mean	Modus	Mean	Modus	Mean	Modus
Closed season	Comm. hunters	1.00	1	1.00	1	4.27	4
	Farmer hunters	1.10	1	1.20	1	4.11	4
	Wholesalers	1.00	1	1.14	1	1.62	1
	Market traders	1.00	1	1.18	1	2.27	1
	Chopbars	1.20	1	1.10	1	3.15	4
	Total	1.07	1	1.11	1	3.31	4
Protected species	Comm. hunters	1.17	1	1.09	1	4.04	4
	Farmer hunters	1.00	1	1.15	1	4.15	4
	Wholesalers	1.00	1	1.21	1	1.54	1
	Market traders	1.45	1	1.36	1	2.90	4
	Chopbars	1.35	1	1.39	1	3.47	4
	Total	1.18	1	1.22	1	3.42	4
Bushmeat rearing	Comm. hunters	1.09	1	2.09	2	4.17	4
	Farmer hunters	1.00	1	2.25	2	4.00	4
	Wholesalers	1.07	1	2.07	2	1.08	1
	Market traders	1.18	1	2.00	2	3.27	4
	Chopbars	1.05	1	2.05	2	3.40	4
	Total	1.07	1	2.10	2	3.38	4

* Total population N = 88; non-response n = 0

(Source: bushmeat actors survey, Feb-Apr 2010)

The traders (except for the chopbar owners) are less positive about the closed season. They often don't have a farm to work on during the closed season, so they need to save during the open season or try to get a loan. They really need their income from the bushmeat sales. Therefore, although they usually comply with the law, they really don't like it. As can be seen in Table 5.17, they think the regulation is not effective at all, and thus they would like to see the closed season to be much shorter. The reason they think it is not effective, is that they are not convinced that it coincides with the breeding period of most animals, and they don't think most animals need such protection. Especially wholesalers are convinced that the animals are out there, but that the government just wants to make life difficult for them.

Table 5.18: Regularly hunted and traded species by the respondents

No.	Species	Yes (%)	No (%)	Hunting allowed	Status*
1	Grasscutter	76.4	23.6	All year round	LC – U
2	Maxwell's Duiker	75.0	25.0	Ex. closed season	LC – D
3	Royal Antelope	34.7	65.3	Ex. closed season	LC – D
4	Bushbuck	31.9	68.1	Ex. closed season	LC – S
5	Giant (Gambian Pouched) Rat	30.6	69.4	Ex. closed season	LC – S
6	Brush-tailed Porcupine	27.8	72.2	Ex. closed season	LC – U
7	Pel's Flying Squirrel	13.9	86.1	Ex. closed season	DD – U
8	Black Duiker	12.5	87.5	Ex. closed season	LC – D
9	Striped Ground Squirrel	8.3	91.7	Ex. closed season	LC – S
10	White-throated Francolin	6.9	93.1	Ex. closed season	LC
11	African Civet	5.6	94.4	Not allowed	LC – U
12	Crested Guinea fowl	5.6	94.4	Ex. closed season	LC
13	Cusimanse	4.2	95.8	Ex. closed season	LC – U
14	Tree Pangolin	4.2	95.8	Not allowed	NT – D
15	Two-spotted Palm Civet	4.2	95.8	Not allowed	LC – U
16	Mona Monkey	2.8	97.2	Ex. closed season	LC – U
17	Bay Duiker	1.4	98.6	Ex. closed season	LC – D
18	Bosman's Potto	1.4	98.6	Ex. closed season	LC – S
19	Forest Buffalo	1.4	98.6	Ex. closed season	LC – D
20	Giant Forest Squirrel	1.4	98.6	Ex. closed season	LC – U
21	Red Patas Monkey	1.4	98.6	Ex. closed season	LC – D
22	Red River Hog	1.4	98.6	Ex. closed season	LC – D
23	Snails	1.4	98.6	Ex. closed season	(LC)
24	Tree Hyrax	1.4	98.6	Ex. closed season	LC – U

* **IUCN Status (05 April 2010):** LC (Least Concern), LR (Lower Risk), NT (Near-Threatened), VU (Vulnerable), EN (Endangered), DD (Data Deficient)

Population trend: D (Decreasing), S (Stable), I (Increasing), U (Unknown)

* Total population N = 88; non-response n = 16

(Source: *bushmeat actors survey, Feb-Apr 2010*)

Some species enjoy full year-round protection by law. These are animals like the tree pangolin, all cat types (e.g. civet cats, genet cat), some of the monkey species (e.g. chimpanzee, black and white -, olive - and red colobus, diana monkey), certain larger antelopes (e.g. roan antelope, bongo, yellow-backed duiker) and certain bird species (e.g. white-breasted guinea fowl and all birds of prey)³¹. Most of these animals are seen very seldomly, and are difficult to hunt anyway, but some of them appear on the market regularly (e.g. tree pangolin, African civet). Still, all actors state to have adopted this regulation and comply with the law (see Table 5.17). Also, most actors think it is an effective law to help preserve the ecosystem, and think it should stay like this. However, wholesalers again are the exception. They feel they should be free to sell whatever they can get. They also think some species should not be on this list, like the African civet³², which according to them produce many young and is dangerous to people. As wholesalers state to have financially difficult times already, they feel affected by regulations like these which limit their options to trade freely. Most other actors don't really feel affected by this regulation. As Table 5.18 shows,

³¹ For a full list of protected species see Appendix 4

³² The African civet (and other cat species, like the two-spotted palm civet) is internationally not regarded an endangered species, yet the Ghanaian government has included it in their list of protected species, because of their limited occurrence in Ghanaian territory.

some of the fully protected animals (African civet, tree pangolin and two-spotted palm civet) are regularly hunted and traded, although they don't make it to the top-10.

Table 5.19: Agreement with statement on trade in protected animals

“It is easy to trade in protected animals for bushmeat”

			Totally disagree	Partially disagree	Don't know	Partially agree	Totally agree	Total
Type of actor	Commercial hunter	Abs.	19	0	2	1	1	23
		%	82.6%	.0%	8.7%	4.3%	4.3%	100.0%
	Farmer hunter	Abs.	11	1	5	1	2	20
		%	55.0%	5.0%	25.0%	5.0%	10.0%	100.0%
	Wholesaler	Abs.	11	0	0	0	0	11
		%	100.0%	.0%	.0%	.0%	.0%	100.0%
Market trader		Abs.	10	0	0	0	0	10
		%	100.0%	.0%	.0%	.0%	.0%	100.0%
Chopbar owner		Abs.	16	0	2	0	2	20
		%	80.0%	.0%	10.0%	.0%	10.0%	100.0%
Total		Abs.	67	1	9	2	5	84
		%	79.8%	1.2%	10.7%	2.4%	6.0%	100.0%

* Total population N = 88; non-response n = 4

(Source: bushmeat actors survey, Feb-Apr 2010)

In response to the proposition that it is easy to trade in protected animals for bushmeat (see Table 5.19), the vast majority of the actors disagree. But farmer hunters seem to find it less difficult than commercial hunters. Their trade might also have a more informal character than that of commercial hunters, since their social ties to traders are often a little closer and the commodity chain starting with them is usually shorter³³, which leaves fewer possibilities for Wildlife Officers to intervene. In other words, the distance and time between hunting and consumption is shorter, and thus chances of being caught are slimmer. It should also be noted that the farmer hunters included in this research operate in quite a remote area, where monitoring is difficult anyway.



Plate 5.3: Illegal bushmeat

An African civet (left) and two processed two-spotted palm civets (right) on the bushmeat market in Kumasi. (Photos: Jochem Bokhorst)

³³ This may be caused by the methodology. All respondents who identified themselves as farmer hunters, come from the same rural, and rather isolated, area. In that area there are no wholesalers, so the commodity chain is shorter: they sell mostly directly to chopbars and/or consumers.

Wholesalers and market traders find it very difficult to trade in protected animals. This is no surprise, as the wholesale market is close to a Wildlife Division office, and monitoring takes place regularly, especially during the closed season. On the other hand, it is not entirely improbable that socially desirable answers have been given by these respondents, since protected animals are being traded every now and then at the wholesale market (see Plate 5.3).

Even though there is not enough monitoring by Wildlife Officers in most hunting areas, hunters have to be very secrete when they have illegal catch. Most other hunters say they would report illegal hunting activity to the Wildlife Division, the police or local leaders if they come across it (Table 5.20). Hunters don't take illegal hunting lightly, so social pressure to obey the law is high.

Table 5.20: Agreement with statement on reporting of illegal hunting

			“When I get to know that someone has hunted in a protected area or on protected species, I will report him to the Wildlife Division or police”					
			Totally disagree	Partially disagree	Don't know	Partially agree	Totally agree	Total
Type of actor	Commercial hunter	Abs.	1	0	0	2	20	23
		%	4.3%	.0%	.0%	8.7%	87.0%	100.0%
	Farmer hunter	Abs.	2	0	0	1	16	19
		%	10.5%	.0%	.0%	5.3%	84.2%	100.0%
Total		Abs.	3	0	0	3	36	42
		%	7.1%	.0%	.0%	7.1%	85.7%	100.0%

* Non-response n = 1

(Source: bushmeat actors survey, Feb-Apr 2010)

Limited access to suitable hunting areas is another regulation that has an impact on the livelihoods of hunters. Certain areas have been designated forest reserve or wildlife reserve, both of which are no-go areas for hunters all year round. These reserves are usually the kind of areas that harbour the most wildlife, so it is tempting to hunt there, especially for those who live close to such areas. Still, very few hunters state to hunt there, although it probably depends on what the distance to the reserve is. Commercial hunters stated to never hunt in protected areas, but some farmer hunters said to do so (15% - see Table 5.21). The farmer hunters were all interviewed in an area close to a forest reserve, which may have skewed the response for farmer hunters a little bit. Also, even though some hunters did admit to hunt in closed areas every now and then, in general hunters will not easily admit they do so.

Table 5.21: Type of hunting area

			Hunting area			
			Off-reserve	Privately owned land	Forest reserve	Wildlife reserve*
Type of actor	Commercial hunter	Abs.	23	2	0	0
		%	100.0%	8.7%	.0%	.0%
	Farmer hunter	Abs.	18	4	3	0
		%	90.0%	20.0%	15.0%	.0%
Total		Abs.	41	6	3	0
		%	95.3%	14.0%	7.0%	.0%

* not present in study area.

(Source: bushmeat actors survey, Feb-Apr 2010)

The extent to which this regulation affects the livelihoods of hunters is unknown, but it is apparent that catches would be better (in the short run) in these healthier ecosystems than in the degraded off-reserve areas, and that hunters would make more money as a result. Still, in general hunters approve of this regulation and think it helps them in the long run, because they function as breeding ground for many important bushmeat species, so they can hunt the spill-over: the animals that leave the protected areas.

Whether or not the result of awareness that hunters may be overhunting the forest ecosystem, a conservation campaign that has gained much popularity in recent years among hunters, is the rearing of bushmeat species (see Plate 5.4). Some of the bushmeat species, especially rodents (e.g. grasscutter and giant (or Gambian pouched) rat), but also small antelopes (e.g. Maxwell's duiker) can be reared at home or on farms. This requires high investments though. People who have a suitable area, need to invest in cages, animal stock and animal feed. Depending on the kind of animal, it can take one to several years before the animal has matured enough to be killed for consumption.



Plate 5.4: Bushmeat rearing

A farmer in the cage where he is rearing grasscutters. On the left one can see reed that he uses to feed the grasscutters.

(Photos: Jochem Bokhorst)

There are several problems that people who have experimented with rearing of bushmeat species have encountered. One of them is that it is often difficult to keep the animals alive until they are ready to be sold as bushmeat. This can have various reasons: some animals are just difficult to keep captive, some animals do not get the right food, and often animals escape (especially rodents). There is also a lack of knowledge about how to take care of the animals. Another problem is that many people claim to be able to taste a difference between wild animals and reared animals. And the vast majority prefer wild meat over reared meat. There is still debate about the reasons why there is a difference in taste, but it probably has to do with the animal feed (variety and nutrients), stress, and the amount of exercise that the animals have had throughout their life (more fat, less muscles), which is often limited because of cramped cages.

As can be seen in Table 5.17, almost everybody has heard about bushmeat rearing, but almost nobody is rearing animals (yet). Some of the respondents have tried it in the past, but most of them have stopped as a result of the aforementioned problems. Especially hunters see rearing as a viable alternative, or at least as an addition to hunting. Of the respondents who have been asked, most also think they will be rearing bushmeat in the not too distant future (see Table 5.22). Wholesalers, and to a lesser extent also market traders and chopbar owners,

see less good in rearing. Their biggest complaint is of course the difference in taste, which makes it a less popular product for consumers. For the people who are interested, the biggest restraint is financing. If they had the money, then most hunters would start immediately. This is also where many NGOs have stepped in over the past two decades. They have been helping with funding for cages and stock. But at this moment almost no NGO is still involved in this. The reasons are unclear, but it probably has to do with limited success of previous attempts to rear bushmeat species. Still, there are some people who keep on trying (see Plate 5.4).

Table 5.22: Agreement with statement on bushmeat rearing (n = 24*)

			“In 10 years time I will be rearing bushmeat”					
			Totally disagree	Partially disagree	Don't know	Partially agree	Totally agree	Total
Type of actor	Commercial hunter	Abs.	0	2	0	1	4	7
		%	.0%	28.6%	.0%	14.3%	57.1%	100.0%
	Farmer hunter	Abs.	0	0	1	0	12	20
		%	.0%	.0%	7.7%	.0%	92.3%	100.0%
	Wholesaler	Abs.	0	0	0	0	0	0
		%	.0%	.0%	.0%	.0%	.0%	0.0%
	Market trader	Abs.	0	0	0	1	2	3
		%	.0%	.0%	.0%	33.3%	66.7%	100.0%
	Chopbar owner	Abs.	0	1	0	0	0	20
		%	.0%	100.0%	.0%	0.0%	.0%	100.0%
Total		Abs.	0	3	1	2	18	24
		%	.0%	12.5%	4.2%	8.3%	75.0%	100.0%

* NB: not all respondents have been asked this question

(Source: bushmeat actors survey, Feb-Apr 2010)

5.3.3 Market changes

One might think that the market for bushmeat, being a traditional delicacy, has been quite stable over the years, but that is not at all the case. Supply and demand have both changed over the years, as have the costs and benefits.

Because of forest degradation and overexploitation the bushmeat resources have been declining rapidly over the last few decades. As a result it has been more and more difficult for hunters to bring enough bushmeat to the market. Table 5.23 clearly shows that more than 90% of the hunters and chopbar owners agree that the bushmeat supply has decreased drastically over the last twenty years. Wholesalers, and to a lesser extent market traders, agree as well, but are not as convinced as the other actors. They probably witness a smaller decrease, because they still get more or less normal amounts of bushmeat every day, but they don't see that the hunters need to put increasingly more effort into their hunting activities (by means of longer, and probably more, hunting trips) to get this amount of meat to the market. Hunters cannot bring much less meat to the market, or they will be out of business as a hunter. So they increase their efforts and consume less meat themselves. Therefore the wholesalers continue to get quite a lot of meat to sell. Still, they too witness something of a decrease. Also, as Table 5.13 has shown, the kind of animals that are being sold has changed. Nowadays, they don't get as many large animals anymore. This affects the livelihood of all actors. They all have less bushmeat to sell, so their income from bushmeat decreases slowly. As mentioned hunters also have to put much more effort in their hunting activities, which especially affects their human capital (time).

When the bushmeat supply decreases, the price of bushmeat will increase. That means that fewer people can buy it. Indeed, in urban areas bushmeat has become something of a

luxury item (Bowen-Jones, *et al.*, 2003). Tables 5.24 and 5.25 show that especially wholesalers, and to a lesser extent also market traders and chopbar owners, see a change in the behaviour of their customers. Some of their regular customers cannot pay the price anymore and start to look for alternatives, like other types of meat, or fish. Hunters can always sell their meat to the various actors, so they don't see that change that much. For the others it has quite an impact. Wholesalers make less profit in order to keep the prices as low as possible. But when they can't sell their meat directly, they need to make use of the storage facilities (freezers), which costs them extra money, and doesn't improve the quality of the meat either. For chopbar owners it becomes quite problematic when less people can afford bushmeat. After some time they will have to decide to clear all bushmeat-related dishes from the menu. Many (urban) chopbars have indeed stopped selling bushmeat. The few chopbars where bushmeat is still being sold will attract all remaining customers who really want bushmeat and can still afford it. That might explain why 80% of the chopbars owners included in the survey don't see such a decline in bushmeat sales.

Table 5.23: Agreement with statement on bushmeat supply

			"Bushmeat supply has decreased drastically over the last 20 years"					
			Totally disagree	Partially disagree	Don't know	Partially agree	Totally agree	Total
Type of actor	Commercial hunter	Abs.	2	0	0	0	21	23
		%	8.7%	.0%	.0%	.0%	91.3%	100.0%
	Farmer hunter	Abs.	1	0	0	1	18	20
		%	5.0%	.0%	.0%	5.0%	90.0%	100.0%
	Wholesaler	Abs.	2	1	0	6	5	14
		%	14.3%	7.1%	.0%	42.9%	35.7%	100.0%
	Market trader	Abs.	0	1	1	1	8	11
		%	.0%	9.1%	9.1%	9.1%	72.7%	100.0%
	Chopbar owner	Abs.	0	1	1	1	17	20
		%	.0%	5.0%	5.0%	5.0%	85.0%	100.0%
Total		Abs.	5	3	2	9	69	88
		%	5.7%	3.4%	2.3%	10.2%	78.4%	100.0%

(Source: bushmeat actors survey, Feb-Apr 2010)

Table 5.24: Agreement with statement on bushmeat sales

			"People don't want to buy bushmeat anymore"					
			Totally disagree	Partially disagree	Don't know	Partially agree	Totally agree	Total
Type of actor	Commercial hunter	Count	23	0	0	0	0	23
		%	100,0%	,0%	,0%	,0%	,0%	100,0%
	Farmer hunter	Count	20	0	0	0	0	20
		%	100,0%	,0%	,0%	,0%	,0%	100,0%
	Wholesaler	Count	5	1	0	6	2	14
		%	35,7%	7,1%	,0%	42,9%	14,3%	100,0%
	Market trader	Count	10	1	0	0	0	11
		%	90,9%	9,1%	,0%	,0%	,0%	100,0%
	Chopbar owner	Count	16	2	0	2	0	20
		%	80,0%	10,0%	,0%	10,0%	,0%	100,0%
Total		Count	74	4	0	8	2	88
		%	84,1%	4,5%	,0%	9,1%	2,3%	100,0%

(Source: bushmeat actors survey, Feb-Apr 2010)

Table 5.25: Agreement with statement on alternative protein sources

“People like bushmeat more than fish”								
			Totally disagree	Partially disagree	Don't know	Partially agree	Totally agree	Total
Type of actor	Commercial hunter	Count %	1 4,3%	1 4,3%	0 ,0%	0 ,0%	21 91,3%	23 100,0%
	Farmer hunter	Count %	1 5,0%	0 ,0%	0 ,0%	1 5,0%	18 90,0%	20 100,0%
	Wholesaler	Count %	2 14,3%	0 ,0%	4 28,6%	1 7,1%	7 50,0%	14 100,0%
	Market trader	Count %	2 18,2%	0 ,0%	0 ,0%	0 ,0%	9 81,8%	11 100,0%
	Chopbar owner	Count %	2 10,0%	2 10,0%	1 5,0%	1 5,0%	14 70,0%	20 100,0%
Total		Count %	8 9,1%	3 3,4%	5 5,7%	3 3,4%	69 78,4%	88 100,0%

(Source: bushmeat actors survey, Feb-Apr 2010)

The decline in bushmeat resources is not the only factor that has contributed to the rise in bushmeat prices. There are other costs that have made bushmeat more expensive. Hunters usually complain about the high costs of bullets, but that does not fully explain the high prices. One of the main factors behind that are the increasing transportation costs, driven by the high petrol prices. Especially wholesalers complain about that. They are the ones that ultimately pay for that. The hunters (or their middlemen) charge higher prices to cover the transportation costs. There is no way that the wholesalers can deny that, but they need to keep their prices low for the chopbar owners, otherwise their customers stop buying bushmeat and the chopbar will continue as a regular chopbar without bushmeat. The burden thus falls on the shoulders of wholesalers. Table 5.26 shows that the actors further up the chain complain more about the increasing expenses than those at the beginning. Farmer hunters consume more meat themselves, or trade locally, so they are less affected by the transportation costs. Commercial hunters get their costs mostly covered, because the wholesalers just have to buy the meat from them, no matter what the price. Not surprisingly, the benefits of the bushmeat trade are therefore seen in the same way: the hunters are generally satisfied with their profits, while the wholesalers complain bitterly (Table 5.27). For the other actors it differs per person.

Table 5.26: Agreement with statement on expenses in the bushmeat trade

“The expenses of bushmeat trade are getting too high”								
			Totally disagree	Partially disagree	Don't know	Partially agree	Totally agree	Total
Type of actor	Commercial hunter	Abs. %	3 13.0%	1 4.3%	0 ,0%	1 4.3%	18 78.3%	23 100.0%
	Farmer hunter	Abs. %	2 10.0%	3 15.0%	0 ,0%	3 15.0%	12 60.0%	20 100.0%
	Wholesaler	Abs. %	0 ,0%	0 ,0%	0 ,0%	1 7.1%	13 92.9%	14 100.0%
	Market trader	Abs. %	0 ,0%	1 9.1%	0 ,0%	0 ,0%	10 90.9%	11 100.0%
	Chopbar owner	Abs. %	0 ,0%	0 ,0%	0 ,0%	2 10.0%	18 90.0%	20 100.0%
Total		Abs. %	5 5.7%	5 5.7%	0 ,0%	7 8.0%	71 80.7%	88 100.0%

(Source: bushmeat actors survey, Feb-Apr 2010)

Table 5.27: Agreement with statement on bushmeat profits

			“Bushmeat trade gives high profits”					
			Totally disagree	Partially disagree	Don't know	Partially agree	Totally agree	Total
Type of actor	Commercial hunter	Abs.	4	0	1	3	15	23
		%	17.4%	.0%	4.3%	13.0%	65.2%	100.0%
	Farmer hunter	Abs.	1	2	0	5	12	20
		%	5.0%	10.0%	.0%	25.0%	60.0%	100.0%
	Wholesaler	Abs.	8	2	0	4	0	14
		%	57.1%	14.3%	.0%	28.6%	.0%	100.0%
	Market trader	Abs.	2	1	0	6	2	11
		%	18.2%	9.1%	.0%	54.5%	18.2%	100.0%
	Chopbar owner	Abs.	4	6	0	7	3	20
		%	20.0%	30.0%	.0%	35.0%	15.0%	100.0%
Total		Abs.	19	11	1	25	32	88
		%	21.6%	12.5%	1.1%	28.4%	36.4%	100.0%

(Source: bushmeat actors survey, Feb-Apr 2010)

5.4 Summary

In this chapter, five different actors have been identified and analysed: commercial hunters, farmer hunters, wholesale traders, market traders and chopbar owners. These are the actors who play a major role in the bushmeat commodity chain. The difference between commercial hunters and farmer hunters is not always clear, and it is even questioned by some (commercial) hunters whether there really are farmer hunters. In this chapter I have concluded that it is best to differentiate between active hunting and passive hunting, the first being practised by commercial hunters, the latter by farmer hunters. The problem is, however, that this categorization has been made after the surveys have been carried out. Instead, the different hunters have been identified by their own definition. All hunters in the Goaso area identified themselves as farmer hunters, because they are hunters who also work on a farm. However, their hunting practice is active, so according to the aforementioned definition no farmer hunters have been included in the research. Still, the name has been maintained for this group of hunters. Therefore, the differences found between commercial and farmer hunters are more likely based on geographical differences (local organisation, infrastructure, distances, crops, etc.). Wholesale traders are especially active in the big cities (Kumasi), where they buy large quantities of bushmeat from hunters and supply a few market traders, the traditional restaurants called chopbars and direct consumers. Market traders in fresh bushmeat are less active in the city. Their presence is more significant in the rural areas, where they more or less take over the role of the wholesalers.

In general the bushmeat commodity chain is shorter in rural areas, because of shorter social distances between the actors (they know each other better, due to shorter physical distances) and because of the presence of less actors (no wholesalers). In rural areas the chain can be as short as a direct trade between a hunter and a consumer, but it can also go through a market trader and a chopbar first, before it reaches the consumer. In urban areas the meat usually passes from (commercial) hunter to wholesaler to chopbar to consumer. Also, many actors, especially hunters, consume a (large) part of the catch themselves.

There are some clear differences between how commercial hunters and farmer hunters shape their livelihood. One can definitely see that hunting for bushmeat is more important for commercial hunters than for farmer hunters. Commercial hunters spend more time hunting,

are a little more successful, earn a higher percentage of their income with it, and consume less of the meat themselves. This provides commercial hunters with a slightly higher overall daily income than farmer hunters: 9.78 Ghana cedi (€ 4.89) vis-à-vis 7.74 Ghana cedi (€ 3.87). Also, when it comes to their perception of the hunting areas, commercial hunters seem to be more critical: they find their hunting area more degraded and see a bigger impact of that on their livelihood, even though hunting success rates are low for both types of hunters. As a result, commercial hunters are more worried about the future presence of hunting areas. It makes clear that farmer hunters are more occupied with farming than with hunting, even though commercial hunters have on average more farm land. It should be noted, however, that the farmer hunters included in this research are not really farmer hunters in the original meaning of the word. Therefore, the differences could be caused by geographical differences, maybe requiring more time-consuming, less-generating farming practices.

On the other hand, there are also many similarities between the two types of hunters, especially when compared to the other actors in the bushmeat commodity chain. For instance, hunters seem to have had much more education than traders. Having much more access to farm land than most traders, hunters also have a more diverse livelihood portfolio. This enables them to get a higher percentage of their income from other sources (mostly farm activities), and generate more food themselves (both farm produce and bushmeat). Still, their average daily income is much lower than that of traders (15.33 Ghana cedi (€ 7.67) for wholesalers and 16.21 Ghana cedi (€ 8.11) for chopbar owners), except for market traders (4.44 Ghana cedi (€ 2.22)), whose income is very low as well. However, the yearly returning costs of hunting are lower than those of trading, as it is mostly bullets for hunters, while traders have a lot of equipment to maintain and usually have to bear the increasing transportation costs too.

But traders are not a completely homogenous group either. Social capital is more important for wholesalers and chopbar owners than for market traders. The first two actors seem to be best off when their mother was in the same business too and they can take over their spot. In general, in many aspects the market traders come a little closer to hunters than to wholesalers and chopbar owners (in terms of average age, education, income and access to farm land), but in other aspects they are closer to the other traders (*e.g.* with regard to their view on the ecological developments).

The trading relationships between the different actors are generally not too hierarchical, yet they are neither completely equal. It has become quite clear that wholesalers are a little bit more at the power end of the relationship, both towards the hunters and the chopbar owners. Ultimately they are the ones who will decide on the price for the meat, both the price at which they buy and the selling price. However, this is only the case in the urban setting, as wholesalers are not active in rural settings. In rural settings the trading relationships seem to be fairly balanced.

There is a big difference between hunters and traders, when it comes to their perception of natural trends and related governance. As hunters are much closer to nature than traders, they see how the forest is degrading and how it affects the bushmeat trade. They are very aware of the decline in bushmeat species numbers and see their future under threat. As a result they are very positive about regulations to protect the bushmeat species, such as a closed season or a ban on certain vulnerable species. It is important to note that they also don't really face many disadvantages of these regulations. This applies particularly to the closed season, because that period coincides with the harvesting season on the farm lands. So, most hunters are not hunting during that period anyway.

Traders, most of whom don't have access to farm land, will face a serious setback in trading activities during such a period, because the amount of bushmeat on sale will be

reduced to a minimum. Therefore they have to financially overcome a four-month period, using savings, loans and the little income they still might get from selling a few grasscutters. This is even harder to digest for the large number of traders who don't even believe these regulations are necessary or helping. Many traders are not convinced at all that the bushmeat supply is in decline and in need of such rigorous protection. In that respect they are much further away from the bushmeat resource. They don't see that hunters have to put much more effort in their hunting activities, to get more or less the same amount of bushmeat on the market. As they also don't believe that all protected animals are vulnerable, they will trade in some of them given the chance.

When it comes to adapting to the impacts of trends, people with a diverse livelihood portfolio are usually less vulnerable than those who depend on a single activity on which they depend (Scoones, 2009). Therefore it is important to conclude that in the case of the Ghanaian bushmeat trade, traders are much more vulnerable to adverse environmental trends. The hunters have a more diverse livelihood portfolio and are thus better able to cope with these trends. Not only do most traders, and especially wholesalers, bet on a single horse, they also don't see what is happening with the resource. The distance between them and the resource is simply too big. Because of that, they do not work towards a more diverse portfolio and remain very vulnerable to shocks and stresses.

6. Conclusions and discussion

The bushmeat trade is an important sector in Ghana. For many people, especially in rural areas, bushmeat is the main source of animal protein. For many hunters and traders it provides an important part of their income. However, over the past decades the pressure on the forest ecosystems in Ghana has increased substantially, and efforts to conserve the forests and its wildlife are needed. To make sure that forests are exploited in a more sustainable way, several governance arrangements are in effect. In order to make these arrangements more effective, it is important to investigate what role bushmeat plays in the livelihoods of people living in forest-fringe communities and how governance arrangements affect their possibilities to benefit from bushmeat. In this final section I will first come with the conclusions of this research, which should provide answers to the main research question. Then I will discuss these findings in relation to the theoretical framework. Following this discussion I will come up with several recommendations for policymakers and suggestions for further research.

6.1 Summary of the research findings

This research is part of a PhD project aimed at generating insight into and formulating recommendations on governance arrangements that enhance forest-related livelihoods so that they contribute to sustainable forest management and poverty alleviation. To this end, I came up with the following research question: how do forest governance arrangements in Ghana's High Forest Zone affect the livelihoods of actors in the bushmeat commodity chain? This research question can be split into four parts:

1. What governance arrangements are in place with regard to bushmeat?
2. What does the bushmeat commodity chain look like under these arrangements?
3. What is the contribution of bushmeat to the livelihoods of the actors in the bushmeat commodity chain?
4. How are these livelihoods affected by trends and processes?

6.1.1 Governance arrangements in place with regard to bushmeat

A substantial part of this study deals with governance arrangements. These are a combination of statutory and customary regulations, as well as civil society interactions. In this study, the main focus is on statutory regulations, partially because fieldwork implications did not allow for extensive research into customary regulations, and partially because statutory regulations seem to be the main institutions that regulate the bushmeat trade.

The three major groups of governance arrangements in place are those that regulate access, use and trade. Of these three, access rights have the most fundamental impact on bushmeat actors. The limitations in access rights come in two forms: permanent access limitations and temporary access limitations. The first consists of forest and wildlife reserves, which are prohibited for hunters to access at any time. They are meant to be a safe haven for wildlife species to live without disturbances. Although forest reserves are owned by local communities, they, and the government-owned wildlife reserves, are both managed by the government, which monitors these areas to its best abilities, but as often is the case: financial resources are scarce and the areas large and dark at night, when most hunters hunt. The temporary limitation on access rights is the closed season, which lasts from 1 August till 1 December. For four months it is not allowed to shoot, capture or trade any animal species except for the grasscutter. This period is meant to provide animals with a quiet period to raise their offspring. Monitoring during this period is more intensive, but cooperation is considered

more important than strict implementation. It is fruitful to some extent, because there is strong social control in areas where hunters have organized themselves in associations.

Use rights are focused on licences, hunting methods and species. Every hunter must have a hunting licence. This licence shows not only who is allowed to hunt, but also what animals this hunter is allowed to shoot during the coming season, as every hunter has to pay in advance for what he thinks he can shoot. To hunt bushmeat, one is only allowed to use a gun. All other hunting methods, like snares, clubs, dogs, groups or fire, are illegal. Neither is it allowed to hunt all wildlife species. The government recognizes three groups of banned species for hunting: those that need full protection in order to survive in Ghana or even in the world, species that are reproducing (i.e. young species and their accompanying parents) and the rest of the species that are protected during the closed season.

Traders in bushmeat need to have a bushmeat trading licence, which also requires them to have one permanent trading relationship with a hunter, so that the Wildlife Division can check where the bushmeat is coming from. In practice however, most hunters and traders have more than one trading relationship, in order to negotiate good prices or to be sure of enough meat to sell.

Customary regulations are also in place to regulate the bushmeat trade. These also deal with access and use rights. Just like customary regulations, there are permanent and temporary limitations in access rights. Sacred lands are forbidden for anyone to enter all year round, except for fetish priests or during religious celebrations. Taboo days are temporary, but may be frequent. These are fixed days in the week in which activities in the forests, including hunting, are not allowed for cultural or religious reasons. Then there are customary use rights that limit the possibilities for hunting. Totems are species that are believed to hold religious or cultural powers for the village, and are thus not allowed to be hunted or consumed at any time. These customary regulations do often not emanate from ecological concerns, but are driven by religion or cultural beliefs. Ecologically driven customary regulations do exist, however. Examples are regulations on shooting slow-moving or defenceless animals, or pregnant or nursing animals.

Environmental NGOs can also play an important role in forest governance. However, at this moment very few are working with bushmeat actors. In the past they were more active, especially in the field of alternative livelihood provision. One of the popular projects was the rearing of bushmeat species, but due to unsatisfactory results and financial difficulties, most of these projects have stopped, to the dismay of many hunters, who see a lot of potential in bushmeat rearing. At this moment, most environmental NGOs are active in the fields of wildlife education, awareness and advocacy for fair forest use.

6.1.2 The bushmeat commodity chain

The fresh bushmeat commodity chain is not very complicated. It consists of five actors: two types of producers, two types of traders and one type of processor. The producers are commercial hunters and farmer hunters. In most bushmeat literature with a focus on Ghana, the distinction between commercial hunters and farmer hunters is made based on their time investment, being full-time for commercial hunters and part-time for farmer hunters (Cowlshaw *et al.*, 2005b; Mendelson *et al.*, 2003). For commercial hunters the bushmeat trade would be their main source of income and for farmer hunters it would be a side-activity along their farming work to generate extra income and subsistence. However, commercial hunters have farm land too, which also constitutes an important part of their income. It would therefore be more useful to distinguish between hunting practices, which are active for commercial hunters and passive for farmer hunters. Commercial hunters go out at night to

actively hunt for animals, while farmer hunters bring their gun along when they work on the farm and only shoot when they come across an animal by chance.

The trading actors consist of wholesalers and market traders. Wholesalers are only present in the urban bushmeat trade. They buy whole animals in large quantities, have them processed (remove hair and guts) and sell them as a whole or in large portions, mostly to chopbars. Market traders are mostly active in rural areas, where they more or less take over the role of wholesalers. They usually sell the meat in smaller portions and focus more on direct consumers.

Chopbars are small restaurants where traditional food, often including bushmeat, is served. Not all chopbars serve bushmeat, especially not in urban areas, where many have stopped selling bushmeat in recent years, because of the high prices which many of their customers cannot afford anymore.

The main route of bushmeat between these actors is from commercial hunter to wholesaler to chopbar to consumer. In rural areas this chain is often shorter, and hunters sell their meat directly to chopbar owners or consumers. In urban bushmeat commodity chains a central role is played by wholesalers, who tend to dominate the chain in relation to hunters and chopbar owners. They set the final price at which they buy the bushmeat, because hunters cannot sell their meat to just anyone, due to regulations and high prices. Urban chopbars are dependent on the wholesalers for their bushmeat supply. In rural areas the trading relationships seem to be more balanced.

6.1.3 Contribution of bushmeat to the livelihoods of actors in the bushmeat commodity chain

There are many differences in how the bushmeat actors construct their livelihoods. In terms of human capital (i.e. attributes embodied in the ability to perform labour) there are important differences in household size. Hunters, especially commercial hunters, have on average larger nucleus households than traders and chopbar owners. This means that they have more mouths to feed, but also that there are more people who can contribute to the household income. Especially the wholesalers in this study have a small household with a low number of adults. Education levels are also higher among hunters, compared to traders. With regard to hunting skills it is obvious that those with good knowledge of the area by night and the species' behaviour have better chances at success than those who don't.

Social capital, on the other hand, is more important to traders, especially to wholesalers, than to hunters. The wholesalers operate on a hierarchically structured market, where it is necessary to have social capital in order to get a trading spot. Social capital is also needed to establish a trading relationship with a hunter. Of course this also works the other way around: hunters need social capital to establish a trading relationship with a trader. Hunters may also benefit from membership of a bushmeat hunters association, because the Wildlife Division will visit associations for renewal of hunting licences, and in case of problems, associations are better heard by the WD than one single hunter. Wholesalers have a bushmeat trading association for the same reasons.

Physical capital is important to all hunters. Hunters need hunting equipment, which consists mainly of a gun, bullets and a flashlight. The total cost of these are relatively modest, except for the bullets, but their good hunting skills usually prevent them from spilling too many bullets. Traders need various pieces of equipment for their market stand and a lot of ice to keep the bushmeat cool. In case they are not able to sell all their meat, they need to store it in a freezer for the next day, which is costly. Chopbar owners need to maintain their restaurants and pay for electricity and personnel. All in all, the annually returning costs are almost sevenfold of what hunters pay for maintenance of equipment and bullets, and that doesn't even include the high start-up costs for chopbar owners.

In order to pay for all this equipment and maintenance costs, the average daily income of wholesalers and chopbar owners is much higher than that of hunters: even twice as much as what farmer hunters earn. But farmer hunters hunt mostly for subsistence, and monetary income is often considered as being extra. For commercial hunters and the other actors, bushmeat is meant for monetary income, so financial capital is more important to them than to farmer hunters. This is reflected by the fact that bushmeat sales make up just a little over 40% of the income of farmer hunters, whereas this percentage is around 80% for commercial hunters and market traders, and even around 90% for wholesalers and chopbar owners³⁴. Also, proportionally, fewer farmer hunters have savings and/or debts than the other actors.

Natural capital plays a key role in the livelihoods of hunters. Not only is access to hunting grounds of big importance to them, but they also have farmland to live off. It is interesting to notice that commercial hunters have even more acres of farmland than farmer hunters. Market traders and chopbar owners have access to farmland as well³⁵, but to a lesser extent than hunters, and not all chopbar owners grow crops on their land. However, wholesalers have almost no access to farm land.



Plate 6.1: The closed season

The difference between the open and the closed season at Atwemonom, the bushmeat wholesale market in Kumasi.

(Photos: Jochem Bokhorst)

All in all, it can be concluded that the importance of bushmeat to the livelihoods of the various actors differs. It is the least important to farmer hunters. They live mostly off their farmland and see bushmeat as an addition to their own diet, or as extra income. Commercial hunters have a varied livelihood portfolio as well and a large family that enables livelihood diversification at household level too. Bushmeat is important for their monetary income, but they also have farmland to live off. This is more or less the same for market traders, and to some extent also for chopbar owners. Chopbar owners can also switch between various sorts of meat. If for some reason they have to stop selling bushmeat, they will lose a few (die-hard)

³⁴ However, chopbars sell not only bushmeat, but also other types of meat. So the sales of bushmeat are just a part of this proportion.

³⁵ It should be noted that most of the market traders and part of the chopbar owners were interviewed in rural areas, which means that there is a big chance that their husbands are farmers. All wholesalers included in this survey lived in urban areas, so their husbands may have other non-farming jobs.

customers, but their chopbar can stay open. Wholesalers, on the other hand, have a much less varied portfolio: bushmeat is all they sell, and back-up income is virtually not available. Their families are small and children often take over their mothers business, so also on household level there are less options for diversification, compared to the other actors.

6.1.4 How are the livelihoods of bushmeat actors affected by trends and processes

Combining the livelihood outcomes with the actors' perception of natural trends and related governance, the situation becomes worrisome. Hunters are much closer to nature than traders, and as a result, they see how the forest is degrading and how this is affecting their bushmeat activities. They realize that they have to spend increasingly more hours in the bush to catch the same amount of bushmeat, and even then they will catch mostly small-sized animals instead of the big ones. The traders are much less close to nature and, as a result, see less clearly what is happening in the natural environment. They only see what the hunters bring to the market, not how much effort was needed to get it there. As long as bushmeat supply remains at its current level, there is no problem. But if bushmeat supply comes to a standstill because environmental stresses reach a critical high, or because of shocks (e.g. a massive bushfire, an aggressive animal disease, or when hunters decide the efforts are not worth the troubles anymore), wholesalers will be in deep trouble. Not only do they not see the trouble coming, they also have very little means to cope with drastic changes. Market traders and chopbar owners might face a period of difficulty, but their livelihood portfolio allows for relatively easy adaptation. But wholesalers have few alternatives, which makes their livelihood very vulnerable.

6.1.5 Synthesis: effects of forest governance arrangements on bushmeat actors

Actors' perceptions on natural trends also explain how the different actors react to governance arrangements. Generally hunters are fairly satisfied with the governance arrangements in place. Limitations of use rights affect the way they are allowed to hunt. They are only allowed to hunt with a gun, but many hunters use snares too. Unless one is caught red-handed with a snared animal in one's hands, the chances are very small to be fined or prosecuted for the use of snares, because it is very difficult to prove who is the owner of a snare found in the bush. Other limitations of use rights are not really implemented either, such as the prohibition of hunting at night with a torch. Almost all commercial hunters do so, and everybody, including the Wildlife Division, knows they do, yet no action is undertaken. But not all regulations on use rights are taken so lightly. The WD takes the ban on certain protected species, young animals or animals accompanied by young seriously, but again monitoring requires a lot of staff, which is not available. Although few people are really prosecuted in practice, the catch will be confiscated at all times in case a hunter or trader does get caught with illegal bushmeat.

Limitations of access rights, like forest and wildlife reserves and sacred groves, have the biggest impact on hunters. These limitations are troublesome for hunters who live nearby such closed areas. But they understand why they are in place and recognize them as breeding grounds for bushmeat species outside these closed areas (spill-over effect). Some hunters cannot resist the temptation to hunt in forest reserves, but considering the lack of effective monitoring from the Wildlife Division, the risks are small and thus the effect on their livelihood is limited.

The closed season from 1 August till 1 December should have a major impact on the livelihoods of hunters, because it means they cannot hunt for four months, except for grasscutters. But as almost all hunters also have a farm and the closed season coincides with

the harvest season, the impact is very limited. Most hunters don't hunt at all during this period, and many even would like to see the closed season extended with another month (December), during which they usually don't hunt either. After the closed season the catch is better, as they find the resource to some extent recovered from a year of hunting. Hunters therefore consider this regulation effective and its impact on their livelihood limited, if not positive. For traders this is another story. For wholesalers the closed season is a time of difficulty. The amount of bushmeat is reduced to a minimum and sales to direct consumers are affected, because some customers think all bushmeat is illegal during the closed season. As they do not believe that the forests are degrading, most wholesalers think this regulation is there to make life difficult for them. They prefer that the closed season is shortened by at least one month. Chopbar owners are affected as they cannot serve all their dishes, which may frustrate some clients. But grasscutters are still available, and that is the most served bushmeat species anyway. To chopbar owners the closed season means a limitation of assortment, rather than a limitation of income.

The requirement of possessing a hunting or trading licence is the main regulation on trade. This affects mostly hunters, as they need to make a good estimation of what they will hunt in the coming season. However, monitoring is difficult, and all animals killed beyond their allowance may be traded informally or consumed by the hunters themselves. What does affect hunters is the regulation that they may only trade with one wholesaler. This puts them in a vulnerable position, because they depend to a large extent on the willingness of the wholesaler to pay a fair price. However, both hunters and wholesalers generally sell to or buy from more than one person, which lessens the effects of this regulation.

The governance arrangement that is most popular among hunters and may have a big positive impact on hunters' livelihoods, does not really exist anymore. NGOs used to help hunters to set up a bushmeat farm, on which they could rear bushmeat species. This would help reduce the pressure on the forests, while making life easier for hunters, although traders remain sceptical because of a difference in taste of reared bushmeat compared to wild meat. However, it seems that all NGOs have stopped to provide the necessary (financial) help to make this happen, thus there is no impact on the bushmeat actors livelihoods anymore.

6.2 Discussion

As far as the bushmeat sector is concerned, environmental governance in Ghana remains to be hierarchical in nature. If there would be more co-governance, the hunters would have made sure to put much more effort into making bushmeat rearing work. However, in the current hierarchical setting, the governance arrangements generally require a lot of monitoring. As the Wildlife Division has too few staff and resources, they cannot monitor frequently and effectively. The hunters and traders know that this is the case and make use of that. It shows once again that there is a big difference between theory and practice.

As explained in the theoretical framework (see Section 2.2), there are different entry points for interventions in a commodity chain (Bowen-Jones, *et al.*, 2003). The effectiveness of such interventions depends on the combination of interventions at different entry points and the level of understanding of the trade from a multi-dimensional perspective (Cowlshaw, *et al.*, 2005b). In the case of the bushmeat sector in Ghana, most governance interventions are focused on the start of the commodity chain: closed areas, hunting methods, closed season, taboo days, totem species and bushmeat rearing. Only regulations on protected species have effects on other parts of the commodity chain. The difficulty of this situation is that the bushmeat trade, as most trades, is not only supply-driven, but also demand-driven. Governing the 'known' hunters, without sufficient focus on the traders, may drive traders towards the informal sector and into the arms of illegal hunters. On the other hand, it is good that the

governance arrangements are not only focused on the demand side, because then institutions would miss out on subsistence hunting. Once again, this study shows how important it is to focus on multiple entry points (both demand and supply) and have a profound understanding of the common practices at each point.

In line with most literature on the bushmeat commodity chain in other parts of Ghana, the commodity chain in the study areas of this research consists of the same five actors: commercial hunters, farmer hunters, wholesale traders, market traders and chopbar owners. It is important to stress that not all actors are evenly active in different settings. In this study area, wholesalers are only active in urban settings, while market traders of fresh bushmeat are more active in rural areas and take over the role of wholesalers. However, in contrast to existing literature on Ghana's bushmeat commodity chain, I found the difference between commercial hunters and farmer hunters as described in literature unsatisfactory, if not wrong. It is suggested that the distinction lies with the time invested in hunting, being full-time for commercial hunters and part-time for farmer hunters. In the study area of this research almost all hunters, farmer hunters and commercial hunters, have farm lands. Commercial hunters do consider their farming activities as their main job, even though they are classified as commercial hunters. A more useful and to the point distinction between the two types of hunters, would be to distinguish between hunting methods. Farmer hunters take their gun along to the farm to shoot animals they come across by chance (which is a passive hunting method), while commercial hunters go out to hunt animals actively at night. Given this distinction, I have to conclude in hindsight that I did not really interview farmer hunters in this new definition.

The sustainable livelihoods framework has been a helpful tool to analyse the livelihoods of the different actors. Without a systematic and profound way for analysis, it would be very difficult to understand why actors act the way they do. It helps to understand why some actors comply with governance arrangements, and others don't. In order to understand the effects of governance arrangements and make them effective, it has proven to be very important to pay serious attention to the vulnerability context. It shows why vulnerable actors are more affected by governance arrangements than actors who can cope with shocks and stresses.

6.3 Recommendations for policy and practice

Based on this study there are several important recommendations for policymakers. First of all, it would be wise to make a move towards co-governance. At this moment governance arrangements with regard to the bushmeat commodity chain have a hierarchical nature. Especially because the Wildlife Division has a relative shortage of staff and resources for monitoring, it would be a good idea to work together with bushmeat actors, in order to create more cooperation, which reduces the need for monitoring.

Secondly, at this moment most governance arrangements are focused on the entry points of the commodity chain. Although I am convinced that the current governance arrangements are good (if monitored properly), it would be wise to put more focus on the trading points of the chain, as the bushmeat chain is both supply-driven and demand-driven. By creating alternative livelihood options for wholesalers, one could reduce their vulnerability. When they are less dependent on bushmeat sales, they will be more tolerant towards other governance regulations that aim to make the bushmeat trade more sustainable. Proper awareness creation on the state of the natural environment may also create willingness to comply with regulations. It should be noted however, that current beliefs about the infinity of the natural resources by traders, and especially wholesalers, are rooted deeply.

Thirdly, the Wildlife Division's policy seems to be focused on maintaining a good relationship with the actors involved, in order to gain their trust and have them comply with the rules. Especially hunters and traders with a proper licence seem to be treated relatively softly when they break the rules. Fines are not always issued and prosecution seems to occur rarely. Instead illegal bushmeat is confiscated and the offender warned and educated on the existing rules. Although this approach is understandable, it might be recommended to consider whether a more strict approach would be more effective as a warning sign to other offenders.

Despite the attempts of the WD staff to maintain a good relationship, I noticed a deep mistrust of everything and everyone government-related during the interviews with wholesalers. Equally, wholesalers are often mistrusted by the general public, who think they make loads of money, and by Wildlife officers as well. By creating more trust between the different parties, mutual understanding and possibly compliance with regulations may increase.

6.4 Reflection on methodology

In this study I have mostly drawn from the results of a survey (see Appendix 2) among all five bushmeat actors. This survey was quite extensive, which provided a lot of information. The fact that it was extensive also meant that it took quite a lot of time to administer all the questions, especially with the use of a translator in between. Still, this provided no problems to any of the respondents, and they were generally happy to answer all the questions. Of course, by repeating the survey over and over again, the time it takes to ask the questions reduces substantially. Although it would have taken even less time if the translator was given full power to administer the survey on his/her own, I was pleased to be involved with every interview directly, because it allowed me to intervene when things were not clear to me or to the respondent, and it allowed me to write down extra information that respondents provided outside of the closed questions.

The questionnaire only provided quantitative data, and thus qualitative data was needed to explain the outcomes. In this regard I faced a few difficulties. First of all, I held the survey and the open group interviews on the same day, due to travel distances that did not allow for long stays in the study area. This meant not only that I had very little time for both the survey (of which some may have been administered at a too fast pace) and the group interview, but also that I had not yet processed the quantitative data at the moment that I did the open group interviews. This left me with many information gaps when analyzing the data back home. Therefore it helped a great deal that I was able to return to Ghana in August for a short period of time and do a few more open interviews and group interviews with various actors.

Secondly, as mentioned before, there was very little time to stay at the study sites. As a result I spent too little time among the actors to get more detailed information by observation. Also, I could not do as many open interviews as I would have liked. This could have been prevented by finding accommodation in the study areas and stay there for a longer period of time. This would also have allowed to earn trust from illegal hunters to express their point of view. It may also have allowed to make use of PROFOR tools (see Section 3.3), which would have allowed for a more detailed overview of livelihoods on household level and the effects of trends. However, staying for a longer time in the study areas would have been a more expensive solution and would have required permanent access to translators, which is far beyond the available budget for student research.

6.5 Recommendations for further research

The fact that I have not been able to stay for a longer period of time among the actors in the bushmeat commodity chain, or to make use of the PROFOR tools, leads directly to the recommendation to do further research into the household portfolio of the various actors. At this moment it is unclear to what extent the livelihoods described in this thesis fit to only the respondent or the whole household. In order to be able to analyse how vulnerable people are to shocks and stresses, or governance arrangements in particular, one should look at the livelihoods of the entire household. It may turn out that the husbands of wholesalers are all businessmen with big wallets, which would reduce their vulnerability to cope with shocks and stresses, considering they have access to this money.

Secondly, this study has a focus on the effects of governance arrangements on bushmeat actors' livelihoods. It does not focus in detail on the impact that forest degradation really has on the livelihoods of hunters, in particular.

Thirdly, this study has only focused on the fresh bushmeat commodity chain, but there is also a dried bushmeat commodity chain. A similar research on this chain may provide interesting insights and possibly mutual learning points.

Fourthly, the most interesting and preferred alternative livelihood option in the bushmeat sector is the rearing of bushmeat species. Until now pilot projects have not been successful. Technical research into the best practices to make bushmeat rearing viable can have a great contribution to making the bushmeat sector more sustainable and lessen the dependence of bushmeat actors on the state of the natural environment. Such a research should take consumers' preferences into account, given the claimed taste difference between wild and domesticated species.

Finally, the bushmeat sector is not static. Existing trends are likely to continue and new governance arrangements will be put into place. Continuing research on the impact of governance arrangements on the livelihoods of bushmeat actors will be essential in order to make the trade more sustainable.

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Appendices

Appendix 1: Operationalization

The following table will provide a detailed overview of indicators.³⁶

Concept	Dimension	Variable	Indicator	Information source
Livelihood	Capitals	Human capital	Quantitative labour resources <ul style="list-style-type: none"> Nr of household members Time available 	Bushmeat actors
			Qualitative labour resources <ul style="list-style-type: none"> Years of schooling Hunting / trading skills 	Bushmeat actors
		Social capital	Networks <ul style="list-style-type: none"> Nr of buyers/sellers 	Bushmeat actors
			Memberships of <ul style="list-style-type: none"> labour union professional organisation 	Bushmeat actors
			Access to wider institutions of society <ul style="list-style-type: none"> Contact with Forestry Commission/Wild life Division Contacts with NGOs 	Bushmeat actors
		Physical capital	Access to basic infrastructure <ul style="list-style-type: none"> Transport 	Bushmeat actors
			Access to hunting equipment and means	Bushmeat actors
		Financial capital	Savings	Bushmeat actors
			Credit	Bushmeat actors
		Natural capital	Land resources <ul style="list-style-type: none"> Ha of own land Ha of leased land 	Bushmeat actors
			Common pool resources <ul style="list-style-type: none"> Rules to access Distance 	Bushmeat actors

³⁶ Indicators in *italic* were initially planned, but not included in the research, because the information was difficult to obtain, not available or later found to be less important to include.



			<ul style="list-style-type: none"> • Ha. • Type of area 	
	Vulnerabilities	Shocks	<ul style="list-style-type: none"> • Nr of shocks over last 10 years • Type of shocks over last 10 years • Capitals affected • Impact of shocks (scale of 1-10) • Strategies adopted to cope 	Bushmeat actors
		Stresses	<ul style="list-style-type: none"> • Nr of stresses over last 10 years • Type of stresses over last 10 years • Capitals affected • Impact of stresses (scale of 1-10) • Strategies adopted to cope 	Bushmeat actors
Trends	Forest degradation	Forest cover	% or km2 decline	Secondary sources Min of Land, Forestry and Mines Forestry Commission
		Biodiversity richness	<ul style="list-style-type: none"> • Nr of animal species extinct • <i>Nr of plant species extinct</i> 	Secondary sources Min of Land, Forestry and Mines Forestry Commission Ministry of Environment & Science NGOs
			<ul style="list-style-type: none"> • Nr of animal species endangered • Nr of bushmeat species endangered • <i>Nr of (bushmeat-related) plant species endangered</i> 	Secondary sources Min of Land, Forestry and Mines Forestry Commission Ministry of Environment & Science NGOs
	Human impact on forests	Infrastructure	<ul style="list-style-type: none"> • <i>Nr of human settlements</i> • <i>Density of road network</i> • <i>Nr of industrial facilities and</i> 	Secondary sources Min of Land, Forestry and Mines Min of Road Transport

			<i>plants (incl. hydro-electrical plants, if relevant)</i>	
		Agricultural activities	<ul style="list-style-type: none"> • <i>No. and ha. of farms off-reserve</i> • <i>No. and ha. of admitted farms on-reserve</i> • <i>No. and ha. of illegal farms on-reserve</i> 	Secondary sources Min of Land, Forestry and Mines Min of Food and Agriculture
		Extractive activities	<ul style="list-style-type: none"> • <i>Logging</i> • <i>Mining</i> • <i>NTFPs</i> • <i>Groundwater extraction</i> 	Secondary Sources Min of Land, Forestry and Mines
		Tourism/recreation	<ul style="list-style-type: none"> • <i>Nr of visitors</i> • <i>Types of activities</i> • <i>Months / season in which it occurs</i> 	Secondary sources Min of Land, Forestry and Mines Ministry of Tourism & Modernization of the Capital City
	Overexploitation	Wild animals	<ul style="list-style-type: none"> • Decline in population of targeted species (attributed to hunting) 	Forestry Commission Bushmeat actors
	Conservation	Conservation schemes in place	<ul style="list-style-type: none"> • Nr • Type 	Secondary sources Min of Land, Forestry and Mines Forestry Commission NGOs
		Civil society activity	<ul style="list-style-type: none"> • Nr of conservation NGOs active 	Observations NGOs Bushmeat actors
			<ul style="list-style-type: none"> • Nr of awareness campaigns • Type of awareness (on hunting, eating bushmeat, environmentally friendly behaviour in general) 	Observations NGOs Bushmeat actors Forestry Commission
	Market changes (bushmeat, fish, hunting gear, transportation)	Supply	<ul style="list-style-type: none"> • Changes over time 	Bushmeat actors (perceptions)
		Demand	<ul style="list-style-type: none"> • Changes over time 	Bushmeat actors (perceptions)
		Costs	<ul style="list-style-type: none"> • Changes over time 	Bushmeat actors

				(perceptions)
		Benefits	<ul style="list-style-type: none"> • Changes over time 	Bushmeat actors (perceptions)
Governance arrangements	Regulations and institutions	Access rights (statutory and customary)	<ul style="list-style-type: none"> • Who has access to certain areas? • Who determines access? • What type of areas are accessible (on/off-reserve)? • Illegal access 	Secondary sources Min of Land, Forestry and Mines Forestry Commission Bushmeat actors
		Hunting rights (statutory and customary)	<ul style="list-style-type: none"> • Who are entitled to hunt? • Who determines who has the right to hunt? • Where is one allowed to hunt (on/off-reserve)? • What hunting methods are allowed? • What are the hunting seasons? • What species can be hunted? • Illegal hunting 	Secondary sources Min of Land, Forestry and Mines Forestry Commission Bushmeat actors
	Pressure to change behaviour	Incentives to change behaviour	<ul style="list-style-type: none"> • Nr of incentives • Type of incentives (incl. benefits, and beneficiaries) • Familiarity with incentives • % adoption of incentives • Effectiveness 	Min of Land, Forestry and Mines Forestry Commission Bushmeat actors
		Awareness of regulations	<ul style="list-style-type: none"> • Nr of programmes • Types of programmes • Familiarity with programmes • Effectiveness 	Forestry Commission NGOs Bushmeat actors
	Structure	Actors	<ul style="list-style-type: none"> • What trading actors are present? • What trade institutions are present (e.g. unions, market queen, trading organisations)? 	Bushmeat actors

		Length	<ul style="list-style-type: none"> • Nr of actors between hunter and consumer • Type of actors between hunter and consumer (pathway) 	Bushmeat actors
	Power and trading relationships	Dependency	<ul style="list-style-type: none"> • Nr of clients (buyers and sellers) 	Bushmeat actors
		Trading relationship	<ul style="list-style-type: none"> • Exclusive selling/buying rights 	Bushmeat actors

Appendix 2: Bushmeat actors survey

	The impact of governance arrangements on the livelihoods of bushmeat actors in Ghana's High Forest Zone		
	University of Amsterdam, Kwame Nkrumah University of Science & Technology and Tropenbos International Ghana		
QUESTIONNAIRE BUSHMEAT ACTORS			
Interview No.		Place	
Date		Village/City	
Time		Region	

Introduction: [to be read to respondent]

I am a student carrying out a research on forest-related livelihoods in Ghana, more in particular on the bushmeat trade. This research is supported by Tropenbos International, Kwame Nkrumah University of Science & Technology (KNUST) and the University of Amsterdam. This study is trying to determine how governance arrangements affect the livelihoods of actors in the bushmeat commodity chain.

I would like to ask you some questions related to the bushmeat trade, regulations and also your personal background. Your answers will be treated anonymously, meaning that nobody will know what answers you personally gave.

You are very welcome to ask any questions during and after the interview.

Section A: BIODATA

No.	Question	Code	Answer	Code	Answer
1	Sex	1	Male	2	Female
2	Age	Num		99	Not answered
3	Educational level	1	Primary	5	None
		2	JHS / MSLC	6	Other: ...
		3	SHS		
		4	Informal education	99	Not answered
4	Origin	1	Native/indigenous [→9]	99	Not answered [→9]
		2	Migrant [→5]		
→5	Village of origin	String		99	Not answered
→6	District of origin	String		99	Not answered
→7	Region of origin	String		99	Not answered
→8	No. of years in this village	String		99	Not answered
9	Marital status	1	Single	4	Widowed
		2	Married	5	Separated
		3	Divorced	99	Not answered
10	Household type	1	Nucleus	99	Not answered
		2	Extended		
11	Household size (total)	Num		99	Not answered
12	No. of adults	Num		99	Not answered

13	No. of children	Num		99	Not answered
14	Religion	1	Christian	4	Other: ...
		2	Muslim	5	None
		3	Animist (traditional)	99	Not answered

Section B: LIVELIHOODS OF BUSHMEAT ACTORS

No.	Question	Code	Answer	Code	Answer
15	Actor type	1	Commercial hunter	5	Chopbar owner
		2	Farmer hunter	6	Other: ...
		3	Wholesaler		
		4	Market trader	99	Not answered
16	Occupation father/mother <i>[depending on sex interviewee]</i>	1	Same	4	Different: ...
		2	Different: agriculture		
		3	Different: trade	99	Not answered
17	Years active in this profession	Num		99	Not answered
18	Membership of union (if yes, which union?)	1	Yes, ...		
		2	No	99	Not answered
19	Membership of association (if yes, which ass.?)	1	Yes, ...		
		2	No	99	Not answered
20	Contact with WD	Numper wk-month-year	99	Not answered [\rightarrow 22]
21	Reason of contact	1	Obtaining permit	3	Legal issues
		2	Problems to discuss	99	Not answered

[Hunters – only for commercial and farmer hunters] [OTHER ACTORS \rightarrow 42]

No.	Question	Code	Answer	Code	Answer
22	Type of hunting <i>[multiple answers are possible]</i>	1	Gun	5	Clubs
		2	Trap	6	Other: ...
		3	Snare		
		4	Dog(s)	99	Not answered
23	Type of hunting 10-15 years ago <i>[multiple answers are possible]</i>	1	Gun	5	Clubs
		2	Trap	6	Other: ...
		3	Snare		
		4	Dog(s)	99	Not answered
24	No. of traps	Num		99	Not answered
25	No. of snares	Num		99	Not answered
26	No. of dogs	Num		99	Not answered
27	Do you use lures/bait? (what, for which type?)	1	Yes, ...		
		2	No	99	Not answered
28	Equipment cost	Num		99	Not answered
29	Do you have a hunting permit?	1	Yes	3	Not needed
		2	No	99	Not answered
30	Permit cost	Num		99	Not answered
31	When do you hunt?	1	All year round	3	Other: ...
		2	2 December – 31	99	Not answered

			July		
32	Hunting area <i>[multiple answers are possible]</i>	1	Forest Reserve <i>[→33]</i>	4	Privately owned land <i>[→34]</i>
		2	Wildlife Reserve <i>[→33]</i>		
		3	Off-reserve <i>[→34]</i>	99	Not answered <i>[→34]</i>
→33	<i>Specify reserve</i>	<i>String</i>		99	<i>Not answered</i>
34	Nr. of successful hunting trips out of 5	Num		99	Not answered
35	Level of degradation of hunting area (scale 1-5)	Num		99	Not answered
36	Impact of degradation of hunting area (scale 1-5)	Num		99	Not answered
37	Distance to hunting area	1	< 5 km (< 3 mile)	4	20 – 30 km (12 - 18 mile)
		2	5 – 10 km (3 – 6 mile)	5	> 30 km (> 18 mile)
		3	10 – 20 km (6 – 12 mile)	99	Not answered
38	Mode of transport	1	Walking	4	Taxi
		2	Bicycle	5	Tro-tro
		3	Bike/car	99	Not answered
39	Access to transport	1	Own	4	Lift for free
		2	Rent	5	Lift for payment
		3	Share	99	Not answered
40	Hunting time	1	Day	3	Both: it depends
		2	Night	99	Not answered
41	Hunting hours (<i>from – to</i>)	String		99	Not answered
41b	No. of hunting days / wk	Num		99	Not answered

[All bushmeat actors]

42	Species hunted/traded	Num	[SEE APPENDIX]	99	Not answered
43	Trade within chain	Num	[SEE APPENDIX]	99	Not answered
44a	Average daily income <i>[OR weekly/monthly income: →44b/c]</i>	1	< 5 cedi	4	15 – 20 cedi
		2	5 – 10 cedi	5	>20 cedi
		3	10 – 15 cedi	99	Not answered
→44b	Average weekly income	1	< 35 cedi	4	100 – 140 cedi
		2	35 – 70 cedi	5	> 140 cedi
		3	70 – 100 cedi	99	Not answered
→44c	Average monthly income	1	< 150 cedi	4	450 – 600 cedi
		2	150 – 300 cedi	5	> 600 cedi
		3	300 – 450 cedi	99	Not answered
45	% non-bushmeat income	Num		99	Not answered

46	Savings	1	Yes	99	Not answered
		2	No		
47	Indebtedness	1	Yes	99	Not answered
		2	No		
48	Ha. of own or leased land	Num		99	Not answered
49	Shocks		[SEE APPENDIX]	99	Not answered
50	Stresses		[SEE APPENDIX]	99	Not answered
51	Awareness		[SEE APPENDIX]	99	Not answered
52	Propositions		[SEE APPENDIX]	99	Not answered

Appendix – QUESTIONNAIRE BUSHMEAT ACTORS

Question 42: Species hunted and traded [*H=Hunters, T=Traders (wholesalers and market traders), C=Chopbars*]

Code	Species	Twi name	Quantity allowed [H]	Quantity hunted [H-T-C]	Origin (on/off-reserve) [H]	Supplier [T-C]	Buyer [H-T]	Price	
								Bought [T-C]	Sold [H-T-C]
1	Bongo	Tromu							
2	Bush Buck	Wasane							
3	Yellow-backed Duiker	Okwadio							
4	Ogilby's Duiker	Dabohene							
5	Bay Duiker	Odabo							
6	Black Duiker	Owiou							
7	Maxwell Duiker	Otwe							
8	Royal Antelope	Adowa							
9	Water Chevrotain	Aberetwi							
10	Giant Forest Hog	Ebiye							
11	Red River Hog	Kokote							
12	Chimpanzee	Akatia							
13	Red Colobus	Ebene							
14	Black and White Colobus	Efoo							

46	Casqued Hornbills	Akyinkyina							
47	Crested Hawk Eagle	Akroma							
48	Palm Nut Vulture	Pete							
49	Red Patas Monkey	Asabara							
50	Baboon	Kontranfi							
51	Bushbaby	Aprekesima							

Question 43: Trade [** only for wholesalers, market traders and chopbar owners*]

	% of catch bought from*	% of catch sold to	No. of people you buy from	No. of people you sell to	Exclusive trading rights?	Provision of loans/equipment
Commercial hunters		XXXXXXXXXX		XXXXXXXXXX		
Farmer hunters		XXXXXXXXXX		XXXXXXXXXX		
Wholesalers						
Market traders						
Chopbars						
Direct consumers	XXXXXXXXXX		XXXXXXXXXX		XXXXXXXXXX	XXXXXXXXXX
Own consumption	XXXXXXXXXX		XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX

Question 49: Shocks

Shocks	Freq.	Capitals affected <i>1=Human, 2=Social, 3=Physical, 4=Financial, 5=Natural</i>	Impact <i>(scale 1 – 5)*</i>	Coping strategies <i>1=stint, 2=hoard, 3=protect, 4=deplete, 5=diversify, 6=claim, 7=move**</i>
Flood				
Drought				
Forest fires				
Animal diseases				
Bushmeat market collapse				
Theft of equipment (snares/cages)				
Destroyed by officials				

* *1=very little; 2=moderate; 3=moderate; 4=substantial; 5=severe*

** *stint = beperken, hoard = oppotten*

Question 50: Stresses

Stresses	Freq.	Capitals affected <i>1=Human, 2=Social, 3=Physical, 4=Financial, 5=Natural</i>	Impact (scale 1 – 5)*	Coping strategies <i>1=stint, 2=hoard, 3=protect, 4=deplete, 5=diversify, 6=claim, 7=move**</i>
Increasing human activity	XX			
Declining forest area	XX			
Declining species numbers	XX			
Declining profit margins	XX			
Increasing transportation costs	XX			
Consumption pattern	XX			

* *1=very little; 2=little; 3=moderate; 4=substantial; 5=severe*

** *stint = beperken; hoard = oppotten*

Question 51: Awareness

	Known	Adopted*	Effectiveness (scale 1-5)**
Awareness campaign 1: closed season			
Awareness campaign 2: education on protected species			
Awareness campaign 3: bushmeat rearing			

* In case of awareness campaigns: change in own behaviour (yes or no)

** Overall effectiveness, not individual effectiveness (*1=none at all; 2=little; 3=moderate; 4=substantial; 5=severe*)

Question 52: Propositions

No.	Proposition	Totally disagree	Partially disagree	Don't know	Partially agree	Totally agree	Not answered
1	Bushmeat supply has decreased drastically over the last 20 years						
2	There are only small animals left in the forest						
3	The quality of bushmeat has decreased substantially over the last 20 years						
4	People don't want to buy bushmeat anymore						
5	People like bushmeat more than fish						
6	The expenses of bushmeat trade are getting too high						
7	Bushmeat trade gives high profits						

8	There are many fake hunting/trade licences being used								
9	There is no monitoring of illegal hunting in Wildlife Reserves								
10	Wholesalers are controlling the entire chain								
11	Awareness programmes are undermining the bushmeat trade								
12	I often come into trouble with the regulations								
	<i>[Only for hunters and traders]</i>								
13 HT	It is easy to get a hunting/trading licence								
15 HT	It is easy to trade in protected animals for bushmeat								
	<i>[Only for hunters:]</i>								
9 H	There is no monitoring of illegal hunting in Wildlife Reserves								
14 H	There are no areas left to hunt								
15 H	It is easy to trade in protected animals for bushmeat								
16 H	When I get to know that someone has hunted in a protected area or has hunted on protected species, I will report him at the Wildlife Division or police								
17 H	If I catch an illegal hunter and confiscate his catch, I will keep the catch myself								
18 H	In five years time I will be rearing bushmeat								

Appendix 3: List of bushmeat species in Ghana

English	Twi	Latin	Status
African Civet	Kankane	<i>Civettictis civetta</i>	LC – U
African Clawless Otter	Nsubodom / Sutwia	<i>Aonyx capensis</i>	LC – S
African Green Pigeon	Abroma / Aboanto	<i>Treron calvus</i>	LC
African Grey Parrot	Ekoo	<i>Psittacus erithacus</i>	NT – D
African Helmeted Turtle	Suprupu	<i>Pelonedusa subrufa</i>	LC
African Pied Hornbill	Akyinkyina	<i>Tockus fasciatus</i>	LC
African Python	Oninin / Nnini	<i>Python sebae</i>	
Baboon	Kontranfi	<i>Papio anubis</i>	LC – I
Bay Duiker	Odabo / Abedee	<i>Cephalophus dorsalis</i>	LC – D
Beecroft's Flying Squirrel / Beecroft's Scaly-tailed Squirrel / Beecroft's Anomalure	Ohapenku	<i>Anomalurus beecrofti</i>	LC – U
Black and White Colobus	Efoo	<i>Colobus vellerosus</i>	VU – U
Black Duiker	Oyuo	<i>Cephalophus niger</i>	LC – D
Black Kite	Sansaa	<i>Milvus migrans parasitus</i>	LC
Black-casqued Hornbill	Owam	<i>Ceratogymna atrata</i>	LC
Blue-spotted Wood Dove	Abuburo	<i>Turtur afer</i>	LC
Bongo	Tromo	<i>Tragelaphus euryceros</i>	NT – D
Bosman's Potto	Aposo / Nkitaden	<i>Perodicticus potto</i>	LC – S
Broad-fronted (/ Dwarf) Crocodile	Kyekye	<i>Osteolaemus tetraspis</i>	VU
Brush-tailed Porcupine	Apese	<i>Atherurus africanus</i>	LC – U
Buff-throated Sunbird	Aserewa	<i>Nectarinia adelberti</i>	LC
Bushbuck	Wansane	<i>Tragelaphus scriptus</i>	LC – S
Calabar Ground Python	Nkrana	<i>Charina reinhardtii</i>	
Chimpanzee	Akaatia	<i>Pan troglodytes</i>	EN – D
Common Bulbul	Apatupre	<i>Pycnonotus barbatus</i>	LC
Crested Guinea Fowl	Asam	<i>Guttera pucherani</i>	LC
Crested Hawk Eagle	Akroma	<i>Lophaetus occipitalis</i>	LC
Crested Porcupine	Kotoko	<i>Hystrix cristata</i>	LC
Crowned Hawk Eagle	Okore / Okodee	<i>Stephanoaetus coronatus</i>	LC
Cusimanse	Ahwea	<i>Crossarchus obscurus</i>	LC – U
Demidoff's Galago (Bushbaby)	Aprenkensima	<i>Galagoides demidoff</i>	LC – S
Diana Monkey	Boapia	<i>Cercopithecus diana</i>	VU – D
Fire-bellied Woodpecker	Abobomodur / Abo	<i>Thripias pyrrhogaster</i>	LC
Fire-footed Rope Squirrel	Apetebie	<i>Funisciurus pyrropus</i>	LC – S

Forest Buffalo	Ekuo	<i>Syncerus caffer nanus</i>	LC – D
Forest Cobra	Premire / Orotobir	<i>Naja melanoleuca</i>	
Forest Elephant	Osono	<i>Loxodonta africana cyclotis</i>	VU - I
Forest Genet	Animifa	<i>Genetta maculata</i>	LC – U
Gaboon Viper	Nanka	<i>Bitis gabonica</i>	
Giant (Pouched) Rats	Kusie	<i>Cricetomys gambianus</i>	LC – S
Giant Forest Hog	Ebie	<i>Hylochoerus meinertzhageni</i>	LC – D
Giant Forest Squirrel	Kukuban	<i>Protoxerus stangeri</i>	LC – U
Giant Ground Pangolin	Opra	<i>Smutsia gigantea</i>	NT - D
Gray's Malimbe	Akyem police	<i>Malimbus nitens</i>	LC
Great Blue Turaco	Kokokyinaka / Brobe	<i>Corythaeola cristata</i>	LC
Greater Cane Rat / Grasscutter	Akrantie	<i>Thryonomys swinderianus</i>	LC – U
Green Hylia	Sesere	<i>Hylia prasina</i>	LC
Green Turaco	Afre / Afro	<i>Tauraco persa</i>	LC
Grey-backed Camaroptera	Agyegyemerewa	<i>Camaroptera brachyura</i>	LC
Honey Badger	Kwabrefo / Sisi	<i>Mellivora capensis</i>	LC – D
Leopard	Osebo	<i>Panthera pardus</i>	NT – D
Lesser Spot-nosed Monkey	Ahwenhema	<i>Cercopithecus petaurista</i>	LC – U
Little Greenbul	Dotonuma	<i>Andropadus virens</i>	LC
Long-tailed Pangolin	Aprawabene	<i>Uromanis tetradactyla</i>	LC – D
Marsh Mongoose	Dompo	<i>Atilax paludinosus</i>	LC – D
Maxwell Duiker	Otwe	<i>Cephalophus maxwelli</i>	LC – D
Mona Monkey (Lowe's Monkey)	Okwakuo	<i>Cercopithecus mona / C. lowei</i>	LC – U
Naked-faced Barbet	Ansee / Assin	<i>Gymnobucco calvus</i>	LC
Nile Crocodile	Denkyem / Odenkyem	<i>Crocodylus niloticus</i>	LR/LC
Nile Monitor	Mampam	<i>Varanus niloticus</i>	LC
Ogilby's Duiker	Dabohene	<i>Cephalophus ogilbyi</i>	LC – D
Olive Colobus	Asibe	<i>Procolobus verus</i>	NT – U
Palm Nut Vulture	Pete	<i>Gypohierax angolensis</i>	LC
Pel's Flying Squirrel / Pel's Anomalure	Ohan / Ohafoo	<i>Anomalurus pelii</i>	DD – U
Pygmy Scaly-tailed Flying Squirrel	Ohatwitwiriw	<i>Idiurus zenkeri</i>	LC – U
Red Colobus	Ebene	<i>Procolobus badius</i>	EN – D
Red Duiker	Kabonkye	<i>Cephalophus natalensis</i>	LC – D
Red Patas Monkey	Asabara	<i>Erythrocebus patas</i>	LC – D
Red River Hog	Kokote	<i>Potamochoerus porcus</i>	LC – D
Red-flanked Duiker	Asebee	<i>Cephalophus rufilatus</i>	LC – D

Red-legged Sun Squirrel	Srebene	<i>Heliosciurus rufobrachium</i>	LC – U
Rhynoceros Viper	Nanka	<i>Bitis nasicornis</i>	LC
Royal Antelope	Adowa	<i>Neotragus pygmaeus</i>	LC – D
Royal Python	Bonaa	<i>Python regius</i>	
Senegal Coucal	Obrekua	<i>Centropus senegalensis</i>	LC
Serrated Hinge-backed Tortoise	Bomfa	<i>Kinixys erosa</i>	DD
Shining Drongo	Koodubin / Kutukutu	<i>Dicrurus atripennis</i>	LC
Slender Mongoose	Kokobo	<i>Herpestes sanguineus</i>	LC – S
Slender-billed Greenbul	Podee	<i>Andropadus gracilirostris</i>	LC
Smyth's (African) Water Snake	Nsuwo	<i>Grayia smythii</i>	
Spotted-necked Otter		<i>Lutra (/Hydriactis) maculicollis</i>	LC – D
Stone Partridge	Aboko	<i>Ptilopachus petrosus</i>	LC
Striped Ground Squirrel	Amokua	<i>Xerus erythropus</i>	LC – S
Tambourine Dove	Abuburo	<i>Turtur tympanistria</i>	LC
Tortoises	Akyekyedee	<i>Pelusios</i>	
Tree Hyrax	Owea	<i>Dendrohyrax dorsalis</i>	LC – U
Tree Pangolins	Aprawa	<i>Phataginus tricuspis</i>	NT – D
Twig Snake / Bird Snake	Kumbofoo	<i>Thelotornis kirtlandii</i>	
Two-spotted Palm Civet	Aberebee	<i>Nandinia binotata</i>	LC – U
Village Weaver	Akyem	<i>Ploceus cucullatus</i>	LC
Water Chevrotain	Aberetwi	<i>Hyemoschus aquaticus</i>	LC – D
West-African Mud Turtle	Sudanda	<i>Pelusios castaneus</i>	
Western (Grey) Plantain Eater	Ogoo	<i>Crinifer piscator</i>	LC
Western Bush Viper	Dahoo	<i>Atheris chlorechis</i>	
Western Green Mamba	Okyereben	<i>Dendoaspis viridis</i>	LC
Western Palm Squirrel	Opuro	<i>Epixerus ebii</i>	LC – U
White Crested Hornbill	Osokwa	<i>Tropicranus albocristatus</i>	LC
White-breasted Guinea Fowl	Akonfem	<i>Agelastes meleagrides</i>	VU – D
White-naped (/ Sooty) Mangabey	Kraku / Eku	<i>Cercocebus atys</i>	VU – D
White-throated Francolin	Akukohwedee	<i>Francolinus albogularis</i>	LC
Yellow-backed Duiker	Okwadio	<i>Cephalophus silvicultor</i>	LC – D
Yellow-billed Barbet	Apididonko	<i>Trachyphonus purpuratus</i>	LC

IUCN Status (05 April 2010): LC (Least Concern), LR (Lower Risk), NT (Near-Threatened), VU (Vulnerable), EN (Endangered), DD (Data Deficient)

Population trend: D (Decreasing), S (Stable), I (Increasing), U (Unknown)

Appendix 4: Protected animals

Sources:³⁷

L.I. 685 – Wildlife Conservation Regulations, 1971

L.I. 1284 – Wildlife Conservation (Amendment) Regulations, 1983

L.I. 1357 – Wildlife Conservation (Amendment) Regulations, 1988

L.I. 1452 – Wildlife Conservation (Amendment) Regulations, 1989

FIRST SCHEDULE

ANIMALS COMPLETELY PROTECTED

The hunting, capturing or destroying of any species listed in this schedule is absolutely prohibited at all time.

SERIES A – MAMMAL	SCIENTIFIC NAME
Primata:	
Chimpanzee	Pan troglodytes
Black and White	Colobus polykomos
Olive colobus	Colobus verus
Red colobus	Colobus badius
Diana monkey	Cercopithecus diana
Bosman's potto	Perodicticus potto
Bush baby	Galago senegalensis
	Galagoides demidovi
Philidota:	
Giant pangolin	Manis gigantean
Long tailed	Manis tetradactyla
Tree pangolin	Manis tricuspis
Tubulidentata:	
Aardvark	Crycteropus afer
Sirenia:	
Manatee	Trichechus senegalensis
Carnivora:	
Lion	Panthera leo

³⁷ http://www.fcghana.com/publications/laws/wildlife_laws/li_685/index.html (accessed on 5 February 2010)

Leopard	Panthera pardus
Cheetah	Acinonyx jubatus
Rate; or Honey Badger	Mellivora capensis
Clawless otter	Anonyx capensis
Golden cat	Profelis aurata
Lynx	Felis caracal
Serval	Felis serval
African civet	Felis civetta
Two spotted palm civet	Nandinia binotata
Forest genet	Genetta maculata
Wild cat	Felis libyca
Side striped jackal	Canis adustus
Proboscidea:	
Elephant	Loxodonta africana
Rodentia:	
Palm squirrels	Expixerus ebii
Artiodactyla:	
Hippopotamus	Hippopotamus amphibious
Pygmy hippopotamus	Cheropsis libriensis
Senegal hartebeest	Damaliscus lunatus
Sitatunga	Tragelephas spekei
Eland	Taurotragus derbianus
Water chevrontain	Hyyamoshcus aquaticus
Bongo	Boocercus eucrycerus
Roan antelope	Hippopotamus
Giant forest hog	Hylochoerus meinertxhgeni
Reed buck	Redunca redunca
Red-fronted gazelle	Gazella rufifrons
Yellow-backed duiker	Cephallophus silvicultor
SERIES B – REPTILES	SCIENTIFIC NAME
Crocodile:	
Nile crocodile	Crocodilus niloticus
Long snouted crocodile	Crocodiles cataphratus

Broad fronted crocodile	Osteolaemus tetraspis
Lacertilia:	
Nile monitor	Veranus niloticus
Chelonia: all marine turtle	
Hawksbill turtle	Eretmochelys imbricate
Green or Edible turtle	Chelonia mydas
Leathery turtle	Dermochelys coriacea
SERIES C – BIRDS	SCIENTIFIC NAME
All birds of prey including:	
Falcons, kites, hawks	Falconidae
Eagles, buzzards, kestrels	
Etc	
Owls	Tytonidae and Strigidae
Egrets:	
Great white egret	Casmarodius albus
Little egret	Egretta garzetta
Cattle egret	Bubulcus ibis
Sagittariidae:	
Secretary bird	Sagittarius serpentarius
Ciconiidea (storks):	
Marabou	Leptoptilos crumeniferus
Jabiru or saddle-bill	Ephippiorynchus
	Senegalensis
Sacred ibis	Threskiornis aethiopicus
Hadada	Hagedashia hagedash
Spotted breasted ibis	Lamprbis rara
Goliath heron	Typhon goliath
Balearicidea (cranes):	
Crowned crane	Balearica pavonina

Phasianidae (Game birds):	
White breasted	
Guinea fowl	Agelastes meleagrides
Picathartidae:	
Bare headed rock fowl	Picathartes gymnocephalus
Sterninae:	
All terns	

SECOND SCHEDULE

The hunting, capturing or destroying of any species listed in the schedule is absolutely prohibited between 1st August and 1st December in any year. The hunting, capturing or destroying of any young or adult accompanied by its young of any species listed in this schedule is absolutely prohibited at all times.

SERIES A – MAMMALS	SCIENTIFIC NAME
Primata:	
White colored mangabey	Cerocebus torquatus
Mona monkey	Cercopithecus mona
Spot nosed monkey	Cercopithecus petaurista
Green monkey	Cercopithecus aethiops
Patas monkey	Erythrocebus patas
Carnivora:	
Bush genet	Genetta tigrina
Gambian mongoose	Mungos gambianus
Cusimanse	(long nose mongoose)
	Mungos obscurus
Dwarf mongoose	Herpestes sanguinus
Marsh mongoose	Atilax paludinosus
White tailed mongoose	Ichenumia albicaudaS
Egyptian mongoose	Herpestes ichneumon
Spotted hyena	Crocuta crocuta
Hunting dog	Lycaon Pictus
Lagomorpha:	

Togo hare	Lepus capensis
Rodentia:	
Creste porcupine	Hystrix sp.
Brush tailed porcupine	Artherurus africanus
Pel's flying squirrel	Animalurus peli
Flying squirrel	Animalurus spp.
Pygmy flying squirrel	Idiurus spp.
Hyracoidea:	
Tree bear	Dendrohyrax arboreus
Rock hyrax	Procavia capensis
Artiodactyla:	
Warthog	Phacochoerus aethiopicus
Red River hog (bush dog)	Potamochoerus porcus
Bush buck	Tragelaphus scriptus
Buffalo	Syncerus caffer
Western hartebeest	Alcelaphus bucelaphus
Waterbuck	Kobus defassa
Kob	Kobus kob
Oribi	Ourebia ourebi
Royal antelope	Neotragus pgmaeus
Black duiker	Cephalophus niger
Bay duiker	Cephalophus dorsalis
Red flanked duiker	Cephalophus rufitatus
Red duiker	Cephalophus natalensis
Maxwell's duiker	Cephalophus maxwelli
Gray duiker	Sylvicapra grimmia
SERIES B – REPTILES	SCIENTIFIC NAME
Ophidia:	
African python	Python sabae
Royal python	Python regia
Chelonia:	
Bell's hinged tortoise	Kinixys belliana

Common hinged tortoise	Kinixys sp.
Gaboon terrapin	Pelusios sp.
Marsh terrpin	Polemedusa subrufa
Soft shelled turtle	Trionyx triunguis
Laracetilla:	
Bosc's Monitor	Vearanus exanthematicus
SERIES C – BIRDS	SCIENTIFIC NAME
Psittacidae:	All parrots
Columbidae:	All doves and pigeos
Musophagidae:	All touracos and plaintain eaters
Ploceidae:	All weavers, waxbills, man-nikins, bishop bird, fire finches, cordonsbleus, whydahs and canaries

THIRD SCHEDULE

The hunting, capturing or destroying of any species listed in this schedule is absolutely prohibited between 1st August and 1st December in any year.

SERIES A – MAMMALS	SCIENTIFIC NAME
Primata:	
Baboon	Papio anubis
Erinaceidae:	
Hedgehogs	Atelerix sp.
	Erinaceus sp.
	Paraechinus sp.
Rodentia:	
Tree squirrels	Helioscricurus sp.
	Funisciurus sp.
	Protoxerus stangeri
Ground squirrels	Xerus sp.
Giant rat (pouched rat)	Cricetomys gambianus

SERIES B – BIRDS	SCIENTIFIC NAME
Phasianidae:	
All francolins (bush fowl)	Fancolinus sp.
Stone partridge	(stone bantam)
	Ptilopacus petrosus
Quails	Coturnix sp.
All Guinea – fowls	Numida meleagris
	Guttera sp.
Otididae:	
All bustards	Ardeotis arabs
	Neotis denhami
	Eupodotis melanogaster
Anatidae:	
Hartlaubs's duck	Pteronetta hartlaubii
White faced duck	(wishiwishi)
	Dendrocygna viduata
Fulvous duck	?Dendrocygna fulva – <i>Dendrocygna bicolor</i>
Pygmy goodr	Nettapus auritus
Knob billed goose	Sarkidiornis melanotos
Egyptian goose	Alopochen aegytiacus
Spur winged goose	Plectropeterus
	Gambensis
SERIES C – OTHER ANIMALS	SCIENTIFIC NAME
All other species, other than grasscutter (Thryonomys swinderrianus), not specified in the First, Second and this Schedule.	