

Beasts on Fields. Human-Wildlife Conflicts in Nature-Culture Borderlands

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Academic dissertation

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Abstract

Human-wildlife conflicts are today an integral part of the rural development discourse. In this research, the main focus is on the spatial explanation of these conflicts which is not a very common approach in the reviewed literature. My research hypothesis is based on the assumption that human-wildlife conflicts occur when a wild animal crosses a perceived borderline between the nature and culture and enters into the realms of the other. The borderline between nature and culture marks a perceived division of spatial content in our senses of place. The animal subject that crosses this border becomes a subject out of place meaning that the animal is then spatially located in a space where it should not be or where it does not belong according to tradition, custom, rules, law, public opinion, prevailing discourse or some other criteria set by human beings. An appearance of a wild animal in a domesticated space brings an uncontrolled subject into that space where humans have previously commanded total control of all other natural elements. A wild animal out of place may also threaten the biosecurity of the place in question.

I carried out a case study in the Liwale district in south-eastern Tanzania to test my hypothesis during June and July 2002. I also collected documents and carried out interviews in Dar es Salaam in 2003. I studied the human-wildlife conflicts in six rural villages, where a total of 183 persons participated in the village meetings. My research methods included semi-structured interviews, participatory mapping, questionnaire survey and Q- methodology.

The rural communities in the Liwale district have a long-history of co-existing with wildlife and they still have traditional knowledge of wildlife management and hunting. Wildlife conservation through the establishment of game reserves during the colonial era still affects the human-wildlife conflicts in the Liwale district today. This study shows that the villagers perceive some wild animals differently in their images of the African countryside than the district and regional level civil servants do. From the small scale subsistence farmers' point of views, wild animals continue to challenge the separation of the wild (the forests) and the domestic spaces (the cultivated fields) by moving across the perceived borders in search of food and shelter. As a result, the farmers may lose their crops, livestock or even their own lives in the confrontations of wild animals. Human-wildlife conflicts in the Liwale district are manifold and cannot be explained simply on the basis of attitudes or perceived images of landscapes. However, the spatial explanation of these conflicts provides us some more understanding of why human-wildlife conflicts are so widely found in Tanzania and across the world.

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Abstract in Finnish / suomenkielinen tiivistelmä

Ihmisten ja villieläinten väliset ristiriidat ovat olennainen osa maaseudun kehityksen diskurssia. Tutkimus pyrkii selittämään näitä ristiriitoja spatiaalisesti osana kulttuurin ja luonnon välistä rajankäyntiä. Ihmisten ja villieläinten välisten ristiriitojen tutkiminen spatiaalisesta näkökulmasta pyrkii lisäämään tämän vähän tutkitun lähestymistavan merkitystä ristiriitojen ratkaisemisessa. Tutkimushypoteesinani on olettaa, että ihmisten ja villieläinten väliset ristiriidat saavat alkunsa, kun villieläin ylittää ihmisten mieltämän rajalinjan luonnon ja kulttuurin välillä ja siirtyy ihmisen kontrolloimalle alueelle. Ihmisten määrittämä luonnon ja kulttuurin välinen rajalinja jakaa kahden erilliseksi koetun tilan väliset spatiaaliset sisällöt ja niihin liitetyt merkitykset. Ihmiset kokevat villieläimen siirtyvän pois *luonnollisesta* ympäristöstään, kun se ylittää tämän rajalinjan. Villieläimen läsnäolo ihmisten hallitsemassa ja kontrolloimassa tilassa rikkoo siellä vallinneen perinteisiin, sääntöihin, lakiin, julkiseen mielipiteeseen, vallitsevaan diskurssiin tai muihin ihmisten määrittämiin kriteereihin perustuvan järjestyksen. Villieläin edustaa subjektia, johon ihmisellä ei ole täydellistä kontrollia. Ilmaantuessaan ihmisten muokkaamaan kulttuuriympäristöön, jossa pyrkimyksenä on hallita kaikkia luonnon elementtejä, villieläin voi aiheuttaa läsnäolollaan myös bioturvallisuusriskin.

Toteutin tapaustutkimuksen Liwalen piirikunnassa kaakkois-Tansaniassa kesä-heinäkuussa 2002. Tämän lisäksi keräsin lähteitä ja tein haastatteluja Dar es Salaamissa vuonna 2003. Tutkin ihmisten ja villieläimien välisiä ristiriitoja kuudessa maaseutukylässä, joissa tutkimukseen osallistui yhteensä 183 henkilöä. Käyttämiäni tutkimusmetodeja olivat puolistrukturoidut haastattelut, osallistava kartoitus, lomakekysely ja Q-metodi.

Liwalen piirikunnan kyläyhteisöt ovat pitkään asuneet rinnan villieläimien kanssa, jonka vuoksi heillä on runsaasti perinnetietoa villieläinhallinnasta ja metsästyksestä. Kolonialismin aikana käynnistyneet villieläinten suojeluhankkeet ja perustetut riistansuojelualueet vaikuttavat vielä nykyisinkin ihmisten ja villieläinten välisten ristiriitojen taustalla. Tutkimus osoittaa, että kyläläiset mieltävät joidenkin villieläinten läsnäolon osana afrikkalaisen maaseudun mielikuvaansa eri tavalla kuin piirikunta- ja aluehallinnon virkamiehet. Pienviljelijöiden näkökulmasta villieläimet ylittävät alituisesti villin (metsät) ja kesytetyn (viljellyt pellot) tilan välisen rajan etsiessään ruokaa ja suojaa maatilojen alueelta, jolloin viljelijät menettävät osan sadostaan ja kotieläimistään villieläimille. Ihmisten ja villieläinten välisissä ristiriidoissa kuolee toisinaan myös ihmisiä. Ihmisten ja villieläinten väliset ristiriidat Liwalen piirikunnassa ovat varsin moniulotteisia eikä niitä voida selittää ainoastaan asenteiden tai maisemiin liittyvien mielikuvien pohjalta. Spatiaalinen näkökulma lisää kuitenkin ymmärrystämme ihmisten ja villieläinten välisten ristiriitojen syistä Tansaniassa ja muualla maailmassa.

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List of Acronyms

ADMADE	Administrative Management Design
CAMPFIRE	Communal Areas management Programme for Indigenous Resources
CBC	Community-based (wildlife) conservation
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CWMO	Community Wildlife Management Officer
IUCN	The World Conservation Union
NGO	Non-governmental organization
RIPS	Rural Integrated Project Support Programme
SCP	Selous Conservation Programme
SGR	Selous Game Reserve
SLA	Sustainable Livelihood Approach
TAHOA	Tanzania Hunters Association
TANAPA	Tanzania National Parks
TAWICO	Tanzania Wildlife Corporation
VGS	Village Game Scout
VNRC	Village Natural Resource Committee
WMA	Wildlife Management Area
WMI	Wildlife Management Institution

Prologue

The air was full of bats. Hundreds of hungry bats had woken up and crawled out from beneath the sheet metal roof of our host's farm house and greeted our dining party by bombing us with their droppings. A campfire provided some light so I was able to get a glimpse of these small and furry flying animals. I could feel the flow of air on my cheek and arms as a group of bats dived after their prey. The perceived cleanliness of that space suddenly disappeared as the bats started flying over. While I tried to protect my dinner plate from the leftovers of the bats' yesterday's digested meal, I instinctively bent down every time I felt a bat flying by. This reaction was a somehow automated but unconscious act and it took a while before I could relax because I was not accustomed to having bats inside my personal space, especially when I was dining. The two game scouts, who accompanied me by the campfire, looked amused as they followed my swerving and paid no attention to the bustling bats.

The arrival of our host, an old man living alone in the middle of bush savannah, alarmed me as he opened the gate of the shaky pole fence surrounding his garden. He brought us a big piece of meat in a newspaper wrapping and asked us to share that meal with him. We only had some boiled rice for dinner and some fruits for dessert so we did not want to reject his marvellous offer. The game scouts sliced the meat into small pieces and fried it on the campfire. The meat did not taste like beef or pork at all but rather like liver. Afterwards I heard that we ate elephant liver that night. I felt quite confused because the game

scouts who were supposed to prevent poaching of protected wildlife in the area, ate the meat of a protected species without inhibitions and did not accuse our host of poaching or question his actions. However, the old man told us that he had found the elephant dead nearby the gravel road some kilometres away from his farm.

A pack of elephants had approached the farm house while we were eating. We could easily hear the elephants move and eat nearby as they pruned the branches of miombo trees into their mouths and communicated with short growls. The game scouts decided to sleep around the campfire in order to flee fast if the notorious elephants would visit the shanty at night. I retreated into my tent but I did not feel safe or sleepy at all as the game guards told me that the tent would attract the elephants even more so than a bowl of corn. I also recalled the official records stating the number of toll of the man-eating lions in this district during the last ten years. It was clear that the gapped pole fence which the old man had set up for safeguarding his garden and property from an invasion of wild animals could not prevent the encroach of these big mammals. For him and us the pole fence was a dividing line between the domesticated and the wild.

I tried to get some sleep and ignore the threat of the browsing elephants but my thoughts wandered through my previous experiences in life as I was looking for a reason why I now was camped in a remote nature-culture borderland in search of an explanation for the imminent appearance of human-wildlife conflicts in wildlife conservation projects in rural areas. It was not only my scientific interest which kept me

going but there had to be something else behind all this; perhaps my subjective affection for nature. Animals have been part of my daily life since I was born. I was raised in a family, which kept a bloodhound kennel as a hobby. In addition to the slobbering bloodhounds, we had many other breeds of dogs too. Before I left primary school, our kennel had not only grown in size but it also contained many other animal species. We had a large meadow pen with a pond for a pack of geese and ducks. One of our sheds was full of chickens and roosters, which often chased me and defended their nests when I collected their eggs from the traditional henhouses. We also had hundreds of pheasants, who lived in their large enclosures all year round. It was my daily task to feed all our birds after school and collect their eggs into the incubation machine. One of the most enduring memories and experiences I have from our farm is placing a collection of recently hatched chicks and waterfowls from the incubation machine under the heater. These small creatures immediately adopted me as their mother goose and followed my hand anywhere I moved it. I then felt like I had crossed the borderline between humans and animals and was temporarily accepted as a member of both distinctive entities. Our farm also had a few sheep, goats and a pig, and one chinchilla. Apart from the chicken, ducks and pheasants, every animal on the farm had a name. One summer, my three-year old sister even shared her small children's pool with one of the geese she had adopted from the incubation machine. We spent hundreds of days with the domestic animals when we were children. We did not only share the playful company

of our dogs but we also tried to train our pig, sheep and goats to respond to similar commands. I learned very early that some animal species in our farms were pets while some were domestic animals kept for production and profit. I also knew that some of our animals were not tame at all and would escape into the forests if they had a chance to do so. The pheasants hatched and grown in captivity were primarily sold to the local hunting club and released into freedom straight from the door of their enclosure once the deal was done. On a few occasions, my little sister had opened the door for the pheasants and released a whole pack of them for free. Life on the farm meant participation in the whole life circle of animals. Although, none of my family members practiced hunting, killing of animals was a normal part of activities on the farm. The pig was fed and kept for Christmas, one member of the geese pack was killed and eaten on the 10th of November during the Martin Luther Day and chicken and pheasants were often killed for special occasion dinners. Of course, it was a sad moment for us children, when some of the animals which had names and were almost treated like pets were killed or sold by our father. We reluctantly had to learn that eating and selling certain animals species was the original reason why we had those animals on the farm in the first place.

I grew up in a culture where the categorisation of animal species into pets, domestic animals and wild animals was essential and very normal. Each category of animals had their designated spaces. Some animals were kept inside our house and some animals were not welcomed there at all. The only animal

species allowed to stay in the farm house were the dogs, my two budgerigars and Canary birds, tropical fishes in the aquarium and the two fancy white mice, which I bought from the pet shop. My mother hated those mice and did not want them inside the house and so I finally had to get rid of them after my unsuccessful breeding experiment with a few domestic mice I had caught from the shed. The fancy mice and their wild relatives did not get along at all and once in the middle of a fight the cage fell down to the floor and all the mice escaped. My mother was unaware of this experiment and later found one white mouse when she worked in the kitchen and saw it scamper past the cupboard. I then learned a quick lesson on the confined definition of nature-culture borderland in our household. Despite this setback, my parents supported my lepidopterist hobby, which required staying awake for many nights in search of moths even during the school days in late spring and early autumn. Certain species in the category of wild animals, such as American mink, Red fox, Raccoon dog, Goshawk and Eurasian Eagle Owl, sometimes killed a few of our geese, ducks, chicken and pheasants. These wild animals were regarded as pests, almost similar to the rats, which sometimes broke into the grain storage and ate some of the feed for the farm animals. These species were usually wanted dead or alive when found inside the farm area. In the year I turned thirteen, the Goshawk and Eurasian Eagle Owl became protected species by law, so we had to call for the authorities to document our losses and release these predatory birds from the enclosures if they were accidentally caught there during their preying on

the farm animals. We could no longer even take the animals found dead to the taxidermist for trophies. American mink and Red fox caused much more damage to the farm animals than the birds of prey. A mink once killed almost all of our chickens and as a result it was later killed by a local hunter.

My parents sold the farm when I was a teenager and we moved back to town. My father opened a pet shop there and I helped him at the shop during the weekends. There I got used to handling and taking care of many exotic animal species, such as snakes, scorpions and spiders. Some people bought pythons and tarantellas for pets, while other customers disliked and avoided these creepy animals when they came to buy food for their cats, hamsters and guinea pigs. My scientific interest in human-animal relationships really started to evolve during those days. I realised that I had always lived and balanced on the nature-culture borderland and had followed the subjective attitudes of other people towards the species within these dynamic borders.

My senses were on full alert and I opened my eyes to every small crack and noise around my tent. I could not hear the elephants in the bush anymore but now some hyenas started to howl nearby. The arrival of these large and powerfully jawed predators did not make me feel any safer in the tent. The old man had some hours earlier placed his three chickens inside a small wooden container for the night and something made those chickens nervous. I was wondering if the hyenas had entered the garden where we all slept or if it was just some rats stealing grain from the chickens. I also thought of the daily life

of this old man who gets a living out of this barren land, where cattle could not be kept because of the presence of tsetse flies. His farm would soon be located inside a Wildlife Management Area, a buffer zone extension of the Selous Game Reserve. It will be a demarcated land area in the vicinity of Kikulyungu village where local villagers could have a legally recognized role in wildlife management and conservation. Would the new law improve the old man's capabilities to earn a living close to the border of the largest game reserve in Africa? Or could the result be the opposite, making his small battle against encroaching wildlife pointless?

This sleepless night was the last night for me in the remote areas of Liwale district. Almost three months ago, I waited for my work permission in Dar es Salaam and spent many hours answering the questions of my urban Tanzanian friends about the reason for travelling to Liwale. "*There is nothing to see out there*", was a common notice from them. "*It is just bush and tsetse flies in Liwale. You should rather travel to Serengeti or Ngorongoro to see some wildlife*", said my urban guides. I travelled to the Liwale district because it is one of the last areas in East-Africa where elephants, lions, buffalos, hippopotami and other large wild animals still exist outside the protected areas of agricultural land, nearby the farms and villages. In Liwale, wildlife causes several human casualties, kills farm animals, and destroys crops and other property annually. There I was able to interview a farmer who had a bite mark of a female lion around his collarbone, and listen to the stories of local teachers about the closing of schools because of the presence of man-

eating lions every now and then. There I could visit rice fields destroyed by the hippos and maize fields trampled by the elephants and on my way to these sites I saw a group of women washing the laundry in a pool which they shared with a pack of hippos. In Liwale, I also heard stories about the metamorphosis of animals into humans and vice versa. Just like the stories on metamorphosis, some of the local survival strategies used during numerous wildlife encounters seemed to be quite unbelievable and difficult to explain scientifically. The complexity of the human-nature relationship was easily sensed in Liwale. In the morning, I found some footprints of African wild cat around my tent and close to the wooden container protecting the chickens. All three chickens pawed at the dusty soil in search of seeds like nothing threatening had happened last night. But many dangerous encounters surely did happen in the nature-culture borderlands from my point of view. Life is really wild in the *Garden of Eden*.

1. Introduction

1.1. Protected areas, human beings and habitat destruction

Protected areas have played a key role in the conservation of biodiversity and endangered wildlife species globally. Protected areas can be found in most countries of the world. Designating areas, such as national parks, nature reserves and game reserves, for nature preservation and conservation is one of the characteristics of the modern nation state (Jepson and Whittaker 2002: 130). Protected areas covered nearly 11.7% of the land surface of the Earth in 2004,

when there were about 65,000 protected areas around the world. The total area of these protected areas was over 16.5 million km². The number of protected areas and their cumulative area coverage have more than tripled since the 1973. There were, however, 38,427 protected areas with a total area of about 4 million km², which were not included in these numbers in 2004 because their dates of establishment were unknown (Philips 2004: 5). The relative area coverage of protected areas varies a lot from one country to another. In Tanzania, protected areas covered 39.6% and in Sri Lanka about 26.5% of the total land area in 2003. In the U.S.A., protected areas covered 15.8%, in the United Kingdom 10.5% and in Finland 8.9% of the total land area in 2003 (World Resources Institute 2006). In the light of the above figures, it can be summarized that a larger percentual share of the total land area is handed over to nature protection in the poorer countries than in the richer industrialized countries. Most biodiversity hot spots are located in the tropics which could explain this spatial distribution. But one cannot ignore the fact that in poorer countries where the majority of people still earn their livelihood from subsistence agriculture and where the population growth rates are above the global average; these protected areas are placed under a growing human pressure.

The World Conservation Union (IUCN) defines protected areas as “*an area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means*”. Ideally, land use management

in protected areas can satisfy both human needs and maintain ecological function. The human needs approach has become even more important as the amount of people living around the borders of protected area increases. About 70% of the protected areas in the tropics have people living within their boundaries (DeFries et al. 2007: 1031–1034), making it essential to seek ways to form a balance between human needs and nature protection and safeguard global biological diversity in the long run. Steven Sanderson (2005: 323–325) mentions that the Millenium Goals of the United Nations have not paid enough attention to the costs of rural development on wild nature. Its perspectives and policies have not acknowledged the failures of previous development projects or the availability of new frameworks based on integrated conservation and development approaches. Sanderson writes that rural development and the expansion of the agricultural frontier have placed humans in direct conflict with wild animals and uncultivated landscapes. He adds that the new millennial poverty alleviation strategy has not given a central role to biodiversity. Wildlife conservation is mainly carried out in heavily human-affected ecosystems, which simultaneously are the locations of most rural poverty and biodiversity. Rondinini et al. (2006) carried out an inventory of the irreplaceable sites for the protection of amphibians and mammals in Africa. They noticed that existing protected areas currently cover approximately 3.44 million km² which represents about 10% of the total area of Africa. They conclude that another 3.36 million km², an additional 9% of

the African surface, would be needed to achieve the conservation goals of these animal species. Human population density is high in 55% and low in only 17% of these identified irreplaceable conservation sites in Africa. This means that human-wildlife conflicts will even increase in the near future. Many of the endangered large mammal species live in savannah and dry forests habitats which are also inhabited by over 20% of the world's human population. There the livelihood of many communities relies on local natural resources. Human impact on biodiversity and wildlife habitats is huge in savannas, which is one of the most burned landscapes in the world (Mistry and Berardi 2006: 2).

Globally relatively few animal species have become extinct due to direct human persecution. The majority of animal extinctions resulted from the huge decrease of the animals' habitats and the growth of geographic ranges by human activities, including agricultural expansion. For example, land conversion to wheat farms by local Maasai pastoralist was a major reason for an 81% decline of the wildebeest population in southern Kenya. The African wild dog has disappeared from 25 of the 39 countries where the species formerly existed. Both lions and cheetahs had largely disappeared from Asia by the early twentieth century (Woodroffe et al. 2005: 4, 11). If one uses biodiversity as a ranking indicator Tanzania, the Democratic Republic of Congo, Indonesia and Brazil are the megadiversity nations of the world. In Tanzania, there are 310 known mammal species, 1,016 bird species, 245 reptiles and 121 amphibian species. This huge number of different wild animal species

is explained by the large variety of different wildlife habitats across the country. Some of these habitats are disappearing at an alarming rate. Severre (2000) estimated that only about 55% of the natural vegetation of miombo woodland was left in the country. The original total area of the miombo woodland had been 420,700 km² in Tanzania. Miombo woodland in South and West Tanzania contains some of the world's largest remaining populations of the African elephant and the black rhinoceros. The World Resources Institute (1995) estimates that 49% of all savannah/grassland ecosystems and 40% of all forests have been lost in Tanzania. Human activities which are the main cause of wildlife habitat loss include overgrazing, uncontrolled fires, deforestation, cultivation and creation of settlements. Urbanization and infrastructure development also cause habitat loss in Tanzania (Kideghesho 1999; Kideghesho 2001).

1.2. Background and justification of the study

My first contact with the African realities of wildlife conservation and management dates back to my Master's thesis on Community-based ecotourism in northern Namibia in 1995. During my field research, I observed the early stages of implementation of a community-based wildlife conservation (hereafter *community-based conservation*) project in the buffer zone of Etosha National Park. The conflicts between large mammals and rural farmers were then evident there and the compatibility of wildlife conservation with small-scale farming was partly questioned by my

research. In the 1980's and 1990's, many new community-based natural resource programmes, especially ones that focus on wildlife management, were established in Africa. Although integrated conservation and development approaches have in principle formed the backbone of the community-based conservation projects, many scientific articles and evaluation reports emphasize the appearance of conflicts between local communities, wildlife authorities and wildlife within most of such projects across the globe. For example, the large-scale and globally well-known community-based conservation programmes, such as ADMADE (Administrative Management Design) in Zambia and CAMPFIRE (Communal Areas Management Programme for Indigenous Resources) in Zimbabwe, have not achieved their goals of sustainable development and the conservation of endangered species outside the protected areas. Since my study in Namibia, I have become more interested in the question, why conflicts always seem to be present in wildlife conservation programmes which take place in rural areas. These conflicts take place on all continents, in both poor and rich countries. Previous research points out evidence on the case specific characteristics of these conflicts. Creating a universally applicable model to explain these conflicts is thus an impossible task. The literature and analysis shows that politics, economics, ecology, socio-culture and history are often used to explain conflicts of wildlife conservation in rural areas. However, my previous experience of living with different animals in the *countryside* made me curious to find an explanation to these conflicts which would be

based on subjective and collective senses of place. My research hypothesis is that the conflicts in which locals are mostly involved with in wildlife conservation programmes are human-wildlife conflicts, which will take place when wildlife crosses a nature-culture borderline and enters human-controlled space on the farms and pastures. By entering the domesticated space, some wild animals usually create a perceived risk of personal security or a risk of livelihoods security. There is no conflict as long as wildlife does not cross this socio-culturally perceived border and stay in the so called *wilderness*. In the hypothesis, conflicts partially originate from struggles over different ways of seeing wildlife in human and animal spheres. In this study, I try to find an answer to the question: can the causes of the wildlife conservation conflicts in rural areas be explained geographically and spatially? I do not ignore the effect of political, socio-economical, ecological or historical structures on these conflicts but I attempt to bring some new dimensions into the discussion. According to Ari Aukusti Lehtinen (2006: 5), the postcolonial scientific discourses and maps of meaning have not corresponded to the everyday life worlds of the Northern peoples. Interestingly, the situation is relatively similar in the case of the ethnic groups of southern Tanzania. Scientific discourses usually lack a holistic understanding of the diversity of elements shaping the daily co-existence of humans and wildlife in Tanzania. I hope that this dissertation will contribute to a better understanding of the spatial nature of human-wildlife conflicts and the relationship between people and wildlife.

I visited the savannas and miombo woodland of south-eastern Tanzania to learn about and share the challenges of daily life with rural people in a completely different nature-culture continuum than I have become accustomed to in Finland. During the two field trips in Tanzania, I met many small-scale farmers whose livelihood depended on the meagre products of the land and on a good knowledge of the local environment. Their relationship to wildlife is much more complex than mine, not only based on economic and ethical reasons but also based on beliefs, taboos and supernatural aspects combined with an extensive biological knowledge formed through observation and experience as well as on oral tradition. The new laws, regulations and policies of the community-based conservation affect the farmers' lives and their abilities to use local natural resources. The locals who live among wildlife and whose livelihoods are directly affected by the legislative changes have seldom drafted the objectives of these internationally popular approaches to nature conservation. Their preferences, hopes and dreams do not seem to feature much in the implementation plans of these natural resources management projects mostly funded by the European or North American donor organizations. Our perspectives to wildlife conservation in the rich and urban western world are so much different from the perspectives of rural African people who were born and live all their life among the wildlife we want to conserve. Are we conserving African wildlife for the Africans or out of general concern for global biodiversity? There are several community-based conservation projects in Africa where

the conservation of wildlife is based on tourism income. Foreign tourists usually visit the wildlife-rich ecosystems for a day or a week in search for fantastic photo shots for their family albums and then return to the five-star safari lodges with all modern amenities. Local farmers do not get much profit from wildlife-tourism because most of the income left in the destination country is usually divided between the central government and the regional and district level administrations. Rural people who risk their lives and livelihoods by allowing dangerous wildlife, admired by the visitors, to coexist in their villages get substantially little compensation for their sacrifices. The more I learned about the multi-level interactions of humans and animals, the more I become interested in the presence of different visible and non-visible borderlines which we humans determine within the spaces we share with animals. I believe that these borderlines are integral elements in human-wildlife conflicts and understanding the existence of such borderlines could help us to make wildlife conservation plans and community-based conservation initiatives more sustainable, especially from the viewpoints of those people who share the space with the conserved species.

There are three books which have greatly inspired me to carry out this study. Roderick P. Neumann has published several critical articles in the 1990's on the social constructions of nature and the creation of protected areas in colonial Africa. Neumann's (1998) book *Imposing Wilderness. Struggles over Livelihood and Nature Preservation in Africa* provides a general outlook on the social history of landscape and its role in

the establishment of national parks and game reserves in Tanzania. The book focuses on the symbolic importance of landscapes and political struggles over landscape meanings among different social groups. Neumann describes how the *national park ideal*, developed in the nineteenth-century United States at Yellowstone, provided a model for the colonial authorities to establish national parks in Africa. In this model, nature is preserved from human activities by creating bounded spaces where nature is controlled by central governments. The national park ideal conceptualizes nature in largely visual terms and treats nature as scenery. The origins of this culturally and socially produced idea of nature can be traced back to the Anglo-American nature aesthetic. Neumann points out that the Europeans and North Americans recognized certain landscapes as natural due to the influences of particular visions of nature in art, literature and landscape design. In his case study on Mount Meru, Neumann describes how the loss of local land and resource access has caused rural conflicts and resistance against protected area policies. Another book which is one of the sources of inspiration is *Natural Enemies. People-Wildlife Conflicts in Anthropological Perspective* edited by John Knight in 2000. This book introduces several case studies on human-wildlife conflicts from different continents and describes these conflicts from social and cultural anthropology perspectives. The most important issue from Knight's book is the spatial context of people-wildlife interfaces which threaten the dualisms between man and nature. Pestilence discourses obviously emphasize the dichotomous view of people-wildlife relations in which the

presence of wild animals in human space is considered unnatural and therefore the removal of wild animals from there becomes necessary. By excluding wildlife from the human space, the pestilence discourse actually resembles conservationist discourses in a reverse way. Conservationist discourses in turn aim to exclude human beings from the natural or wilderness spaces and to maintain both the species boundary and the nature-culture boundary. The book offers insights into the dichotomy of nature-society and nature-culture which have been critically studied within anthropology. These discourses provide many new ideas for my study on human-animal boundaries and culture-nature borderlands. The third book *Animal Geographies. Place, Politics, and Identity in the Nature-Culture Borderlands* edited by Jennifer Wolch and Jody Emel in 1998 provides me some grounding for my emerging ideas within the field of geography and inspires me to study nature-culture borderlands in the wildlife conservation discourse. Many articles from that book critically consider the human-animal divide in the Western world and challenge the ontological separation of animals from humans. The authors suggest that, in modern societies the ideas about animals and their meaning are mostly socially constructed and in some sense social fabrications rather than direct experiences gained from nature. The social constructions of animals are formed at various levels, from personal to societal and institutional levels. The nature of environmental values and ideas about the appropriate human-animal relations in human-animal boundaries are affected not only by personal and

contextual characteristics of individuals but also negotiated in public discourses about animals and humans.

Human-wildlife conflicts in Africa have not been widely studied from a people-centred approach. However, there are some studies, such as Akama et al. (1995) and Gillingham (1998), which have focused on locals' attitudes and values on wildlife as a factor in explaining the human-wildlife conflicts. Zoologists have studied different wildlife species in Africa for centuries but their emphasis was not primarily on the interaction of humans and animals. However, there has been an increasing interest among the social scientists in the human perspectives on wildlife conflicts over the last twenty years. Such research has been particularly popular in the United States; see for example, Zinn et al. (1998) and Vaske and Donnelly (1999). Community-based natural resource management programmes, such as CAMPFIRE in Zimbabwe, have raised the interest of scientists in the problems of the integration of wildlife conservation and rural development in Africa. The interaction of humans and wildlife was the focus of geographer Brian Child's (1988) PhD thesis in which he studied the role of wildlife utilisation in the sustainable economic development in Zimbabwe. Six years later James Murombedzi (1994) wrote his PhD thesis which analyzed the dynamics of conflicts in environmental management policy in the CAMPFIRE programme. Sarah Gillingham (1998) studied community-based wildlife management around the Selous Game Reserve (SGR) in Tanzania. Her thesis is based on case studies carried out in the Morogoro district located north

of the game reserve. She studied the conservation attitudes and perceptions of the rural people in the SGR. In her study, 46.5% of the total number of 200 respondents mentions that they have experienced conflicts with wildlife in the study area. Although, most of the respondents agree on the importance of wildlife protection, they have negative attitudes towards wildlife due to the problem of crop damage. Over 59% of the respondents (N=193) agree with the statement that wild animals who cause crop damage are pests and should all be shot (Siege and Baldus 1998a: 9–10).

Human-wildlife conflicts are today an integral part of the rural development discourse. The restoration of viable wildlife populations in agricultural areas has often surfaced as clashes of interests between different stakeholders and finally resulted in direct human-animal conflicts in the farms. Thus there has recently been a growing emphasis on the biosecurity question in agricultural research. Biosecurity in modern discourse does not only mean the policies and measures to protect from diseases, pests and biological warfare. Henry Buller (2008) takes an interesting approach to the concept *biosecurity* and the reintroduction of the Grey Wolf to the southern French Alps. Buller defines *biosecurity* as a more traditional notion by stating that it simply means policies and measures to protect people from "*being eaten by big and ferocious wild animals*". He describes how the reintroduction of the Grey wolf has launched conflicting and competing philosophies of nature through the rhetorics of biosecurity and biodiversity. Wiped out in the 1930s, the wolf has never been part of "*the anthropomorphic model of harmony*" in

the Alps. The reappearance of the wolves has destabilised the established human-animal constructions of the Alps by reordering and reclassifying its spaces of nature. The temporal and spatial frontiers in nature are losing their clarity as the wolves move or trespass across the border between the wild and domestic spaces. Buller writes also how the renewed spatial proximity of wolves and humans has provoked fear among the pastoral farmers. They are afraid that the wolves will kill their sheep and also become more dangerous to humans through gradual habituation. His study demonstrates the inherent conflicts which appear when the interests of nature conservation collide with social and economic interests and practices. For the conservationists, the return of the wolf contributes to biodiversity while for local residents the wolf exacerbates the loss of biosecurity. The local political leaders regard the wolf as an instrument to increase tourism to bring economic benefit to the area. Buller's article has many useful analogous elements with my study and I will use his definition of *biosecurity* later in the text.

The human-animals interaction is no longer regarded as a topic which can only be studied by biologists and ecologists. Animals cannot be by-passed in social scientific studies anymore as has traditionally been the case. Animals have slowly infiltrated into the research on development studies. A recent Master of Arts thesis by Evelyn W. Voets (2005) on human-elephant conflicts in southern Kenya is a good example of studies where models and frameworks of social sciences are combined with those of wildlife ecology.

At the early stage of this study, I decided to carry out field research in Guruve village in Mashonaland Central Province of Zimbabwe because there were many human-wildlife conflicts occurring in the area and Guruve village was part of the world-famous CAMPFIRE programme. However, the domestic policy of Zimbabwe, especially the land reform programme of the ruling party ZANU (PF), shifted towards more radical policies in 1998. *The Land Reform and Resettlement Programme Phase II* envisaged a compulsory purchase of commercially and privately-owned land by the state and in 2000, the supporters of President Mugabe marched on white-owned farmlands and seized almost all land owned by these farmers. Many of these farm occupations were violent confrontations between farm owners and invaders resulting in human casualties. The instability of the situation in Zimbabwe made me reconsider my field research plans. I had already done a lot of preparatory work for the Guruve village and CAMPFIRE case study and now this setback had to be passed somehow. After discussing the situation with Professor Juhani Koponen, who became my supervisor and mentor after the late Professor Michael Cowen, I was encouraged to carry out my field research for this dissertation in Tanzania. Professor Koponen has a long expertise on Tanzania and he has carried out several research projects there. He suggested that I could visit Liwale district to collect data on human-wildlife conflicts there. Liwale turned out to be a perfect research area for my purposes as local subsistence farmers there had to cope with a large amount of different wildlife species.

1.3. Research questions and methods

The conflicts of wildlife conservation can be studied at different scales from global to local. The focus of the field research of this study is on local level conflicts which occur between people and wildlife and partially between different stakeholders at the village and district level in Liwale. However, the regional, national and global levels are not totally ignored in this work because they are all important in understanding the reasons behind the local level conflicts. Lehtinen (2006: 12) writes that current forms of cultural confrontations can largely be understood through tensions in environmental appreciation. My study provides a historical overview of different environmental appreciations concerning wildlife in south-eastern Tanzania and explains present human-wildlife conflicts in the light of confronting perspectives on the distribution of wildlife in the human and animal spheres in rural areas. Through the establishment of game reserves and national parks, colonial wildlife conservation initiatives have meant reclassifying spaces of nature at the local level. As a result the spatial frontiers between the wild and domesticated loose clarity and cause conflicts. Current human-wildlife conflicts in Liwale cannot be understood without knowing the colonial past of the area. I have carried out a literature analysis using quotes and findings from previous studies to introduce the theoretical background of the conflicts to the reader. I will also briefly describe the development of wildlife conservation in colonial Tanganyika and in modern Tanzania, especially in the

areas south of the Selous Game Reserve to explain the political, ecological and socio-economic structures, processes and outcomes leading to the present situation where local communities have an essential role in wildlife conservation. In spite of the increased participation of locals in the implementation and management of these programmes, most of the community-based conservation programmes have not reached their goals. For some reason, these programmes are prone to human-wildlife conflicts and have a tendency to fail. I wanted to find an explanation or explanations to why such conflicts are so often present and where they originate from. There are so many over-lapping causes behind these conflicts (political, economical, cultural, organisational and structural, to mention a few) that a thorough analysis of them all is not possible in one study. Although, I have tried to create a holistic view and understanding of most of the underlying causes of these conflicts, my main focus is on the spatial explanation of human-wildlife conflicts which is not a very common approach in the reviewed literature. The research hypothesis is based on the assumption that human-wildlife conflicts occur when an animal or a human crosses a perceived borderline between nature and culture and enters into the realm of the other. The subject (human or animal) that crosses this border becomes a subject *out of place*, which means that the subject is then spatially located in a space where it should not be or where it does not belong according to tradition, custom, rules, law, public opinion, prevailing discourse or some other criteria set by human beings. Wild animals also have borders between the intra- and

inter-species territories where conflicts occur when an individual animal enters the territory of another animal. For example, a male lion crossing the border of its own territory into the territory of a competing male lion may lead to a deadly confrontation between the animals. Even though such wildlife-wildlife conflicts are sometimes a partial cause to human-wildlife conflicts in a spatial sense, these wildlife-wildlife conflicts are not studied here. The borderline between nature and culture marks a perceived division of spatial content in our senses of place. An elephant in the forest does not cause any conflict but an elephant in the field may launch a conflict. In other words, a beast on field is a beast out of place in the eyes of many human beings. Mary Douglas (1966) studied the concern for purity as a key theme in every society. She used the concept of dirt to comprehend the established assumptions and need for order in human societies. She writes that dirt is essentially disorder, an offence against order. Eliminating dirt is regarded as a positive effort to organize the environment. Douglas writes that if uncleanliness is matter out of place, we must approach it through order. This insight is present in human societies and it does not involve any clear-cut distinctions between sacred and secular or between primitive and modern societies. I believe that all human beings have a subjective view on the place of different animals in their *lifeworld*. Our individually perceived and publicly negotiated nature-culture borderlines are dynamic and extend from our intimate space to public space. We accept some animals into our intimate space but dislike others and want to keep a longer distance from those animals. People who

do not like dogs at all, may accept them in public space but cannot stand the presence of dogs in their social space, such as at home or in the garden. We try to control the content of our perceived spaces in many different ways. We build fences, use insect repellent and guard dogs to protect the prevailing status, order and content of our spaces, just like in the case of dirt described by Mary Douglas. An appearance of a wild animal in a domesticated space brings an uncontrolled element into that space where humans have previously commanded total control of all other natural elements. Eventually, a human-wildlife conflict appears.

My main research questions are:

1. What kind of human-wildlife conflicts are there in the Liwale district of Tanzania?
2. Which wild animal species are most frequently involved in these conflicts?
3. How do the local communities perceive the nature-culture borderland in the area?
4. Which animals do people include and exclude as their image of the African countryside?
5. What kind of differences are there in the perceived countryside images among the villagers and district and regional level administrative personnel?
6. How do these differences contribute to human-wildlife conflicts in the area?
7. Can human-wildlife conflicts in the Liwale district be explained from a spatial point of view?

I collected empirical data to find answers to these questions in six villages in the Liwale district and in Mtwara



Figure 2. Participants of a village meeting in Mpigamiti in Liwale district, Tanzania.

and Lindi towns in southern Tanzania during June and July 2002. I also collected documents and carried out interviews in Dar es Salaam in 2003. The research methods included semi-structured interviews, participatory mapping, questionnaire survey and Q-methodology. I will explain the idea of Q-methodology on page 21. In the six studied villages, a total of 183 persons participated in the village meetings (Fig. 2.) and discussion sessions in the following composition:

- Barikiwa / Chimbuko 26 (8 females and 18 males)
- Kikulyungu 29 (2 females and 27 males)
- Likombora 15 (2 females and 13 males)
- Liwale B 3 (all male)
- Mihumo 42 (7 females and 35 males)
- Mpigamiti 68 (18 females and 50 males)

Research questions 1-3 were approached with open discussions, group interviews and participatory mapping (Fig. 3.) in the villages. I approached the ward councillors before entering the villages and requested them to invite those members of their villages to the meeting who they considered suitable and able to give information on wildlife related issues. In all villages, except in Liwale B, the ward councillors were able to invite people to the meetings. Wildlife management and hunting are



Figure 3. Result of a participatory village mapping in Likombora village.

very delicate research topics in Tanzania. I therefore decided to follow official procedures and local administrative hierarchy in organizing my field research in the Liwale district. It became practically a necessity to have an authorisation letter from the superior officer, such as the Regional Game Officer, before I could approach their subordinates, such as the District Game Officer in Liwale. Similar authorisation procedures were required at all levels. This obviously affected the results and selection of interviewed people. Although the ward councillors primarily invited the members of the Village Natural Resource Committee to participate in the meetings, there were also some other members of the village present, especially in Barikiwa/Chimbuko, Kikulyungu, Mihumo and Mpigamiti. Generally, there are fewer women than men represented in the Village Natural Resource Committees. Wildlife management and hunting are also traditionally considered as male

issues, which may also explain the small number of women participating in the organized meetings. Each meeting started with an introduction of the guests and then continued with a participatory village mapping exercise where the participants drew a map of their village area and showed and explained to us where wildlife is mostly seen, how the animals move in the area and where the damages primarily take place in the village area. We encouraged all participants to contribute to the drawing of the village maps and as a result, there were lively discussions and sometimes arguments about the location and accuracy of the drawn map objects. I asked permission from the participants to record the discussions during these exercises with a mini disk player in each meeting. My research assistant, Mr. Francis L. Blangi, explained to the participants that all documents, questionnaires and recorded discussions will be used anonymously in the research so that no names, addresses

or other personal information could be identified from the data. The names of the participants were not asked in the questionnaire or when speaking up during the meetings.

My research assistant translated my preformulated questions in English into Kiswahili for the participants during the group interviews. To avoid any confusion and misunderstandings, we prepared and finished the translations a few days earlier before travelling to the villages and carrying out these meetings. In Barikiwa/Chimbuko village, we needed help from our car driver to interpret for us one part of a discussion which took place in some local language not understood by my Tanzanian research assistant. The driver translated this discussion to us later after the meeting from a mini disk audio recording. All recorded discussions from the mini disk player were first translated by the research assistant from Kiswahili into English and then cross-checked together with the researcher. This was carried out to avoid mistakes and misunderstandings in translations. The biggest problems we faced in translations concerned the synonyms of wild animal names. These names were later checked with the help of the District Game Officer in Liwale town.

Research questions 4 and 5 were studied with a questionnaire (Appendix 1.) in which the participants were asked to select and rank objects from a list according to their personal images of the rural African landscape. This task was not an easy one for the participating villagers and Mr. Blangi had to explain the task a couple of times in some villages. The idea of this questionnaire was to study which objects are important in the rural

landscape image of the locals and which are less important. I wanted to find out if there was a clear distinction between typical farm objects and forest objects in the rural landscape images. The second part of the questionnaire focused on animals. The respondents were now asked to select and rank those animals which belonged in their personal image of African countryside. Here I wanted to establish if there was a clear distinction between typical domestic farm animals and wild animals. I was interested in finding out which animals the rural villagers included in their rural space and which ones were excluded from it. The animal which was ranked number one suited best into the personal image of the African countryside and the animal which was ranked number 15 was least suited to this image. The results of the questionnaire survey are not analyzed here on the basis of individual answers but compiled for each studied village. Then the average ranks of studied objects and animals from each village are compared. I intentionally tried to avoid using difficult concepts, such as sense of place, in the questionnaire and therefore decided to use common concepts *like your own image of landscape and your image of countryside*. The respondents also had a chance to add their own objects and animals to the lists if they wished to do so. The questionnaire complemented the information received from the participatory village mapping, open discussion and group interviews in the six villages.

This study is also based on the results of literature analysis, which included mainly books, articles and reports written in English and Finnish. The questions for the semi-structured interviews were

written on the basis of the literature analysis. These interviews were recorded with a mini disk player for further analysis. With these interviews, I studied the viewpoints of the key informants' about the topical issues on community-based conservation programmes in Tanzania. They also provided me information on the Selous Conservation Programme, the established Wildlife Management Areas and human-wildlife conflicts in Liwale district.

The 20 selected key informants who filled out the same questionnaire as the villagers were also asked to carry out a Q-methodology sample after the semi-structured interview. The Q-methodology was invented by the British physicist-psychologist William Stephenson in 1935. He developed the Q-methodology to examine the subjectivity of respondents in any lived situation. It is a quantitative technique which inverts the traditional factor analysis by holistically examining the traits of a single person rather than atomistically matching traits across individuals (Robbins and Krueger 2000: 637). In this methodology, the variables are the respondents who perform the Q-sorts, not Q-sample statements (McKeown and Thomas 1988: 17). Thus the Q-methodology identifies patterns between subjective variables across individual people. The subjectivity in Q-methodology is seen as a respondent's own point of view about a real or perceived specific situation (Robbins and Krueger 2000: 636–637). Q-methodology has been widely used in different fields of social science, such as health studies and political and sociological research but it has only recently raised the interest of human

geographers. Eden et al. (2005) studied the usability of the Q-methodology in human geography and concluded that it is a useful supplement to the existing methods through bridging the gap between the qualitative/quantitative discourses. They point out that it is an efficient and cost-effective method where small numbers of respondents produce valid results.

The aim of the methodology is to elicit a profile of deep attitudes (Stephenson 1953) and in this study these profiles were examined on wildlife related issues of the subjects representing two target groups, the district level civil servants and regional level civil servants. The selected key informants involved in the Q-sorts were people who participate in decision-making of wildlife conservation and management at the district level and the regional level. The objective of using the Q-methodology was to reveal possible differences in the subjectivity of the representatives of these two groups towards wildlife conservation and management. Difference could be used to explain some human-wildlife conflicts in the study area.

The steps of data collection and analysis in Q-methodology have been described in detail in several articles, such as Robbins and Krueger (2000) and Eden et al. (2005), so I will not repeat it here but only briefly describe the activities carried out in this research. The first step was to develop a concourse which is a set of statements representing the sum of discourse on wildlife conservation, management, rural development and human-wildlife conflicts. The Q-statements were collected from the available literature and from the results of open discussions

which were carried out in Dar es Salaam with a few wildlife authorities and conservation officers before I travelled to the Lindi region. I strongly believe that these sources provide authentic and up-to-date discourse where the statements representing a range of views on the research topic could be selected. We prepared the *raw set* of statements with my research assistant, who temporarily acted as a local informant in the process. Finally, I decided to use 25 statements in total, which were randomly selected from a set of 120 statements by my research assistant. The reason why I used only 25 statements and not 36 or more is that the respondents were rather busy and were not prepared to work more than an hour with me. I also found out that some people had problems of understanding some of the statements because of the foreign language when I tested the sample with a few teachers. Therefore the sampling process took quite a lot of time and I did not want to frustrate the key informants with too many cards displaying written statements. The selection of statements from the discourse could have been carried out in a more participatory way, so that the key informants would have been involved into the selection, however, due to their remote locations, I could not arrange a time or location where they could collectively carry out this selection before I entered their offices with the methodology.

The next step in the Q-methodology is that the respondents reorder a randomized set of 25 statements into a Q-sort grid which has a shape of a normal distribution. I used a piece of a cardboard where I draw a pyramid-shape table with empty columns for

the statement cards. In each card there was only one statement and at the back of the card there was a coded number linking the card to the discourse. The number was printed so lightly that the respondents did not pay any attention to these at all. The respondents ranked the statements according to their subjectivity ranging from *fully agree* to *fully disagree* and placed each statement into the grid accordingly. The five columns pointing down from the highest point of the pyramid-shape grid represented the neutral ranking for value zero. On the furthest and opposite ends of the base of the pyramid, there was only one column for the statements. The number of available columns increased towards the center of the grid. Q-sort result is a matrix, in which the subject models his own subjectivity. In the Q-methodology, subjectivity is regarded as a person's point of view on a matter of personal and social importance. The operational and statistical specificities of the Q-methodology aim at ensuring that self-reference is preserved and not compromised by the external influence of the researcher who studies a subjective phenomenon (McKeown and Thomas 1988: 7). The matrix was analyzed with freeware computer software called *PQMethod 2.11*. It is specially designed for Q-methodology. The created matrices were intercorrelated, factor analyzed and rotated to a simple factorial structure to model the scale of operant attitudes in the universe of the discourse. I then tested if there were clear correlations in the matrices among and between the persons who participate in decision-making of wildlife conservation and management at the district level and at the regional level. Then I created a

typology of attitudes which was used to test the hypothesis.

The Q-method is a useful tool for understanding the structure of discourse in other life worlds and drawing comparisons across diverse cultures. This method utilizes a relatively small number of respondents (20) because the hypothesis is tested in the factor analysis of the Q-sorts. Statistically reliable factor scores can be obtained from as few as five persons (Peritore 1999:12–16). Q-methodology will reveal the subjectivity involved in any situation, including political attitudes or perspectives on life. Q-methodology provides a bridge between quantitative and qualitative research traditions (Brown 1996). Q-sorts were not used during the village meetings because some of the statements were probably too complex and difficult for ordinary villagers to understand.

The main theoretical challenge of this research is to analyze the integration of wildlife conservation with rural development as a part of the modernization process, the transition from materialist to post-materialist values (Inglehart 1990) in the societies. Lehtinen (2006: 17) mentions that modernization in Northern Europe strengthened the distinction between human communities and their natural counterparts. Modernization also encouraged humans to expand control over the natural *other*. Parallel development can be seen in Africa. The spread of environmentalism is a part of the modernization process and it creates pressure on the countryside, where aesthetic and conservation values of nature are challenging the conventional values of agricultural production and forestry. Thus, the whole cultural

image and function of the countryside is changing together with the social norms, associated meanings, values, traditions and experiences related to the lived space and as a result, different views clash and conflicts appear. I have adopted a holistic approach to my research topic because neither wildlife nor rural areas (people, villages, and environment) are static entities, which can be comprehensively studied within a single discipline. The studied systems interact with each other, are dynamic and change through time. This study is interdisciplinary and it mainly uses the methodologies of human geography.

1.4. Geography of the Liwale district

The next five sub-chapters will introduce the reader to the study area by presenting its physical geography, demographics, economic activities, and importance of wildlife to the people there. These are all elements which affect the interaction of humans and nature in the Liwale district and thus form an essential part of the framework in studying human-wildlife conflicts there.

Liwale district is located in the heart of the Lindi region which in the past formed a part of the Southern Province of Tanganyika. This former Southern Province of Tanganyika has witnessed a heavier activity in elephant damage and problem-animal control than any other region of Tanzania, or of East and Central Africa (Rodgers and Lobo 1978: 26, 39).

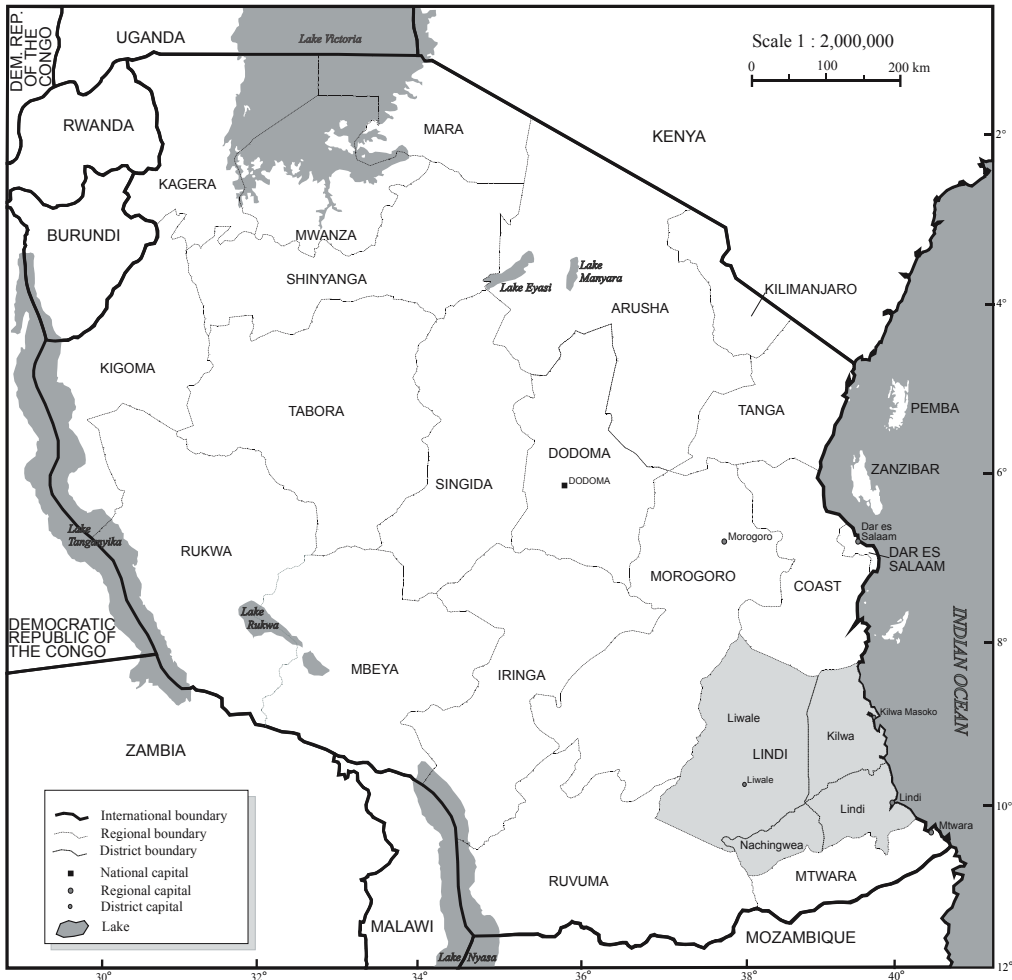


Figure 4. Liwale district is located in the Lindi region in Southeast Tanzania. Adabted from (Shand 1997).

1.4.1. Location and demography

Tanzania is divided into 25 administrative regions, 20 of which are located on mainland and five on the islands of Zanzibar and Pemba. The Lindi region is one of the southernmost regions of Tanzania (Fig. 4.). It is bordered by the Mtwara region in the south, the Ruvuma region in the southwest, the Morogoro region in the northwest, the Coast region in the north, and the Indian Ocean in the east. The total land area of the Lindi region is 66,046 km², which makes it the fourth largest region in Tanzania

(The United Republic of Tanzania 2003: 7). The Lindi region is divided into six districts: Kilwa, Lindi rural, Lindi urban, Liwale, Nachingwea and Ruangwa. The regional headquarters of the region are located in Lindi town. The Lindi region is also divided into smaller administrative units, 28 divisions, 116 wards and 361 villages (Msalya 1997: 5). According to the 2002 Census, the total population in the Lindi region is 791,306. About 51.8% of the population is female. The average household size is 4.1 and the annual average population growth 1988–2000 is 1.4% (The United

Republic of Tanzania 2003: 79).

The Liwale district is the westernmost district in the Lindi region. The Liwale district is located between the latitude 8° and 10° 50' South and longitude 36° 50' and 38° 48' East. The total area of the district is about 36,000 km² and it consists of 3 divisions, 16 wards and 41 villages. Only one-third of the district's total land area is inhabited as the remaining two-thirds are covered by the Selous Game Reserve (Maganga et al. 2003: 8). The eastern parts of the district are relatively more populated than the western parts bordering to the Selous Game Reserve (Baldu 1990: 23). Liwale district is one of the most sparsely populated areas of Tanzania. According to the Census of 2002, there are 75,546 inhabitants and 14,561 households in Liwale. The average size of a household is 5.2 persons (The United Republic of Tanzania 2003: 84). The population growth rate was 3.2% in Liwale in 1998 (Maganga et al. 2003: 8). The population density in Liwale was 2.09 persons per square km in 2002, which is among the lowest in Tanzania.

The studied villages of Kikulyungu, Barikiwa, Mpigamiti, Liwale B,

Likombora and Mihumo (Fig. 5.) were selected for the case studies because they are located in the vicinity of the Selous Game Reserve and the Angai Forest Reserve and affected by the natural resource conservation policies implemented inside and outside those reserves. Kikulyungu was selected because it is located far away from the main agricultural areas of the district and surrounded by open woodland, bushed and wooded grassland and bushland which make it vulnerable to encroaching wild animals. Mpigamiti is located between closed woodland and a mixed cropping area so it was also expected to be a village where the confrontations of humans and wild animals are frequent. These two villages stand out from the other four studied villages in the types of surrounding vegetation. The majority of the villages studied are situated in areas between open woodland and scattered cropland. The population numbers in all studied villages was between 1,500 and 4,400. There were no official records available on the size of the population in each village so I had to use the figures showing the size of the population at the ward level (Table 1.).

Table 1. Ranking of studied wards of Liwale district according to 1996 population figures and census of 2002 (Msalya 1997: 11; The United Republic of Tanzania 2003: 84).

Ward name	Population 1996	Population 2002	Case study villages included
Liwale Town	19 380	18 695	none
Barikiwa	3 929	4 339	Barikiwa
Mihumo	3 224	3 797	Mihumo and Likombora
Mpigamiti	2 866	1 804	Mpigamiti
Liwale B	2 088	6 333	Liwale B
Mkutano	1 803	1 557	Kikulyungu

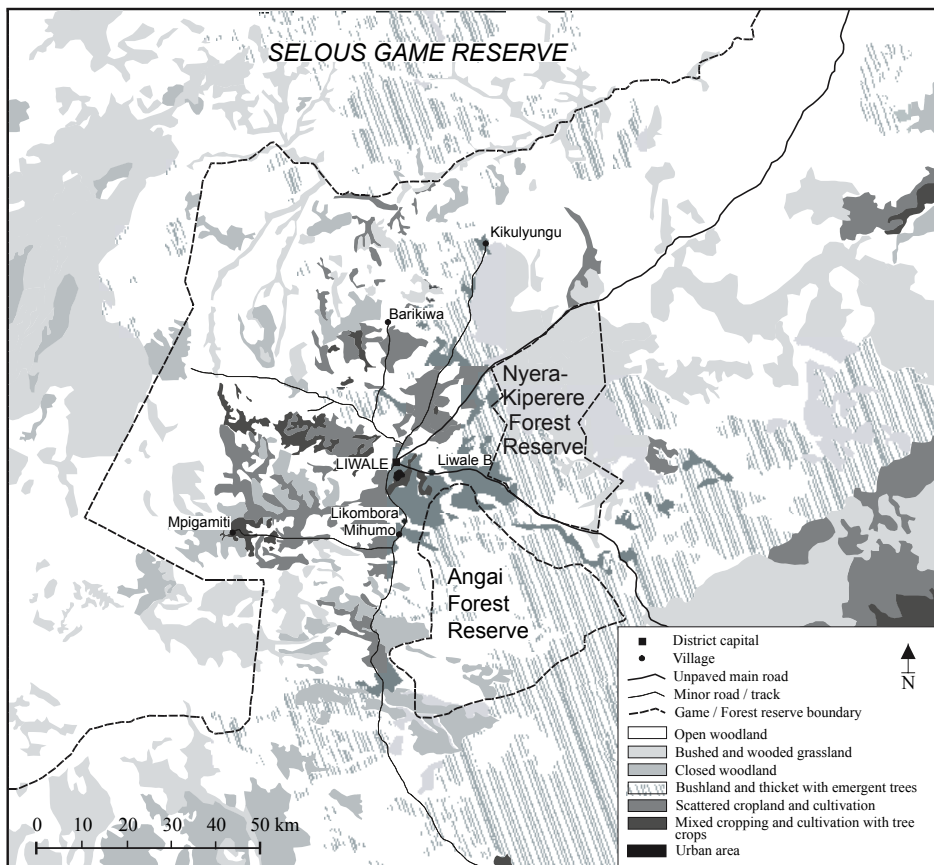


Figure 5. Vegetation of the study area and location of the studied villages.

In these studied wards the average size of household was highest in Mpigamiti (6.4), followed by Mkutano (5.7) and Barikiwa (5.3). The lowest household size was in Liwale Mjini (4.6). The district total average size was highest in Liwale district (5.2) when compared to other districts, such as Kilwa (4.7), Nachingwea (3.9) and Ruangwa (3.8), in the Lindi region (The United Republic of Tanzania 2003: 81–85).

Liwale B, Likombora and Mihumo are located within a 20-kilometre radius from the district capital town Liwale, which is the largest urban center in the area. Liwale town had 19,380 inhabitants in 1996 (Msalya 1997: 11). Liwale B is situated about 8 km east of Liwale

town, along the Liwale–Nachingwea road. Likombora is situated about 12 km south of Liwale town, along the Liwale–Lilombe road. Mihumo is the next village along the same road about 20 km to the south of Liwale town. Both Likombora and Mihumo are traditional villages which were affected by the villagization operations in 1974 unlike Liwale B, which was only registered as a village in the same year (Kinyero et al. 1995: 16, 18, 42). These three villages are all less than 10 km away from the northwestern border of the proposed Angai Village Land Forest Reserve. This forest area of 1,400 km² with valuable timber is under the gazettement process to be declared a village land forest

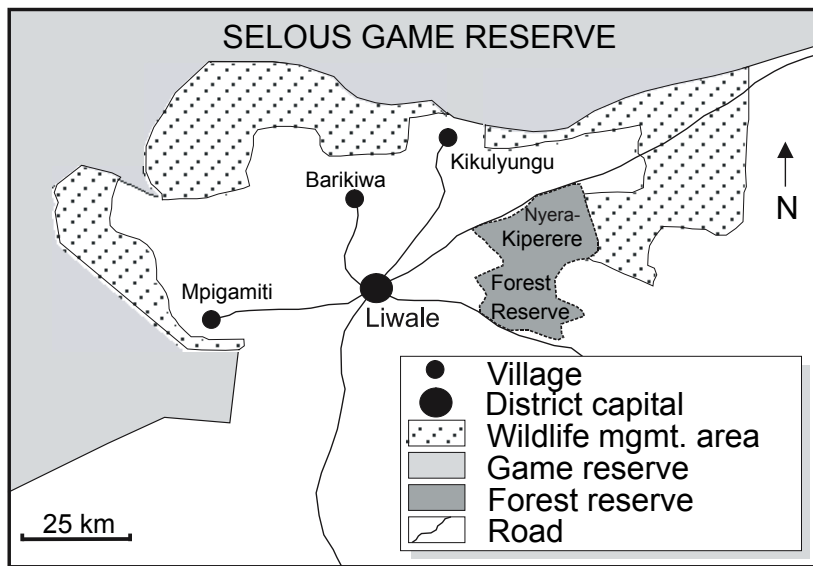


Figure 6. The Liwale Wildlife Management Area of the Selous Buffer Zone Project.

reserve (Mustalahti 2006: 160). The other three villages selected for this study are located in the pilot Wildlife Management Area (WMA) of the Liwale district. Liwale WMA is one part of the Selous Game Reserve Buffer Zone Project (Fig. 6.), where a Community-Based Conservation approach is used in this new demarcated protected area to ensure increased access to employment, income, food and promote a fair share of the wildlife income to the local communities (Maganga et al. 2003: 4, 9). Mpigamiti village is situated about 38 km southwest from Liwale town along the Mihumo–Mpigamiti road. The villagers of Mpigamiti have a much more heterogeneous ethnic origin than the villagers in the other studied villages. The population in Mpigamiti represents more than four ethnic groups. The village government supervises closely all farming activities within the village and any family performing badly in agricultural activities has to present an explanation to this. The farm sizes in Mpigamiti

vary from 5 acres in smaller families to 10 acres in the larger families. It must be emphasized here that in general, the well-off rural families in Tanzania have land holdings of four hectares or more, at least five or more cattle and five to ten goats. The well-off families also enjoy year-round food security. Mpigamiti does not suffer from food deficiencies and does not need food relief from outside. The farmers in Mpigamiti have adopted intercropping and the use of fertilizers. Another reason for the good agricultural performance is the improved farm organisation. Farms in Mpigamiti are organised in blocks of 40 to 50 families. This makes the farm access more easy, enhances collaboration and assistance during tilling and harvesting and creates prerequisites for the use of tractors. From the villagers' point of view, the most important outcome of organising their farms in blocks is the improved protection of crops against crop-raiding wildlife (Balduis 1990: 69–70; Ellis and Mdoe 2003: 1372).

The area where Barikiwa village is currently located was formerly a resting place for the slave trade caravans. The village is situated about 40 km north of Liwale town. Barikiwa was registered as a village in 1975 when all the scattered homesteads were grouped into eight clusters. Today Barikiwa is divided into two villages, namely Barikiwa and Chimbuko, which are separated by a narrow road. Both villages have their own village government. Barikiwa is difficult to access during the rainy season because the road is often cut off by many small flooding streams. Most of the cultivated fields of the villagers in Barikiwa are located in fertile river valleys. Almost 50% of the villagers live on scattered farms in the river valleys, which are up to 12 km away from the village centre. The reason for this is that the farmers prefer the location which has less dense vegetation. The villagers usually have two farms in different parts of the village. The rice farms are usually established in moist river valleys and the upland farms have been cleared in some drier locations. On their way back from the scattered fields to the Barikiwa village the farmers have to cross the Tandamanga forest, which is considered dangerous because of abundant wildlife (Baldus 1990: 61–62).

Kikulyungu village is located about 60 km northeast of Liwale town. Kikulyungu is a poorer village in comparison to Barikiwa. The yields are very low and over 75% of the families are not able to meet their annual subsistence requirements. There is a high rate of seasonal out-migration during severe food shortages in Kikulyungu village. On average, the villagers cultivate relatively small areas of land with poor

yields. The distance from the homesteads to farmlands ranges from one and a half to three kilometres in Kikulyungu. The villagers have taken up some off-farm activities, such as beekeeping and fishing to sustain their livelihoods. They have established beehives within the Selous Game Reserve area and have a fishing ground near the Kiurumila dam in Matandu river (Fig 7.), about 16 km from the village centre. However, in 1984 the authorities of the game reserve banned all fishing activities along the river and prohibited the access of beekeepers to the game reserve in 1986 (Baldus 1990: 65–69).

1.4.2. Ethnic groups in the studied villages

There are about 120 different ethnic groups in Tanzania. The use of natural resources has varied a lot among these ethnic groups and it has certain geographical characteristics. The earlier pastoral societies, which lived in the north and northeast of Tanzania, subsisted on cattle and goats. For them, it was a taboo to eat hunted wildlife meat. The ethnic groups in the south and southeast of Tanzania were hunters, who ate game meat, gathered honey and other natural products. Thus hunting has always been part of the traditions and cultures of the people in south- and southeast Tanzania (Severre 2000: 4, 6). Some of the smallest ethnic groups in Tanzania live in Liwale district. The main ethnic groups in Liwale district are Wangindo and Wandonde. These ethnic groups are among the few matrilinear societies in Tanzania. Wangindo is the largest group which has traditionally been hunters (Baldus 1990: 24, 27; Kinyero et al.

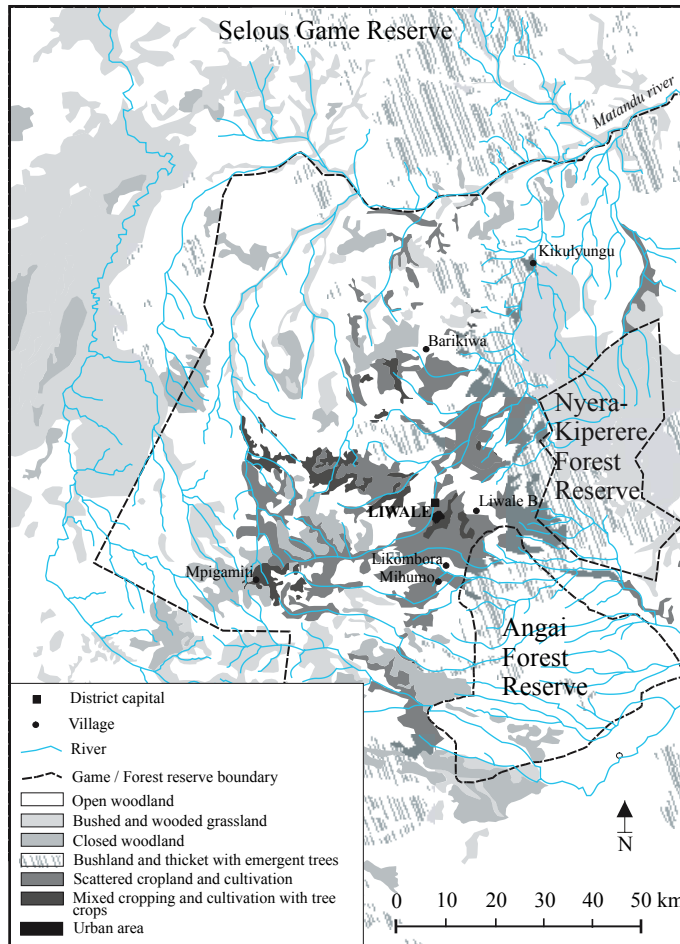


Figure 7. The river system in the vicinity of the studied villages in the Liwale district.

1995: 8). The importance of hunting and gathering has been considerably underestimated in the studies of the pre-colonial economy. Hunting has been a central part of the local economy and provided a supplementary source of animal protein for several ethnic groups in the south of Tanganyika, where cattle have been absent. However, hunting was also an important part of the economy of many cultivators and stock-keepers. Some of the ethnic groups may have fairly recently shifted their way of life from hunting and gathering towards agriculture supplemented with wildlife products. The Wangindo people were

aboriginal hunters, mainly trappers until the middle of the 19th century (Koponen 1988: 252–254). They lived as hunter-gatherers in scattered settlements until the 1940's within the area which today is the Selous Game Reserve. They did not live in permanent settlements but were constantly moving in the vast forest area looking for food and game. The British colonial administration forced about 40,000 Wangindo to move out of the established wildlife conservation area in the mid-1940's. The resettlement of the scattered Wangindo groups from their traditional hunting grounds into the settled villages on cleared land with

good soils and permanent water went hand-in-hand with the groundnut scheme of the British administration. Thus the Wangindo people were transformed to permanent settlers about six decades ago. Their current poor performance in crop production and livestock-raising may be explained by the lack of indigenous knowledge and experience with domesticated animals and cash crops (Balduš 1990: 46). The villagers in Liwale district live in the neighbourhood of the second largest and richest game reserve in the world and try to sustain their livelihood there by practicing agriculture, such as shifting cultivation, small business and wage employment. The Wangindo and Wandonde people primarily cultivate millet, maize, cassava, sorghum, peas and paddy rice in their scattered and isolated farms. The Wangindo people regard wildlife and land as a cultural heritage from their ancestors. Hunting has been a means to kill crop-raiding animals, but it has also been a source of meat and cash (Mwamfupe 1990: 20–21). The Wangindo people do not utilize some wildlife species because they have certain beliefs or taboos, which restrict them from eating certain animals. They do not eat the meat of striped animals, such as zebra, eland, kudu or bush buck because they believe that they may be infected with leprosy. The Wangindo people also do not eat certain vermin animals, such as monkeys or baboons (Siege and Balduš 1998b: 51). These beliefs limit the variety of wild animals available for a source of animal protein for the Wangindo and have to be taken into account when preparing the hunting quotas for the villages.

The other four ethnic groups in Liwale district are Wamakua, Wamakonde, Wayao and Wamwera. The studied village of Barikiwa has members from all these six ethnic groups, whereas the villages of Mpigamiti and Kikulyungu mainly consisted of Wangindo people (Maganga et al. 2003: 98). The study conducted by Mwamfupe et al. (1990: 17–19), however, pointed out that Mpigamiti village is considered to be the most heterogeneous settlement in the district, receiving migrants from other parts of the Liwale district and also from the neighbouring region of Ruvuma, where a few members of the Ngoni ethnic group have migrated from to the village. The Wamakua, Wayao and Wamwera people have, just like the Wangindo, practised hunting as a source of livelihood during the pre-colonial era. The Wamakua were famous for their elephant hunting skills. The generic term for the professional elephant hunters *Makua* is a reflection of these skills. The Wamwera organised large communal hunts in which several villages participated (Koponen 1988: 254). The Wayao were the principal long-distance traders of ivory to the Mozambique Island during the 17th and 18th centuries. They also traded slaves in the early 19th century (Sheriff 1987: 79–81).

The ethnic groups which were predominantly hunters during the pre-colonial era in Tanzania maintained cultures, traditions and taboos, which ensured a close relationship between people and wildlife. They also had mechanisms to punish those members who violated the rules concerning this relationship. Conservation of wildlife resources was then ensured through

cultural and social bonds. Conservation principles were included in the culture through sacred beliefs and fictions associated with certain wildlife species. Conservation ethics and knowledge on wildlife was transmitted from one generation to another through these sacred beliefs. Subsistence hunting was a highly valued skill and profession in these societies. It was a community-based activity managed and controlled by the lineage elders. However, the pre-colonial hunting contained structures which gave great power to the chief and local clan leaders, who controlled the enforcement machinery within the communities. Hunting seasons were common in most societies and some animal species were not hunted because they were regarded as sacred or of totemic significance. The contribution of the pre-colonial hunting community in shaping Tanzania's hunting industry has not been widely acknowledged in historical accounts. The knowledge of these skilled hunters has served many hunting expeditions carried out by foreigners, whose stories and trophies reached recorded historical collections around the world (Majamba 2001: 3–5).

Traditional hunting was mainly practiced for the provision of bush meat. In southern Tanzania, elephant meat has been highly favoured by those people whose religious restrictions or clan taboos prevented the use of meat from many other wildlife species. Bush meat availability was very important during funerals and wedding ceremonies in the hunting societies. Other important wildlife products, which were acquired through hunting included skins and hides used for beds, clothing and hand bags. Skins from highly-valued animals

were also used for rituals and dances, and awarded to traditional rulers to symbolize prestige. Some wildlife products, such as warthog teeth and pangolin scales were used for medical purposes and rituals, while wildlife tail brushes were exchanged and traded for other commodities, such as goats or tobacco. Killing a certain dangerous predator, such as a lion or a leopard, also brought a reputation of respect to young men in their communities. Fearless hunters could be rewarded with a bride or a higher social status. Hunting was carried out by different groups in the communities. The hunting experts called *fundis* hunted mainly large wild animals with muzzle loaders, spears, bows and arrows. Youngsters hunted small animals with clubs, canes and sticks. Shifting cultivators placed snares around their farms to get bush meat and simultaneously protect their crops. The *fundis* used traditional selective hunting methods and hunted only to meet the needs of the community. They trained young men to use traditional weapons, provided meat to disabled villagers and developed skills in poison preparation for hunting and defence. The *fundis* also enforced taboos on traditionally protected animals, such as the rhinoceros, the elephant and the python (Mbano and Nyanchuwa 1996: 41–42).

The diverse ethnic background of the people in some of the studied villages was not the only source of heterogeneity in the rural communities in Liwale district. There are also differences in the economic, social and cultural characteristics within the communities. The communities are often defined in spatial terms as groups of people who live in the same place and use the same

resource base. Each household has its own subsistence strategy based on its economical situation, family size, social networks, religion, and political power and so on. As this study does not focus on the differences between individual households, I did not carry out a survey of the socio-economic situation in the villages in Liwale district. However, the heterogeneity of the communities must be emphasised here as I often use the concepts of village and community in the text. By using such generalized concepts, my aim is not to claim that the target villages or communities are homogeneous units regarding their economical or socio-cultural characteristics.

Many of the current village settlements in Liwale were once forested areas. Traditionally, the majority of the rural people have lived in scattered homesteads, although the settlement pattern has varied over time in Tanzania. Nucleated settlements were formed in certain favourable locations, which were good fishing sites or had a permanent supply of water. In some areas of Tanzania, nucleated settlements were temporarily established in defence towards a common enemy. Once the threat of an attack was removed, people returned to live in scattered homesteads. In traditional villages, people lived in clans spread out to different parts of the village but during the Ujamaa villagization operations in 1968 and 1974 the scattered settlements were removed and moved into the current villages. Over 5,500 Ujamaa villages had been created by year 1973. The pressure on agricultural land and demand on forest products was increasing due to population growth. There was a growing

demand of natural resources, especially on public lands (Kinyero et al. 1995: 6–7; Sandi 1996: 45–46). The soils were poor in the resettlement areas in Liwale district, so the villagers have tended to move back to their abandoned farms along the river valleys. Land is abundant in all villages but poor soils make most of it unsuitable for agriculture (Baldus 1990: 76).

1.4.3. Physical geography

Liwale district is located South-East of the Selous Game Reserve. It is a part of the Selous ecosystem that covers about 75,000 km² of land in southern Tanzania. The Selous ecosystem consists of the geographical areas of Selous Game Reserve, Selous Buffer zone, Mikumi National Park and Mikumi Buffer zone (Baldus 1992: 4). The total area of the Selous Game Reserve (SGR) is about 48,000 km² that equals to 5% of Tanzania's land surface. The topography of the Liwale district changes from the gently undulating eastern and northern parts to the hillier western parts. The relief in the southern and eastern parts of the district rises from 50 to 200 m and in the western parts from 500 to 1000 m (Mwamfupe et al. 1990: 8; Baldus and Siege 2002: 2). The dissected plain which covers the eastern parts of the district, gradually changes into the undulating plain on the eastern border of the Angai Forest Reserve. Mihumo, Likombora and Liwale B are located on the undulating plain, which then changes into an upland towards the west. Liwale town is located in an upland landscape, which consists of sloping, slumped and dissected plateaux and ridges. (Dondeyne et al. 2004: 199–200).

The Liwale district is located at the heart of the East-African savanna and dry forest area where the vegetation is mostly characterised by miombo woodland. This is dominated by a closed canopy of broad-leaved deciduous, leguminous trees, such as trees from the genera *Brachystegia* and *Julbernardia*. The mature trees typically reach a height of 10–20 m. The discontinuous understory of broadleaved shrubs is accompanied by continuous layers of forbs, sedges and grasses (Campbell, Frost and Byron 1996 cit. Dondeyne et al. 2004: 200). Eastern and north-eastern parts of Liwale are relative closed forest areas. The closed forest belt has patches of open forests, wooded grassland and thickets. Areas west of Liwale town are mainly open forest, which gradually changes into more closed forests in a north-western direction (Balduš 1990: 17). There are also mosaics of closed forests in the eastern and northeastern parts of the district. Patches of open forests, wooded grasslands and scrub commonly disrupt the closed forest areas. Liwale district produces timber for regional markets and the rate of forest exploitation is alarming. The widely practised shifting cultivation is land extensive and results in large farm sizes and increases the pressure on forest resources as population in the farming area increases (Mwamfupe et al. 1990: 11–12). Cashew nut trees and palm trees are a common view in the villages where these species are planted as cash crops. Scrub and scattered trees is the main vegetation type around the villages. The Selous Game Reserve is the world's second largest and the richest game reserve covering two-thirds of the total land area of Liwale district. The vegetation of the SGR is characterized

by open grasslands, Acacia and miombo woodlands, riverine forests and swamps (International Resources Group Ltd. 2000: 13).

The miombo woodland in Liwale is infested by the tsetse fly. The tsetse fly carries *trypanosomiasis*, sleeping sickness, which is a deadly disease for domestic livestock, people and an obstacle for animal husbandry. Man-made or naturally occurring bush fires have shaped the miombo woodland for hundreds of years and fires are an integral part of the ecosystem. Small bush fires are common during the dry season. Local farmers and forestry officials set up fires for several reasons. Fire is important in clearing new fields for shifting cultivation. Fire is also used to control the tsetse fly and tick populations, to fertilise the soil with burned grass debris and to drive away dangerous predators from neighbouring areas or to clear out the high grass blocking the sight of the hunters.

Soils in Liwale are mainly sands and loams. Soil factors, such as low nutrient status and low available water content (inferred) in Barikiwa and Mihumo constitute development constraints. In the surroundings of Liwale town the soils have impeded drainage and low nutrient status. Soils to the northeast of Liwale town towards Kikulyungu have limited depth and impeded drainage or surface or subsurface stone (The United Republic of Tanzania 1979). Soils in the western part of the district are fair and in the eastern part poor, consisting of reddish or reddish brown loamy sands, which are usually imperfectly drained. Soil fertility is very low in the eastern parts and moderately fertile in the best western parts of the district (Mwamfupe et al. 1990: 9–10). According to a study

carried out by Dondeyne et al. (2004: 201), the soils of the undulating plains in the Angai Forest Reserve are sandy and have a low nutritional status. These soils were classified as *Hypoluvic Arenosols* as well as *Profondic* and *Arenic Luvisols*. Dondeyne et al. found out that the soils on the dissected plain in the eastern part of the Forest Reserve are shallow, clayey and more fertile, and typically represent *Leptic Cambisols*. The suitability of soils for agriculture may explain why most of the villages neighbouring the Angai forest are located on the dissected plain or along the boundary of the undulating plain and the upland area (Dondeyne et al. 2004: 205).

In the Liwale district, like elsewhere in southeastern Tanzania, the climate is influenced by the trade winds. Temperatures vary little from the mean temperature of 24.3° C in July to 27.5° C in December (Bennett et al. 1979 cit. Dondeyne et al. 2004: 200). The annual precipitation in Liwale averages about 900 mm (1931–1976) and there are normally two rainy seasons, the short rains from December to January and the heavy rains from March to May (Mwamfupe et al. 1990: 8; Baldus and Siege 2002: 2). One year in ten the average annual rainfall can decrease even to 500 mm or rise to 1220 mm (Dondeyne et al. 2004: 200). During the heavy rains flooding water in the perennial and intermittent rivers and streams (Fig. 7.) cuts some roads and certain areas become inaccessible in the Liwale district.

1.4.4. Economical activities in the Liwale district

Tanzania is one of the poorest countries in the world. The estimated Gross National Product per capita was 280 United States Dollars (USD) in year 2000. The share of agriculture in the Gross Domestic Product has declined from 52% in the mid-1980's to 46% to the mid-1990's. The share was around 44% in 2003. Poverty is much worse in rural than in urban areas in Tanzania (Ellis and Mdoe 2003: 1369). Village development in Liwale, especially in villages bordering to the Selous Game Reserve, is constrained by poor soils, traditional farming systems, lack of services and remoteness. The failure to produce enough food and cash crops at the household level undermines the social and economic development prospects of the villages (Baldus 1990: 6, 73). Most people living in the Selous ecosystem are small-scale farmers. Agriculture is low-intensive and based on shifting cultivation, which uses traditional methods and technology. The remote location of villages creates enormous transportation and marketing problems for the sale of the agricultural products. Also, alternative livelihood strategies to farming are few. Only an insignificant number of people are involved in off-farm activities, such as teachers, health workers and staff of the local government (International Resources Group Ltd. 2000: 24). Agriculture, small business and manufacturing handicraft for sale were the main sources of livelihood in the Liwale Wildlife Management Area in 2003. During the rainy seasons, agriculture, handicrafts and small scale business remain the main sources of

livelihood but at that time of the year the importance of handicrafts exceed that of small scale business (Maganga et al. 2003: 107). Shifting cultivation practiced in remote and isolated farms is supported by the traditional belief among the rural people. They believe that establishing a farm close to other people's farms may lead to crop failure or theft of their harvest by a neighbouring farmer. In Barikiwa, the agricultural activities are pushed closer to the Selous Game Reserve due to the practise of shifting cultivation (Baldus 1990: 27, 63). In Likombora village the economical activities also include beekeeping and animal rearing. In Barikiwa village, people also practice pot making, sewing and fish farming. Cassava, maize, millet, beans and rice are the most common food crops, and cashew nuts and sesame the most common cash crops in Liwale (Luhuva et al. 1997; Maganga et al 2003: 109). Mpigamiti is perhaps the only village in the district where chemical fertilizers and crop rotation are applied on the farms (Baldus 1990: 27). Coconut, oil seeds and legumes are also grown as cash crops in Liwale (Kinyero et al. 1995: 3). Maize, millet and rice can be categorized as annually cultivated plant species. Cassava is a semi-perennial cultivated plant and cashew nut and coconut are perennial plant species cultivated in the area (Siege and Baldus 1998b: 11–12). According to my own observations, people also cultivate fruits, such as papaya, mango, orange, banana and pineapple on their farms in Liwale.

The traditional matrilineal norms have changed and faded away during different societal processes, such as the Ujamaa programme. The weakening of the clan ties and moving away from

the land of their father-in-laws, allowed the husbands to gain more power in the households. This partially changed the traditional decision-making power structures within the families. However, the male-headed households still carry out consultation with the wives in farm-related issues. The women are responsible for most of the domestic activities and also for tilling the land, and weeding and harvesting the crops. The men are usually responsible for hunting, beekeeping and farm clearing and tilling activities. They may also assist the women in the harvesting of certain crops, such as maize and rice, when there is a shortage of labour in the family. The men control most of the income generating activities in the family, such as selling game meat and honey. The women are also sometimes engaged in income generating activities, such as basketry, mat-making and brewing local beer. The money generated by the women is usually spent on the family expenses, while the money earned by the men is often used for their personal expenses (Baldus 1990: 28–29).

The livestock populations of cattle, sheep and goats are lower in the Lindi and Mtwara regions, compared to other regions in Tanzania. The conditions for keeping domestic animals in the Liwale district are unfavourable because of the exposure to tsetse flies and trypanosomiasis (Kinyero et al. 1995: 8). The socio-cultural background of the main ethnic group, the Wangindo, has also hindered the development of livestock-raising in Liwale. The Wangindo people have traditionally been hunters, who do not have experience in farming or keeping livestock (Baldus 1990: 41–42). According to the National Sample

Census of Agriculture 1993–1994 of Tanzania Mainland, there were 1,245 cattle, 40,429 goats and 16,825 sheep in Lindi region. The number of cattle in Lindi was the lowest in Tanzania. Concerning the number of goats and sheep, the Lindi region ranked second last leaving behind it only the Pwani/Dar es Salaam region. The distribution of stock within the Lindi and Mtwara regions is very uneven. The average animal protein consumption is also very low compared to the national average (Chiwaló et al. 1997: 4, 17). The Rural Integrated Project Support Programme (RIPS) has carried out a small stock project in the Mtwara and Lindi regions from 1992 onwards. By 1996, the project included 1,362 villages in both regions and had provided goat loans to farmers, women groups and schools. In the Lindi region, Liwale B, Mihumo and Likombora are also among the villages where goat loans have been granted. RIPS carried out an evaluation survey of the client groups' expectations in the Masasi and Lindi regions in 1994. The four studied villages in Masasi and Lindi did not include any of the villages I have studied but some generalizations can still be made for the whole Lindi region on the basis of the findings. In those four villages visited by the evaluators of RIPS, 36% of the respondents mentioned the death of goats as a problem, which led to unfulfilled expectations. The goats died of diseases or died after eating poisoned cassava and weeds or were killed by leopards (Smets 1997: 2–3, 41). In the early 1990's there were plans to implement a project which would revive livestock activities in Liwale. This project would establish a cattle route between Ilonga in the Mahenge

district and Ndapata and Kibutuka in the Liwale district. About 20,000 heads of cattle would pass through this route annually. The route would run through the Selous Game Reserve and have detrimental effects on wildlife conservation in the area. This route would provide the livestock farmers of Ilonga an access to the undersupplied livestock markets in Liwale. The project would also provide an increased and welcomed access to livestock products for the people in Liwale. The establishment of such a cattle route to Liwale would have required excessive land clearing, no less than 6,100 hectares for grazing ground and the eradication of tsetse flies in the area. Freely grazing cattle would also be vulnerable to wildlife attacks, which would force the herders to chase the wild animals away into the remote parts of the game reserve (Baldus 1990: 41, 44, 48). Forest products such as firewood, building poles, fruits and vegetables, honey, beeswax, roots and tubers, and medical plants are very important to the local communities in Liwale. Building poles and thatching grass are very common materials used for house construction in Liwale. Most houses have walls made of mud and poles and thatched roofs (Luhuva et al. 1997; Maganga et al 2003: 112). In addition to these products, the forests also provide fertile land for shifting cultivation as well as bush meat from wild animals, which is an important and secret source of protein for the villagers in Liwale. Game meat was the second most often mentioned natural resource used by the locals in Liwale Wildlife Management Area in 2003. However, there are very few economic activities related to natural resources in Liwale and

regulated trade in game meat is carried out by the natural resource committee in the villages (Maganga et al 2003: 112). Illegal hunting of wild animals is still practiced there. The Wangindo people consider wildlife and land as a cultural heritage from their ancestors. They have hunted on the areas bordering the Selous Game Reserve in order to get meat and cash from sold wild animal products. The villagers have not had any additional economic incentives to maintain the remaining forest cover and wildlife stocks, and the clearing of forests into new farmland has been the only way to secure their income. Liwale district is one of the few places in Tanzania where land is still available for shifting cultivators (Baldus 1990: 27; Kinyero et al. 1995: 3).

South-eastern Tanzania is one of the major sources of hardwood timber from the natural forests and supplies the markets of Dar es Salaam. The stocks of the valuable hardwood timber species are declining rapidly in Tanzania, so the economic value of these trees is likely to increase. Two valuable hardwood timber species, *Pterocarpus angolensis* and *Pericopsis angolensis*, are common on the undulating plain of the Angai Forest. The sustainable exploitation of these valuable timber species is urgently required and setting the area aside as a forest reserve is a step in the right direction (Dondeyne et al. 2004: 205–206). Fuel wood is the main source of energy in Liwale. It is used by the households for cooking and lighting. Fuel wood is available in the villages from the nearby forests and can even be obtained in the vicinity of Liwale town. A big generator in Liwale town occasionally supplies electricity for the district administrative

headquarters (Baldus 1990: 34). The growing demand for fuel wood and timber may lead to the overextraction of forest resources and negatively affect the availability of wildlife habitats in the Liwale district. The loss of habitats will eventually force more wild animals to seek food in the fields and gardens.

Kinyero et al. (1995) visited 12 different villages in Liwale during their study in May 1995. Their findings were valuable for me when in selecting the study sites for my own research. Mihumo, Likombora and Liwale B were on the list of villages they visited for their report. Interesting in their report is that 11 out of 12 villages visited, mention vermin as one of the main problems for development of agriculture in the villages. The vermin, which are most often mentioned, are elephants, monkeys, wild pigs, warthogs and hippopotami. Fierce wild animals, such as the lion and the leopard, are also mentioned as a problem in four villages. The negative effects of wild animals on cattle raising are described in both Mihumo and Likombora. In 1975, Likombora village bought 10 cows for a cattle keeping project but all cows were killed by the lions. Between 1993 and 1994 the elephants also caused damage to many farms in the village. During the same period, there was an occurrence of lions specializing in killing chickens in Likombora. In 1976, the Prime Minister's Office donated 10 heads of cattle to Mihumo village but all of them died during that same year. Some were killed by lions and some died of diseases. The study of Kinyero et al. (1995: 43) also points out the threat of some wild animal species to humans as one villager was killed by a lion in Liwale B in 1993.

The studies described above clearly show that the sword cuts both ways in the co-existence with wildlife as wild animals can be regarded as both an obstacle and an opportunity for rural livelihoods in Liwale.

1.4.5. Wildlife as an important natural resource in the Liwale district

In Kiswahili, wildlife is called *wanyamapori* or *Wanyama wa pori*. The word is made up of two parts, *mnyama* which means an animal and *pori* which means a savannah, a forest and an uninhabited/uncultivated area. Thus the term *wanyamapori* can be also mean animals of the savannah or animals of the forests. It is important to notice that the concept *wildlife* itself contains a spatial distinction in Kiswahili as well as in English language.

Wildlife and wildlife products acquired through hunting have shaped the customs and habits of the traditional hunting communities in southern Tanzania. Bush meat was important for survival and highly valued at different family events, such as weddings and funerals. Skins and hides provided raw materials for clothing and bedding. Wild animal products were also commonly used for medical purposes, in rituals, traditional dances and as commodities of exchange. Wildlife products were also important instruments to honour traditional rulers during ceremonies. For example, a lion skin indicated heroism and ability of a ruler and wildebeest tail brushes reflected a powerful position. These tail brushes were also used to denote local doctors in the communities. Many traditional signalling devices and musical instruments were built from

wildlife products. Bugles which were used to inform people about a gathering or meeting were made of sable antelope horns. Drumheads for the wooden drums were made of lion skins and were used to call distant communities to gatherings or inform them about emergencies. The importance of wildlife in the lives of the southern communities in Tanzania is clearly shown in the surnames of people and in clan names of these communities. Many traditional hunters took their names from certain wildlife species to indicate bravery or hunting skills. The names like lion or snake were selected to show strength in wars and elephant names were chosen to reflect the large size of the clan. People's surnames included a wide variety of wildlife species, from lion to elephant and from hare to warthog. Hunting communities respected and worshipped the wildlife species of their clan name and did not eat that species due to taboos (Mbano and Nyanchuwa 1996: 41–43). The hunter-gatherers did not regard themselves as superior to the wild animals they hunted. Rather, some animals were considered as mental and spiritual equals or even superiors. The worship of certain wild animals is linked to totemism where kinship with animals is formalized in a system of religious belief. In some cases, the clans or ethnic groups traced their origin back to some mythical animal ancestor (Serpell 1986: 142).

Wildlife is and has been an important natural resource in Tanzania. As a cradle of mankind and culture development, the country has provided natural resources for human consumption and trade since time immemorial. Hunting of wild animals formed the basis of subsistence of early human communities there. One

of the most important wildlife products has been ivory. The trade of wildlife products, such as ivory and rhinoceros horn started along the East Coast as early as 100 A.D. (Majamba 2001: 2). The ivory trade has in addition to the slave trade, shaped the history of the Lindi region since the 16th century when the caravans passed through the area on their way to Zanzibar. According to Spinage (1973), the ivory trade reached its peak in East Africa between 1879 and 1883 when about 196,000 kg of ivory per year was exported from Zanzibar. This amount of ivory equals to an estimated twelve thousand killed elephants each year (Spinage 1973 cit. Rodgers and Lobo 1978: 25). Lindi had prospered on the slave trade to the south before the 1822 but then the *Moresby Treaty* shifted the trade towards the north where the demand for ivory, copal and slaves was growing. Four to five large caravans of 400 to 500 men each arrived annually at the port of Lindi from the inland in the 1840's. Lindi exported 1,000 to 1,200 slaves, and Lindi and Tungi exported 1,400 to 2,100 fraselas of ivory annually. One frasela equals to approximately 16 kilograms. In the early 1880's, trade routes from the southern Tanzanian ports of Kilwa, Lindi and Mikindani extended through the territories of Wangindo, Wamatumbi and Wayao (Sheriff 1987: 160–164). The ecological effects of the ivory trade are not yet fully understood, but the main short-term consequences of ivory trade were more economic and social than ecological. The slave and ivory trade boosted the expansion of trade in every form. New demands increased local and regional trade which interacted with the long-distance trade of these two main commodities (Koponen

1988: 101–102). Those pre-colonial subsistence hunting communities, which had been contacted by Arab traders in the interior of the country, started to trade ivory and other wildlife products with them. The expansion of trade gradually altered the relations between nature and wildlife in pre-colonial communities. The traditional rituals which prohibited hunting of certain species were ignored and local hunters started to hunt animals for economic reasons to supply the growing market. Thus the pre-colonial hunting industry changed from the cultural and social fabric of the local hunting communities' to an industry which had features of a capitalist market-oriented economy (Majamba 2001: 5). Take-off levels of bush meat were sustainable in the past due to the low number of people and inefficient hunting techniques but the appearance of firearms changed this balance (Balduş 2001: 2). The ivory boom ended in 1900 when the elephants had become relatively scarce and colonial governments started to restrict hunting by setting quotas and establishing game reserves in East Africa. The ending of slave trade and large scale ivory exploitation allowed elephant populations to increase after 1901. It was estimated that there were 1,000 elephants in the province in 1927. The next estimation increased the number of elephants in the Southern Province of Tanganyika to 8,000 in 1931. The acting game warden stated in 1933 that according to a census of elephants there were 5,424 elephants in the Southern Province and out of those 2,500 in Liwale. So there were several contradictory estimates on elephant numbers made before the 1940's (Rodgers and Lobo 1978: 26,

36). Today, Tanzania also has the largest lion populations on the continent. Although lion populations are stable in almost all protected areas, the species is mainly threatened by habitat loss and human-wildlife conflicts. Lions are not threatened by international trade on skins and trophies like the elephants are. In Tanzania, about 250 lions are killed by tourist hunters annually, which are within the limits of a sustainable yield (Baldus 2004: 4–5).

A study carried out in the Kilombero and Ulunga districts of Morogoro Region, which borders the Selous Game Reserve in the north, stated that almost half of the 1,214 studied households used wildlife products for food in 2001. About 20% of the households said that they used buffalo meat and approximately 5% of the households used hippopotami meat for food (Mvungi et al. 2002: 46–47). Rudolf Hahn studied the hunting quota of the buffer zones of the Selous Game Reserve from 1999 to 2000 and noticed that the most popular species for meat was wildebeest (59%), followed by buffalo (26%) and impala (4%) (Hahn and Kaggi 2001: 46). The importance of wildlife to the studied villages in Liwale is enormous not only in its material value, but also for its cultural and symbolic value. The amount of different wild animal species in the vicinity of the households and farms is high and this has inevitably caused interaction and confrontation between people and wildlife.

In addition to the largest elephant concentration on earth, the Selous Game Reserve is the home of 35 other large mammal species and 350 species of birds and about 2,000 plant species (Baldus et al. 1988:1). According to the

survey of 1994, there were over 52,000 elephants in the Selous ecosystem. It was estimated that there were more than 31,700 elephants inside the SGR and over 17,800 elephants outside the protected area, which covers the areas bordering the game reserve in the south, east and west (Barnes et al. 1999: 102). The most recent aerial census of 2006 reveals a huge increase in elephant numbers in the Selous ecosystem. It is estimated that there are over 70,000 elephants in the area. In the Selous–Masasi Corridor, which covers large parts of the Liwale and Tunduru districts, there were over 1,000 elephants according to a survey in 2000 (Blanc et al. 2007: 102). The significance of the elephant population outside the borders of the SGR was already indicated by the Wildlife Census of 1989. There were 10 elephants per km² in certain areas of Liwale in 1989. The census also indicated that in the northern parts of Liwale, the density of eland, zebra and sable antelope was over 20 animals per km². At the same time, the densities of greater kudu, hartebeest and warthog were higher than 10 animals per km² (TWCM 1989). The dry season aerial census carried out in Selous Game Reserve, Mikumi National Park and surrounding areas in October 1998, shows that Liwale has a greater diversity of surveyed species than any other survey zones outside the SGR. The census estimates that there are over 4,300 hartebeests, 3,200 wildebeests, almost 3,000 elephants, over 2,600 impalas and more than 1,300 warthogs in the northern parts of the district, which form the Outside Southeast census zone. The total area of the Outside Southeast zone is 14,711 km². In addition, it is estimated that there are

over 1,000 zebras, 900 waterbucks, 840 hippos, 750 elands and 312 buffalos in the same census zone in 1998 (TWCM 1999). If these estimates are correct, the average elephant population density in the Liwale census zone was over 20 animals per km² in 1998. A comparison of the elephant densities in the censuses of 1989 and 1998 indicates that the number of elephants outside the Selous Game Reserve, especially in the Liwale census zone, has greatly increased in less than ten years.

Chardonnet (2002) shows that the estimated number of lions in Mikumi National Park, Selous Game Reserve and Kilombeoro Game Controlled Area together is approximately 4,400. For the non-protected areas of Southern Tanzania, Chardonnet estimates that the number of lions is 540. Similar numbers of lions have been recorded in many areas bordering the SGR so lions are common also outside the reserve. The statistics on the lion populations in the unprotected areas may, however, be underestimates (Chardonnet 2002 cit. Baldus 2004: 10–11).

The residents of the areas surrounding the SGR do not keep enough livestock for meat production. Poaching for meat was and still is an important activity in rural communities which have traditionally used wildlife as their main source of animal protein. In some areas, such as in the Songea district, subsistence hunting has been replaced by poaching for commercial motives (International Resources Group Ltd. 2000: 17). The current hunting legislation prohibits the use of traditional weapons so many villagers cannot hunt legally. Traditional weapons and techniques used in hunting include snares, pits,

clubs and machetes, spears, nets, fire, poisoned arrows (Fig. 8.) and muzzle loading guns. Illegal hunting with traditional spears and arrows and some other techniques in the forests within or beyond village boundaries is still taking place. These secret hunting activities provide meat for family subsistence and meat is also occasionally delivered to close relatives (Ndolanga 1996: 14; Mbano and Nyanchuwa 1996: 42; Baldus 1990: 49). Bush meat poaching is a widespread and uncontrolled activity nowadays. It is as destructive to wildlife as commercial trophy poaching. It is a romantic myth that bush meat hunting is small-scale and practiced at sustainable levels. The common distinction between commercial trophy poaching and subsistence poaching of bush meat might also be rejected



Figure 8. A village elder explains the use of poisoned arrows in traditional hunting in Kikulyungu.

because nearly all poaching in the Selous Game Reserve is commercial and a well organized informal industry. Bush meat trade has flourished because there is no public awareness about its illegality. The demand exists and there is no sense of custodianship of wildlife among local communities anymore which has led to uncontrolled exploitation. Bush meat is also cheaper than beef and in many rural areas wild meat is the only meat available due to tsetse fly infections (Baldus 2001: 2; Baldus 2002: 23). In practice, bush meat supplements both diets and incomes, so it is often difficult to draw a clear line between the subsistence and commercial uses of wildlife. The value of bush meat can be very significant to local and national economies in some countries, although this value is not often included in the estimates of Gross Domestic Product (Bennett and Robinson 2000: 2). In the late 1980's, it was estimated that the value of illegal hunting of bush meat was worth about 50 million USD which represented 39% of the Gross National Value of wildlife to Tanzania. Currently, illegal bush meat trade is developing fast in urban areas, such as Lindi (Milledge and Barnett 2000: 4). The International Trade Centre estimated that 60% of wildlife utilisation in Tanzania was illegal in 1994. This includes both hunting and the capture of living animals (Ndolanga 1996: 14).

Before the spread of Islam into the area, most game species except the elephants were eaten by the subsistence hunters. At times of famine, even rats and insects provided a source of protein for the poorest rural people. Islam then prevented people from eating the meat of elephants, bush pigs and

hippopotami. Today, people who are Christians, however, regard elephant meat as highly valuable. One big grown-up bull can weigh up to 6,000 kg and an average elephant weighs about 2,000 kg, which provides a large protein resource for people (Rodgers 1976 cit. Siege and Baldus 1998b: 51; Rodgers and Lobo 1978: 37). According to the restrictions of the game laws of the 1980's, the holders of a hunting licence were not allowed to sell wildlife meat or hides on the local market but they were able to exchange wildlife products against a certain amount of crops or local beer (Baldus et al. 1988: 24). Safari hunting in the Selous Game Reserve did not produce any meat for the neighbouring villages until 1989, when the Wildlife Division allowed the safari operators to sell meat to the villages. Previously the meat from wild animals shot on safari hunting was used in the hunters' camps and as baits. A large part of the meat was left to rot in the bush (Baldus 1989: 27).

Wild animals are also hunted legally for their meat in Tanzania. Commercial cropping schemes constitute the largest percentage of the legal game meat supply (28.8%), followed by resident hunting (25.2%), safari hunting (22.4%) and problem animal control (15.3%). Community-based cropping schemes provided 8.3% of the total supply in 1997. Safari hunted meat is only available during the hunting season between July and December (Milledge and Barnett 2002: 14). The District Game Officer coordinates wildlife utilization within the two Open Areas in Liwale. The Open Areas in Liwale are Liwale Open Area North and Liwale Open Area South. Resident hunting is restricted

to Open Areas in Tanzania. Tanzanian citizens are issued hunting licenses for many common game species, such as impala, hartebeest, buffalo and game birds. But the resident hunters are not allowed to hunt lions and there are no licences which would allow traditional lion hunting for medical products in Tanzania. The resident hunting fees are low and do not generate much income or economic return to the Open Areas (Baldus 2004: 13; Baldus and Cauldwell 2004: 7–8). Since 1974, Tanzanian residents have been allowed to hunt certain wild animals during the hunting season for a licence fee. The hunting licences sold at the District headquarters are valid for the respective district only. The licence is valid for two weeks and each registered resident hunter can buy one licence per month. They must also have a suitable licensed gun for hunting before they can buy the licence. It is usually the richer urban population who can fulfil these preconditions for resident hunting in Tanzania. For example, 92% of the resident hunting licence requests were made by citizens from urban areas in 1992. The game fees generated by resident hunting were about 40,000 USD while game fees generated by tourist hunters were 3.6 million USD in Tanzania in 1992–1993 so profits from tourism hunting are much higher than from resident hunting (Department of Wildlife 1996: 178-180; Siege 2001b: 41). The number of admitted resident hunting licences has remained low in Liwale in the 1990's, but there has been a relatively high increase in the number of allocated licences since the year 2000 (Table 2.).

The village members of the six visited villages in this study mentioned

Table 2. The number of admitted resident hunting licences in the Liwale District in 1993–2001. (District Assistant Game Officer, Mr. Mohamedi Mtila, Liwale District Council, 22 July 2002, personal communication).

year	number of resident hunting licences
1993	8
1994	11
1995	14
1996	10
1997	19
1998	12
1999	n.a.
2000	33
2001	36
Total	143

that the following animal species have been hunted in their areas: the buffalo, the elephant, the hippopotamus, the eland, the zebra, the greater kudu, the common duiker, the blue wildebeest, the bushbuck, the hartebeest, the sable antelope, the red duiker, the bush pig, the lion, the leopard, the baboon, the vervet monkey, the blue monkey, the African wild cat, the jackal and the warthog, the honey badger, the porcupine, and several birds. The village members did not define exactly to us who carried out the hunting but in some villages we were told that species, including zebra and sable antelope, are hunted with a special licence while other animals are only hunted through problem animal control by project officials. In Mihumo, however, one village member told us that they do not hunt any wild animals and as a result other villagers started to laugh. According to the hunting quota in Liwale for the year 2002, the Kikulyungu village hunted one



Figure 9. Some members of Kilulyungu village are assessing crop damages on a maize field after a raid by a group of elephants.

wildebeest and two hartebeests, and the Barikiwa /Chimbuko village hunted two buffalos and three hartebeests during the hunting season while in Mpigamiti village only one buffalo was hunted (Maganga et al. 2003: 90).

Foreign tourist hunters can hunt on the open area too within the limits of the annual available quota. The foreign sport hunters usually pay high prices for hunting licences. Tourist hunting contributed approximately 10 million USD to the Wildlife Division in 2004. Of this revenue, about one million USD was earned from lion trophy fees. In total about 2.4 million USD of the tourist hunting revenue in Tanzania can be attributed to lion hunting. The minimum lion hunting fee for a tourist hunter is 5,000 USD. This fee includes a 21-day hunting permit, trophy fee and trophy-handling permit. The lion is the third most important species in revenue generation and the direct contribution

of lion trophy fees is 9.4%. Only the buffalo (21.5%) and the leopard (10.4%) trophy fees contribute more than the lion to the Wildlife Division (Baldus 2004: 16–17). The game officers and game scouts carry out problem animal control on the open area to help protect farms, domestic animals and people living there. According to the *Wildlife Conservation Regulations of 2002*, an animal becomes a problem animal when it is found destroying crops (Fig. 9.) or other properties inside or outside a Wildlife Management Area or when it threatens human life (The United Republic of Tanzania 2002c: 24). Game officers mostly hunt elephants, hippopotami, monkeys and warthogs to protect crops on the farms. The game officers also kill dangerous animals, such as lions, leopards, crocodiles and hyenas to protect domestic animals and people in the villages and farms. According to the villagers, however, there is very

little protection against wild animals on the farms because there are so few game officers, lack of equipment and communication and the remoteness of the area makes it difficult to access in time. Game cropping, which means the commercial harvesting of wildlife for meat, hides and other products is considered as one potential economic opportunity for the Wildlife Management Areas in Tanzania. However, a study carried out by Christophersen et al. (2000: 12), suggests that game cropping for local markets cannot compete with the revenues generated by tourist hunting and resident hunting. Markets for bush meat and other wildlife by-products are not yet well developed. Cropping for fresh meat in remote rural areas has logistical challenges, so cropping for dried meat is a much more realistic opportunity in some wildlife management areas. The district is unable to make use of the available hunting quotas and thus unable to provide enough bush meat for the customers of the five hotels in Liwale town. Legal hunting activities are mainly constrained by lack of bullets and rifles in the villages. There is also a considerable bureaucracy involved in the process of obtaining hunting licences for the locals. The price of hunting licences has increased so much that most local hunters cannot afford to buy them in Liwale. Therefore legal hunting can no longer be regarded as a means to sustain the demand of animal protein by villagers (Baldus 1990: 50–51). Nielsen (2006) studied the importance of bush meat in the Udzungwa Mountains in Tanzania and found out that there only 7.5% of households practiced hunting so bush meat hunting was not important in the area. He criticizes

the use of bush meat as an income generating commodity because the poorest households cannot afford to buy it and are likely to continue the practice of illegal exploitation of wild animals. The price which the hunters get from the sale of bush meat exceeds the benefits of the community-based conservation programme. This may tempt them to sell the meat in the growing urban markets, where the growing demand for bush meat may create incentives for excessive commercial exploitation and negatively affect the objectives of the community-based wildlife management programme. On the other hand, the economical valuation of wildlife through harvested bush meat in these programmes may reveal that wildlife is not a competitive asset compared to more intensive land use options, such as agriculture. Bassett (2005) makes similar findings on the links between game depletion, commercial bush meat trade and economic diversification strategies of rural livelihoods in Ivory Coast. He finds out that the decline of rural incomes and cultural valorisation of hunting drives farmers to hunt more bush meat for the growing urban markets.

Villages in the Selous Game Reserve buffer zones harvested only 30 to 80% of their available hunting quotas between 1991 and 2000. One of the explanations for this is that the markets for harvested bush meat are limited during the hunting season due to the seasonality of local economies. People are more able to buy bush meat when they have received cash from the sale of their cash crops, such as tobacco, sesame and cashew nut (Hahn and Kaggi 2001: 47).

The sub-chapters of this part of the study have provided an introduction

to the geography of the Liwale district. I have intentionally focused on themes which are important in understanding the daily relations between humans and wild animals there. Although most people in the district currently earn their living from agriculture, I have not given this as much emphasis here as it would deserve. This is because most ethnic groups living in the district have long traditions in hunting and gathering but not in permanent settlements and agriculture. In the scattered hunting communities the distinction and borderlines between the domesticated and the wild or between culture and nature were not as clear as they currently are in the agricultural communities. This transition has shaped today's relationships between humans and wild animals. I will next try to give a theoretical overview into the human-animal relationship. I will start by describing the role of animals in geography and then move on to present why cultural perceptions of space are important in studying human-wildlife conflicts.

2. Theoretical framework

2.1. Animal geographies

Traditionally, animals have not been at the core of geographical inquiry. At first, this may seem strange because the interaction between human societies and nature is one of the key areas in geography. Human beings have interacted with animals since the early days of human evolution. The hunter-gatherers' livelihoods depended on the availability of game and fish. Domestication of animals for farm production boomed during the agricultural revolution. In

industrialized urban societies, many people have one or more animals in their homes as pets or personal assistants. However, animals have only received a minor focus in geographical studies. Actually, biogeography has been the only field of geography where animals have received some attention. The depth of inquiry and research on animals in biogeography has been mainly limited to the description of spatial distribution of animal species in different geographical regions. Usually, one chapter or sub-chapter of a regional geography study is dedicated to animals, containing the visualization and description of the number and distribution of wild and domestic animals within the studied geographical region.

Geographers including, Charles F. Bennett (1960) acknowledge the paucity of zoogeographical work almost forty years ago. He noticed that geographers tend to leave this field of inquiry entirely in the hands of zoologists whom they believe to possess an adequate training for it. Davies (1961: 412) writes that zoogeography is considered too specialized and too remote from the central problems of human geography. Bennett lists three focus areas of animal geography where geographers have been doing research during the past century. These are faunistic animal geography, historical animal geography and ecological animal geography. The faunistic approach, which focuses on ascertaining areal distributions of animals, is the oldest of these three. Historical and ecological animal geographies both emphasize explaining the distribution of animal populations as their major goal. Interestingly, Bennett suggests the formation of a fourth approach

of animal geography, namely cultural animal geography. This new approach studies the aspects of animal geography which are relevant to the interactions between animals and human cultures. Cultural animal geography would not only focus on the distribution of fauna but would also study the utilization, transportation, domestication, and human-animal conflicts, such as crop damage and disease infections stemming from animals. Bennett also suggests that geographers could make significant contributions in studying the role of man in the dispersal of animals and in investigating the subsistence of hunting and fishing. Bennett's work is partially influenced by the cultural ecology research of Carl Sauer at the University of California. Cultural animal geography is interested in studying the role of animals in the evolution of place, region and landscape. Bennett also points out the need to study how animals influenced human life opportunities and the potential dangers which animals cause to humans and their livelihoods in rural settings (Wolch 2002a: 724).

According to J. L. Davies (1961), the first modern zoogeographers were Compte de Buffon and E.A.W. Zimmermann, who worked in the last half of the 18th century. The first branch of zoogeography, the regional zoogeography, was developed due to the discoveries and classifications of new animals from 1760 to 1860. The regions were regarded as independent centers of creation during this pre-Darwinian phase and by 1778 J. C. Fabricius had divided the world into zoological regions. His scheme was followed by many zoogeographers, most notably Philip Sclater who in 1858 published

his work with a classical division of six major zoogeographical regions. His research is among the last ones in static zoogeography which did not include any historical interpretation but mainly consists of general descriptions of the influence of environmental factors, especially climate, on animal distribution. The influences of Darwinism and paleontology enhanced the development of another branch of zoogeography, the historical zoogeography. It studies the successive stages in the establishment of the present pattern of animal distribution. These two branches of zoogeography were dominant until 1914 when after the regional zoogeography re-emerged later in the new science of ecology. Regional zoogeography is interested in the broad boundary zones between the zoogeographical regions, which are in many ways more important than the core regions. Ecological zoogeography, which is the third branch of zoogeography, was established in the 20th century. It focuses on the environmental influences on animal distribution. The first major published work in this field was Richard Hesse's (1924/1937) *Tiergeographie auf ökologischer Grundlage* which describes zoogeography as a study of animal life, its distribution on the Earth and the reciprocal influence of environment and animals on each other. He highlights that in addition to the description of the regional distribution of animals, it is also important to determine the specific areas or ranges of individual species. He introduces the concept causal zoogeography which was a branch of ecological zoogeography. Hesse is interested in the distribution of giraffes, rhinoceroses, zebras and antelopes, among other animals, in central Africa.

While both ecology and geography are interested in relationships, there is some difference in their focus. Ecology is concerned with environmental relationships and geography is concerned with spatial relationships. Ecological distributions of animals are based on the local scale and habitat preferences while geographical distributions are comprehended on a regional or continental scale. Zoogeographical studies have mainly worked on the latter scale. Similarly, there is a fine line between historical zoogeography and ecological zoogeography. Historical zoogeography can be read as an extension of ecological zoogeography (Davies 1961: 412–417). Philip Darlington (1957) criticizes the work of Hesse, Allee and Schmidt by arguing that their studies are “*ecologies at heart and hardly geographies at all.*” He emphasizes the difference between ecology and zoogeography and quoted Charles Darwin’s notion that animal distributions cannot be accounted for simply in terms of climates and local physical conditions. Darlington’s book *Zoogeography: The geographical distribution of animals* was clearly a more geographical study as it first introduced the reader to the land and oceans, climate and vegetation as well as to geological time on a global scale. He highlights the distinguished history of zoogeography and mentions geographer and biologist Alfred Russell Wallace, the father of biogeography, who studied the theory of the natural selection of birds in 1858. Wallace also shared his results and ideas on evolution with Charles Darwin, a year before the publication of *The Origin of Species*. There were also other geographers at the time who were presenting their ideas about animal distribution and

were looking for centers of creation on Earth. One of these geographers was Sclater (1858), who published his work on the six regions of the world according to the distribution of birds. The glorification of historical zoogeography has, according to Darlington (1957), led to an almost ignorance of present distributions of animals among its practitioners. He mentions two other books on zoogeography, namely Marion Newbigin’s *Plant and Animal Geography* of 1936 and Beaufort’s *Zoogeography of the Land and Inland Waters* of 1951, which from his point of view did not cover the subject adequately and presented conventional ideas instead of trying to reassess the subject. Jennifer Wolch (2002a: 723) mentions that Newbigin had already published the book *Animal Geography* in 1913 where she emphasized the need for studying the relations of floral and faunal regions. Darlington provides zoogeographers with seven working principles. He emphasizes that zoogeographers should understand that animals are constantly multiplying and spreading as well as dying and losing ground and thus forming new geographical patterns. He thus points out the dynamism in animal populations. Darlington also mentions that research on the effect of barriers in limiting animal distributions should be at the core of the subject. He advises zoogeographers to work with facts rather than opinions and states that other people’s opinions about doubtful matters are not a good basis for zoogeography (Darlington 1957: 1–35).

Biogeography studies animals in the same way as other physical features of the landscape. Animals are studied as beings without lives of their own and without

geographies which would extend beyond human existence. In human geography, animals have been studied through anthropocentric lenses. Animals have only an instrumental value for human communities through the production of meat, hides, skin, milk, and fur (Philo 1998: 54). In most geographical texts, nature is described as it would not contain any sentient creatures except humans. Within geography, animals are usually confined within a black box, or merged into ecological and production systems (Wolch and Emel 1998: xv–xvi). By the mid-1950's animal geography as a minor sub-discipline of geography had become recognized as a field of science which studied the spatial distribution of animal populations and their environmental associations. However, the sub-discipline's independence was questioned by some scientists because it had one foot in the realms of zoology and ecology, and the other foot in the realms of paleontology and biology, whose characteristics were already adopted by zoogeography. The proponents of animal geography were not able to reclaim it from zoogeography and as a result it disappeared as a sub-discipline (Philo 1998: 55). According to Salonen (2004: 229–230), the interest in the role of animals in regional geography diminished and animals disappeared almost totally from geographical discourse due to the positivist revolution in science after the mid-1950's. The role of animals in creating local divergence decreased as a result of the adoption of positivist methodologies.

The works of Carl Sauer and the Berkeley school of cultural geography opened up new dimensions to the study of nature-society relationships. They

mainly focused on human impacts on the landscape and their emphasis on the morphology of cultural landscapes, meant that animals were not their primary subjects of study. However, in some of Sauer's works such as *Seeds, Spades, Hearths and Herds*, he describes animal domestication in the process where natural landscapes are converted into cultural landscapes.

Cultural animal geography, which had its golden age in the early 1960, included studies on the human influence on the spatial distribution of animals and partly followed the heritage of zoogeography. Some of these studies, including animal domestication, were also linked to cultural ecology. By the 1960's Sauerian cultural geography had lost its popularity (Wolch and Emel 1998: xiii, Philo 1998: 56, Emel et al. 2002: 407). Thus animal geography is a branch of geography which has been in and out of fashion during the twentieth century. By the 1970's animal geography as a concept disappeared from the geographical literature (Wolch 2002a: 722).

Rising concerns on animal rights and conservation of nature, together with the emerging discipline of environmental ethics brought the human-animal relationship back into the focus of geographers in the 1980's. At the same time with the animal rights movement, the modernization critique emphasized questions about the human relationship with nature. It was argued that environmental problems are caused by dualism based on Cartesian philosophy of science which created a divide between man and nature (Salonen 2004: 230). It was the larger social context and the interest of social

theorists in animals during the 1980's which launched the reappearance of cultural animal geography. The ideas of feminism, postmodernism and post-structuralism, postcolonial theory and critical race theory challenged human dominance in the human-animal relationship. These ideas were supported by new scientific findings in cognitive psychology, ethology, landscape ecology and conservation biology, which showed that animals also have cognitive abilities and questioned the idea of dualism and human superiority (Wolch 2002a: 725). Yi-Fu Tuan was among the first geographers who brought up the unequal coexistence and power relations between humans and animals in his book *Dominance and affection: The making of pets* in 1984. Some radical geographers, such as Fitzsimmons (1989), identify three factors which represent the inclusion of the Enlightenment dualism of nature and society in geography. These factors are "*the institutional separation of human and physical geographies, the ontological separation of nature and space in human geography and the urban bias of the intellectual influences and culture*". She follows the example of Marxist political economy and uses the concept 'social nature' to show how nature was reproduced through social relations of production and does not exist outside these realms. She points out that it is impossible to conceptualize nature without social meaning (Fitzsimmons 1989, cit. Whatmore and Boucher 1993: 167-168). The revival of animal geography in the mid-1990's was largely inspired by the above mentioned discourses, including the profound rethinking of culture and subjectivity. The nature of animal subjectivity,

animals' role in the social construction of culture, and the human-animal divide were the particular focus of the new animal geographies. The researchers were interested in, for example, how and why the line of human-animal divide shifts over time and space. Whatmore and Boucher (1993: 176) conclude that non-human life-forms and processes should be seen as agents of historical and spatial change and also as objects of human actions and representation. They point out that the dialectic between social and bio-physical relations is constantly shifting. The modification and interrelations of non-human life-forms will present new conditions for the humans through which the reconstruction of the meaning of nature is mediated. Jennifer Wolch (2002b: 202) writes that the consensus about the human-animal divide has recently broken down because new scientific evidence reveals the complexity of animal life and some of its similarity to that of humans.

An important contribution to the contemporary discourse on human-animal relationship has come from Actor Network Theory, adopted by some geographers (such as Woods 1997, Murdoch 1997, and Whatmore and Thorne 2000), to argue that analytically there is no a priori distinction to be made between humans and animals. They point out that the dividing lines are subject to change and negotiation (Emel et al. 2002: 408-409). Actor Network Theory is an approach developed by Michel Callon, Bruno Latour and John Law within social studies of science. This theory seeks to undermine the distinction between humans and non-humans and argues that they should be treated

symmetrically. One means of dissolving this dualism is to develop translation networks, which are heterogeneous. Actor networks are chains of translations of varying lengths and kinds which give rise to natural and social realities (Murdoch 1997). Actor Network Theory focuses on associative power and places emphasis on the processes of translation and displacement. Hunting has interested the advocates of the theory because it contains discourses where human-animal relationships are being defined (Woods 1997: 335). The nature-society problematic has interested critical cultural geographers for decades and the human-animal divide has been challenged by postcolonial and feminist scholars. The study of animals has now been included into a societal framework from which it has long been excluded. The sociological interest in the study of animals has also inspired human and urban geographers to integrate animal geography into their analyses (Anderson 1997: 466). A new animal geography was born among a relatively small circle of Anglo-American geographers. Content-wise, it is not a unified field of study but has several disparate approaches and topics-of-interest. The focus of new animal geography has not only been shaped by an interest in the relationship between humans and nature but also by the interest in marginal groups, minority rights and feminism. Animals can be seen as individual subjects who have limited or no political and legal rights just like other marginal groups in human societies (Salonen 2004: 230–231). Animal geography is interested in studying the inclusion and exclusion of certain animals from particular types of places and exploring the socio-

cultural impact of animals on places and landscapes over time. For example, borderland communities where humans and free roaming animals share space have been investigated by animal geographers. There are still several areas in animal geography which have received little or no interest by researchers, and the geographical history of human-animal relations is one area that needs further examination (Emel et al. 2002: 409–410). My study aims at bringing a new contribution to this area of animal geography.

Animals have also received little interest in postcolonial studies. The shadow of the colonial legacy of European modernity still retains the idea of an absolute difference between humans and animals intact in many fields of science. The civilizing mission of the European colonial governments included both the cultures and the nature of the colonies so the superiority of enlightened humans over savage subordinates reached both of these realms. However, the indigenous cultural knowledge of local communities in the former colonies now continues to challenge the dominance of Western value systems and provide alternative identifications of the human-animal divide. Animal studies have shown that the agency in human-animal interactions is complex and cannot be reduced to simple visions of the pet, the zoo animal or cartoon figures (Armstrong 2002: 414, 416). Cultural ecology and political ecology have both offered enriching interactions within the field of geography. The contributions of cultural ecology have been very influential in the debate on human-environment and nature-society approaches. Recently, this debate has focused on the inseparability

of humans and nature, which is an especially interesting topic when studying human-wildlife relations and histories. The most relevant areas of study for cultural and political ecology combined with human geography are environmental borderlands, which are located on the interface of untouched nature and humanized landscapes. These environmental borderlands also include socio-natures and hybrid landscapes (Zimmerer 2007: 227–232).

The theoretical part of this study is firmly grounded on the traditions of cultural animal geography and focuses on the agendas suggested by Bennett (1960), namely by studying how wild animals influence human life opportunities and cause potential threat to humans and their livelihoods in rural settings. In addition to the traditional cultural animal geography approach, this study will also address some of the key questions of the new animal geography, such as the human-animal divide and how and why the line of human-animal divide shifts over time and space. According to the new animal geography, the dividing lines between the humans and the animals are being constantly challenged and negotiated. This study focuses on the inclusion and exclusion of wild animals from particular places and landscapes over time and explains human-wildlife conflicts as intrusions of subjects (animals or humans) into a clearly defined and perceived space where the presence of such subjects causes disorder and risk of life security as well as risk of livelihood security. The main emphasis in this study is on wild animals who cross the perceived nature-culture borderline and enter domesticated spaces. The inverse is also

true, the human-wildlife conflicts can equally appear when humans intrude animal habitats for gathering, hunting, or agricultural activities and as a result pose a real or potential risk for the animals either directly or indirectly. My main concern here was to study the human-wildlife conflicts from the villagers' point of view. Their cultural perception of space strongly influences the inclusion and exclusion of animals from particular spaces within their lived environment. I will discuss more on the cultural perception of space in the following chapter.

2.2. Cultural perception of space

The question of the production of space has intrigued geographers for decades. The influence of Marxist thinkers, such as Manuel Castells and Henri Lefebvre, have turned focused geographers on socially produced spatiality. Castells points out that social formation and modes of production are spatially arranged, so the spatial structure articulates the social structure. Spaces are the arenas where social life is reproduced (Livingstone 1992: 333). Lefebvre's (1974) *La production de l'espace* (*The Production of Space*) regards space as a complex social construction which affects spatial practices and perceptions. The production of space is based on values and the social production of meanings. He introduces three levels of determination, namely the perceived, the conceived and the directly experienced, which contribute to the production of space through interactions (Lefebvre 1974/1991). However, it was not only the structural Marxist thinkers who contributed to the discourse

on the production of space. William Kirk (1963) introduced his model of a *behavioural environment* which is a realm created and operating on an *interface* of the *external* world (natural and culturally constructed elements) and the internal world (decision-makers perception and values). The facts of the external phenomenal environment are affected by values of the internal environment and as a result will be ordered into conceptional patterns that are relative in time and place (Kirk 1963 cit. Livingstone 1992: 334–335). The culturally perceived space has been studied by, for example, anthropologist Edward T. Hall. He has inspired both cultural anthropologists and geographers to consider the importance of relative and relational space. Hall's influence on geographical thinking has also surfaced through the studies on the creation and use of space in different communities. Hall introduced the term proxemics in 1959. Proxemics can be described as the study of the human use of space within the context of culture. Hall developed his proxemic theory while he was studying difficulties created by failures in intercultural communication. The proxemic theory was published in his book *The Hidden Dimension* in 1966. In this theory, Hall argues that human perceptions of space are shaped and determined by culture. Thus the failures of communication and understanding in interpersonal and intercultural settings are caused by the different cultural frameworks for defining and organizing space. These cultural frameworks can be found in all humans at an unconscious level. Hall is most renowned for his study on personal spatial territory in interpersonal communication. Hall's

personal reaction bubbles (Fig. 10.) divided the personal territory into four zones within certain distances from the person in question (Sheppard 1996, Brown 2001).

Intimate distance is the space around the person, where embracing, touching or whispering are the comfortable ways of communication. The radius of this zone extends to approximately 46 cm from the person. Personal distance is the zone where interactions among good friends and family members take place. This zone extends to about 120 cm from the person. The third zone is the social distance, which is a comfortable space for interaction and conversation among acquaintances. It extends to approximately 3.6 m away from the person. This zone also represents the distance between strangers at the bus stop or in a supermarket. The fourth zone is the public distance and it defines the space used for public speaking and extends up to 7.6 m from the person. This zone visualizes the distance which is maintained between the audience and the speaker.

Hall's studies on human perception of space and his social distance theories were partly based on the biological social distance theories of the Swiss zoologist Heini Hediger. Hediger (1955) studied the proxemics in animal behaviour in zoos and published his findings in a book called, *Studies of the Behaviour of Captive Animals in Zoos and Circuses*. Hediger discovered that animals maintained various boundaries when they were in contact with other members of their own species or with an animal from a different species. He established four interaction distances which were determined by the behaviour of animals

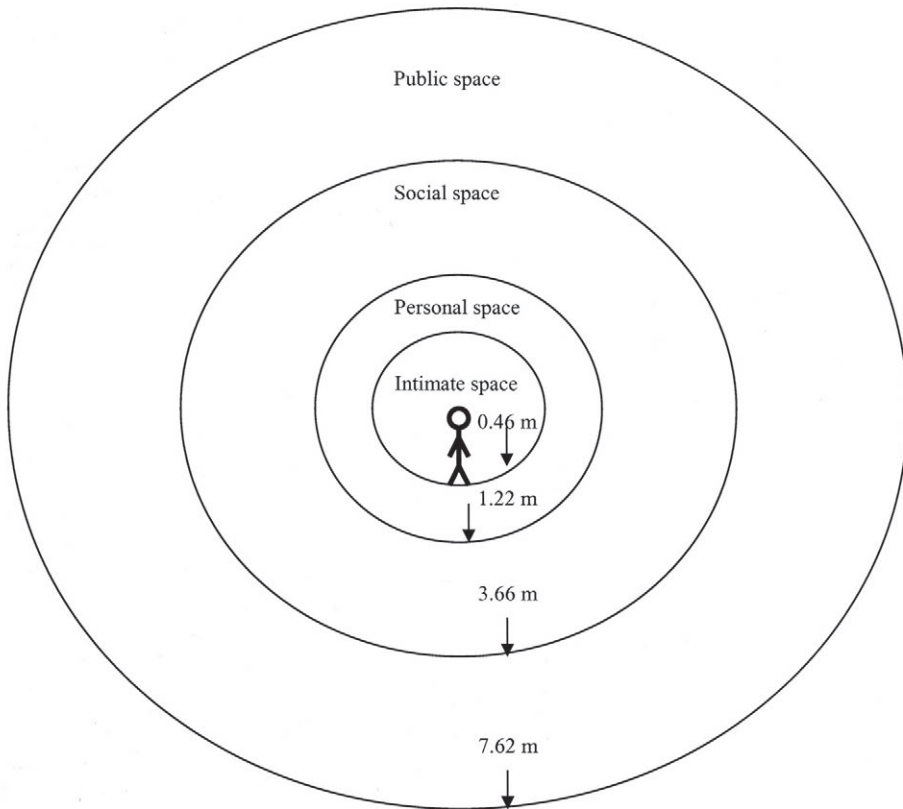


Figure 10. The four zones of personal territory for an average American person visualized as reaction bubbles showing radius in meters. Personal territories vary both culturally and ethnically. Personal territory describes the intuitively respected use of space in interpersonal communication. The four zones of personal territory can be used to explain comfortable distances for personal interaction. Adapted from (Hall 1969).

studied in captivity. The first zone is the *flight distance* representing the boundary or space after which the animal will run and escape approaching species. The second zone identified by Hediger is the *critical distance*, which represents the attack boundary of an animal. When this boundary threshold is surpassed, the animal will attack the approaching animal of another species. These two distances are identified in the interaction of different animal species, while the other two distances are identified among the same species. The third zone,

namely the *personal distance*, represents the comfortable distance between two individuals of the same species, such as a pair of swans. The fourth zone is the *social distance*, which represents the space where intraspecies communication takes place. Hediger was also the first zoologist to point out that in nature there are no free animals in an anthropomorphic sense. Animals in the wild are always bounded by space, time, sex and social status (Turovski 2000: 381).

In human societies, boundaries are an expression of territoriality. Boundaries

are essentially human creations, which reflect a basic human need to live in a bounded space. Territoriality is, however, also central to animal existence. Human borders do not only separate different territories but are also the points or lines of contact for centripetal and centrifugal forces within these territories. Border landscapes reflect local inhabitants' perceptions of regions located at the periphery of a territory. Living in a bounded space provides human beings with feelings of security and offers a certain independence of action. Environmental psychology explains that different personal spaces are a phenomenon which is fundamental to all human individuals. Personal spaces are defined by the likes of gestures, living space and activity space. Each personal space constitutes a *territory* which has its own permeable or impermeable boundary (Fig. 11.). Abraham A. Moles and Elisabeth Rohmer (1972) introduced a human shell-like spatial hierarchy in their book *Psychologie de l'Espace*. The boundaries between territories are social constructs which are conditioned by human perceptions and attitudes towards space. Boundaries help us to delimit structures and norms into certain territories (Leimgruber 1991: 43–45). This human shell-like spatial hierarchy is a rather simplified and mechanical one, which does not have any transition zones between different spaces. The lack of elements of the behavioral environment mentioned by Kirk (p. 49) limit its explanatory power.

The three models of human spatial hierarchies form the theoretical basis for my analysis of the spatial nature of human-wildlife conflicts. Tim Cresswell (1996) writes in his book *In Place/Out of Place:*

Geography, Ideology and Transgression that there is a notion of people, things and actions having appropriate places. All other people, things and actions are labelled out of place and their presence is perceived as a transgression of *normality*. Similarly, wild animals which cross the borderline between nature and culture or the domesticated and the wild enter into space controlled by humans and temporarily break up the order, norms and structures of that space. A wild animal *out of place* suddenly becomes an object in the landscape which does not match with local inhabitants' perception of that place and a conflict arises. The spatial aspect of the conflict is highlighted here because for many outsiders, whose attitudes towards nature are conservationist, perceive the particular wild animal naturally belonging to that particular space so it is not considered being out of place at all. However, the inhabitants whose domesticated space the wild animals enter may regard an animal out of place as an object which can metaphorically be similar to dirt, as mentioned by Douglas (p. 13), which must be removed in order to restore the order of that place. By the use of these models, which have a strong bias towards the spatial hierarchies of individual persons rather than those of communities or stakeholder groups, this study differs from the mainstream approaches of new animal geography. My emphasis in the empirical part of the study is on studying the internal world of William Kirk's behavioural environment, namely the decision-makers' perceptions and values. In my empirical research, I did not study the exact distances between the spatial hierarchies but tried to find landscape indicators to express

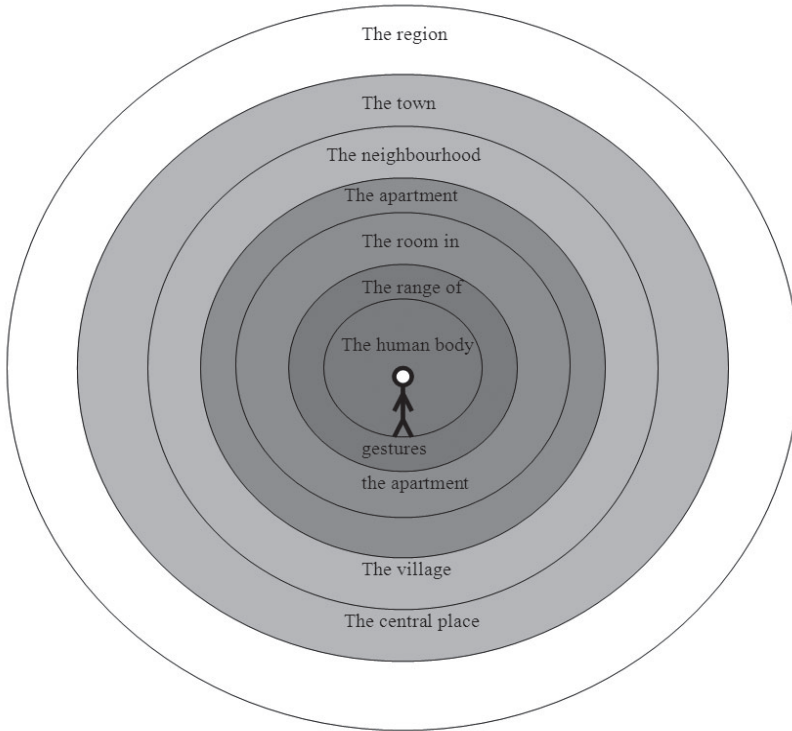


Figure 11. The human shell-like spatial hierarchy after Moles and Rohmer (1972). Adapted from (Moles and Rohmer 1972, cit. Leimgruber 1991: 45).

the perception of locals' critical nature-culture boundaries. The indicators also reveal different ways of seeing wildlife in human and animal spheres. The critical nature-culture boundaries would then mark thresholds which could launch a human-wildlife conflict when trespassed by wild animals.

The closer a wild animal out of place moves to the core of the circle, the more probable will the appearance of a conflict be. The most often perceived nature-culture borderline is located between the forest and the fields of the farmers of the villages. The wild animals were considered to be out of place when they moved to the fields from the forested area. Those wildlife species which normally live in inhabited areas also cause conflicts by being out of place

when these animals cross the borderline between their usual habitat and access a slightly more cultural sphere in this spatial hierarchy (Fig. 12.). For example, a hare which eats crops in the field may not necessarily cause any collapse of the perceived order, norms and structures of that space which would launch a human-animal conflict. But if the hare enters into the garden and eats some vegetables or fruits there it becomes more out of place than in a field and now creates a threat to the norms and structures defined for the garden. As a result, a human-wildlife conflict may appear between the owner of the garden and the hare. Generally, the number of wild animal species accepted inside each category of space decreases towards the center. The dark background color

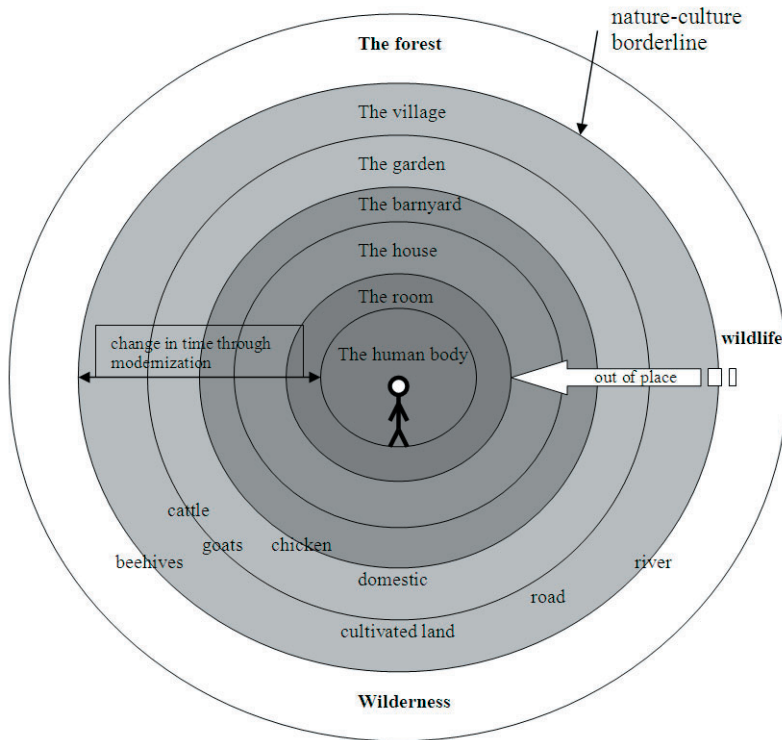


Figure 12. A framework of critical nature-culture borderlines in a rural setting in Liwale, Tanzania.

indicates the intensity of human-animal conflict in each category. For example, the conflict which emerges when a lion kills goats in the fields of the village is not so intense than a conflict where a lion kills goats in the garden. The framework also depicts that in addition to the major nature-culture borderline there are also minor nature-culture borderlines between different categories of space. The main issue here is the exclusion and inclusion of certain wild animal species in each particular category. It must be emphasized here that nature-culture borderlines are dynamic between different spaces of the hierarchy and they change through time with the process of modernization. What changes is not only the level of acceptance of certain species within each category of space but also the

perceived norms and structures of these spaces. The nature-culture borderlines are also culture-related and vary from one society to another. I will show later in more detail how outside influences and ideologies have affected the changes in nature-culture borderlines through wildlife management and conservation initiatives, such as establishment of national parks and game reserves. These initiatives usually contained coercive measures towards local population who are forced to adapt new life styles and ways of livelihood but more importantly change their relationship to wild animals. Human-wildlife conflicts can even escalate as the people affected by the coercive measures try to maintain the previously existing status quo in the perceived order and biosecurity of their

daily environment. These conflicts also contain a power struggle where the rights to define the contents and activities in the spatial hierarchies are distributed among various stakeholders. Next, I will shed some more light upon the human dimensions of these conflicts by explaining the importance of attitudes and values in the acceptability of wildlife management actions.

2.3. Normative beliefs and acceptability of wildlife management actions

A modern definition of wildlife management is given by Riley et al. (2002) who write that wildlife management “*is the guidance of decision-making processes and implementation of practices to purposefully influence interactions among and between people, wildlife, and habitats to achieve impacts valued by stakeholders*” (Riley et al. 2002: 586 cit. Enck et al. 2006: 698). There has recently been a growing public involvement in wildlife management issues all over the world. Public demands, opinions and expectations have not often matched the scientific information and professional judgement of wildlife managers. As a result, misunderstandings, opposition and even conflicts over wildlife management have appeared. Ideally, wildlife management actions and policies therefore depend on public acceptance. Unfortunately this is not the case in most developing countries, such as Tanzania, where the central government and international conservation organisations have strongly influenced the establishment of protected areas and have retained almost full control over the management of and decision-making

on wildlife. Opposition and resistance from locals have not featured much in the formulation of national wildlife policies and implementation of wildlife conservation projects across the country. Previous wildlife conservation initiatives in Tanzania have not followed the examples of similar projects in Europe and the United States, where the human dimensions of wildlife management, such as beliefs, attitudes and behaviours, receive almost equally as much focus by the wildlife managers and conservation organisations as the biological and ecological dimensions do. Adaptive resource management, which is based on the principles of adaptive harvest management, has been advocated there since the early 1990’s by the wildlife managers. It aims at reducing uncertainty and developing better predictive capability about the natural or human-induced effects on biological systems. Adaptive impact management is loosely an extension of the adaptive resource management approach. Adaptive impact management emphasizes the role of people and human values in the management process especially within decision-making. It tries to reduce uncertainty about the locals’ perceived objectives of wildlife management and to improve the understanding of both ecological and human dimensions which have an effect on management outcomes of those objectives. These objectives set the ecological and social boundaries for management activities. However, there is always a degree of uncertainty present in wildlife management because the perceived objectives of different stakeholders may depend on a variety of human needs and interests, which are sometimes opposing, often-

changing and dependent on a particular situation (Enck et al. 2006: 698–700). Normative theory has increasingly been used in studying the acceptability of a situation, action or outcome in wildlife management. These studies have recently been complemented by acceptance capacity studies, which have indicated that an individual's acceptance threshold for negative wildlife impacts is situation-specific and depends on the perceived severity of this negative impact. Experience from over three decades of research shows that most people directly affected by wildlife or wildlife management react in a human-biased way. According to a study carried out in Alaska, the accepted management actions are impact dependent which means that they are not primarily driven by fundamental wildlife value orientations. Context seems to matter more than general attitude towards wildlife in public support for wildlife management activities (Decker et al. 2006).

Recently a movement towards more people-oriented wildlife conservation initiatives has taken place in different parts of the world, including East Africa and Tanzania. Participation of locals in wildlife management is now considered a prerequisite for success. Community-based conservation programmes have been established in the surroundings of many national parks and game reserves but according to the several scientific articles, these programmes have not been able to significantly reduce local opposition to protected areas. Conflicts between locals and wildlife continue to exist in many different forms in the rural areas close to protected areas. Mistrust between locals and game scouts working

for the government is still widely spread among the communities participating in community-based wildlife management projects. People have used lethal control to prevent wildlife damages for over a thousand years now. Some societies, however, have taboos against killing certain wildlife species, such as tortoises (Lingard et al. 2003), although this is rare. Tolerance towards wildlife damage is strongly influenced by cultural factors (Woodroffe et al. 2005: 3). Local social taboos are part of a social system of interactions among people and between people and their surroundings and thus should not be treated as disembodied practices only concerned with environmental actions (West and Brockington 2006: 611).

Next, I will present some American studies on the rural residents' attitudes towards large predators to reflect upon the results of the human-wildlife conflicts in Liwale. These results, of course, cannot be directly applied to the circumstances of rural residents in Liwale but they may be used to support the examination of the conflicts there. Naughton-Treves et al. (2003b) found out in their study, on rural citizens of Wisconsin, that tolerance of wolves was more predicted by people's deep-rooted social identity and occupation than the education level or individual encounters with these animals. Increased knowledge rarely leads to attitude or value change. The influence of knowledge on attitudes and values is often relatively weak (Meadow et al. 2005: 155). Political values also shaped the attitudes towards wolves as many rural residents regarded these animals as symbols of federal intervention in their affairs. Those who had lost a domestic animal to any

predator were not as tolerant to wolves as their neighbours without such losses. Perceived risk of depredation by wolves was almost as important as an actual experience in shaping rural attitudes towards these animals. Attitudes towards wolves are deep-rooted, value laden and established early in life. These attitudes are also connected to individual lifestyles and understandings of the place of humans in nature. Many livestock producers feel a strong affection for their animals, just like the hunters feel affection for their hunting dogs and as a result, compensation payments did not improve tolerance towards wolves or attitudes towards lethal control.

Zinn et al. (1998) used a normative approach to study human-wildlife interactions and acceptability of wildlife management actions in Colorado, U.S.A. They state that a few fundamental value orientations, such as honesty or equality, strengthen and give meaning to more numerous and general values and link these to more peripheral cognitions like specific norms and attitudes. The fundamental value orientations in a continuum of wildlife benefits/existence and wildlife rights/use directly influence attitudes towards wildlife management actions, such as hunting. Acceptability of certain management actions thus depends on the respondent's value orientation towards wildlife. Following Shelby, Vaske and Donnelly (1996), Zinn et al. take the concept *social norm* to mean "*beliefs about the acceptability of an action or situation*". Normative beliefs are *judgements about what is appropriate in a specific situation*" and are also highly situational and influenced by individual value differences.

One of the primary causes of

human-wildlife conflicts is the fear of being killed by a large carnivore or a large herbivore. So the presence of these wild animals becomes a biosecurity issue (Buller 2008). Wild animals kill thousands of people around the world annually. Many people are afraid of large predators, such as lions, bears and wolves. This fear of carnivores is deeply rooted in the human psyche and an instinctive anti-predator response of the human species. In addition to large carnivores, elephants and other large vertebrates also kill people and destroy crops. Many people hate and fear elephants in rural Africa as they are perceived as a major threat to rural lives and livelihoods. The fear of wildlife may be a sufficient cause and justification for pre-emptive killings of some species (Thirgood et al. 2005: 14, 16, 24). Fear and dislike of large carnivores sometimes give people a reason to kill them. When the distribution of large carnivores overlaps with areas where people live, they may feel that the presence of these animals reduces their quality of life, even in the absence of any direct material or economic conflicts (Linnell et al. 2005: 163).

Ajzen and Fishbein (1980) identify four situation specific variables which correspond with people's attitudes and behaviour. These variables are target, context, action and time. Target refers to the animal in question, such as an elephant, for example. Context refers to the actual situation (elephants are destroying crops), and action refers to the management response to that situation (conduct problem animal control by shooting the elephants). Time refers to the day, week, month or year when the action takes place. They pointed out

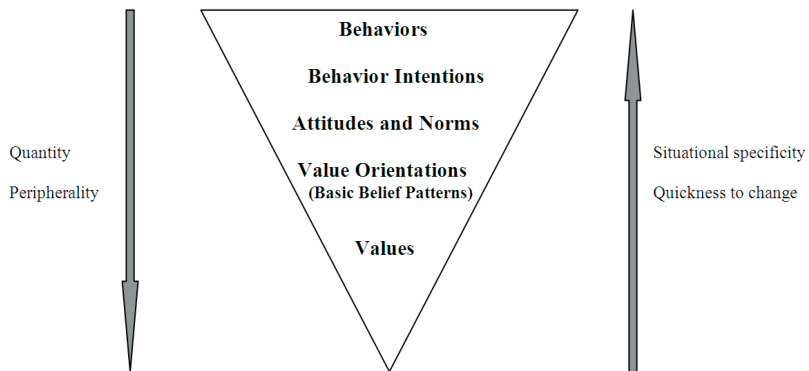


Figure 13. The cognitive hierarchy model of human behaviour. Elements at the top of the triangular hierarchy are based on the ones below. Behaviors are more numerous and peripheral components of an individual's belief system than values at the bottom. Behaviors at the top have a tendency to change faster than values, attitudes and norms. Adapted from (Vaske and Donnelly 1999: 525.).

that beliefs, attitudes and behaviours are closely related when observed through these situational specifics. Normative beliefs about wildlife management actions are influenced by wildlife value orientations in the continuum of wildlife use versus wildlife protection (Zinn et al. 1998). Vaske and Donnelly (1999) used the cognitive hierarchy model of human behaviour to explore the value orientation-attitude-behavior relationship in wilderness preservation (Fig. 13.).

The fundamental values, depicted at the bottom of the triangle, are used by individuals as standards for evaluating attitudes and behaviour. “A value is a preferred mode of conduct or end state of existence” (Meadow et al. 2005: 155). These values are not situation specific i.e. they do not depend on target, context, action or time. Values are slow to change and they form the most central component of an individual's belief system. Values are limited in number and often widely shared by all members of a culture. Values affect attitudes and behaviour indirectly via other

components in the cognitive hierarchy. Basic belief patterns are such mediators and they do not only serve to strengthen and give meaning to fundamental values but also establish value orientations, such as anthropocentric or biocentric views on the non-human world. These value orientations in turn, influence attitudes towards nature. Attitudes are much more situation specific and change more quickly than fundamental values. The Theory of Reasoned Action has shown that attitudes can be strong predictors of specific behaviours. The most direct predictor of a behavior is the intention to perform a behavior. Attitudes may serve as a mediator between the value orientation and behavioral intentions to perform certain activities (Vaske and Donnelly 1999: 524–527). In addition to knowledge, human-animal relationships, personal experience and real and perceived impacts, attitudes toward animals are also affected by the amount and type of media coverage on the animal in question and the species' economic and cultural value (Meadow et al. 2005: 161).

Brandenburg and Carroll (1995) studied the effect of place creation based on environmental values. Place is an essential aspect of human existence. Places are physical locations which consist of the physical setting, human activities and the psychological processes related to it. Places enable people to create individual environmental values and landscape meanings different from those of the other social groups. Places also have associated meanings and values which are transferred to people from, and shared within the social group. The creation of a place is based firstly on the socio-cultural contexts, meanings, values, traditions and experiences of people who define the space as place, and secondly the nature of a given space i.e. the spirit of place. Place is created in a reciprocal relationship between people and nature. The contemporary place theory views a location without human meaning and value; a placeless or empty space. Brandenburg and Carroll (1995) consider the contemporary definitions of place rather as definitions of landscape. Individual place experience and emotional attributes are important elements in the formation of people's preferences, values and beliefs related to land use.

These introductions to normative beliefs, social norms, value orientations and place creation are important to understanding the structure of Fig. 12. The starting point is that each individual human being has a certain value basis and value orientations related to wildlife. The social norms adopted by individuals define a framework for the acceptability of an action or a situation. Similarly social norms and the creation of place define what is appropriate and acceptable

in certain places. It is acceptable that elephants live in the forest and search for food there but it is unacceptable that the elephants live in a cultivated field and search for food there because they do not belong to the perceived content of the cultivated field landscape. In other words, the elephants do not fit into the associated meaning and value for the cultivated fields. Elephants and other wildlife are associated with inhabited wilderness landscapes, such as forests, and are labelled to be out of place when they cross the nature-culture borderline and enter some other category of space. As a result, most rural human-wildlife conflicts in wildlife conservation programmes are primarily caused by the clash of different social norms, associated meanings, values, traditions and experiences related to the place designated under these programmes. This spatial value-based explanation of the lack of success in community-based conservation projects means that solving the problems will require much more than just economic compensation of losses or improvement of the organizational structure of the programmes. Community-based conservation structures are not a prerequisite for success unless the local communities are truly allowed to influence land use planning according to their own social norms, associated meanings, values, traditions and experiences related to the places in question. In the next chapter, I will describe a wide variety of human-wildlife conflicts in order to avoid one-sided perspective in my analysis. I will also explain the existence of these conflicts in spatial context and show their bidirectional characteristics.

3. Human-wildlife conflicts

A brief review of some international journals, such as *Conservation Biology*, *Wildlife Society Bulletin* and *Society and Natural Resources*, shows that there already exists a considerable number of articles on human-wildlife conflicts written in English. The majority of the articles focus on the conflicts between humans and grey wolves or between humans and bears in the U.S.A. This is natural not only due to the origin of these journals but also because most of their subscribers are Anglo-Americans. It can be assumed that the conflicts related to wolves and bears are the ones which are most extensively studied.

Woodroffe et al. (2005: 1–2) use the term *human-wildlife conflict* to describe a phenomenon where a conflicting situation between people and wildlife takes place in the form of crop raiding, livestock depredation, predation on managed wild animal species or killing of people. These conflicts occur world-wide and exist both in terrestrial and marine and freshwater environments. Human-wildlife conflicts do not occur only between people and large mammals but involve a taxonomically diverse group of animals from sea otters to hen harriers. According to a recent report (Distefano 2005) by the *Sustainable Agriculture and Rural Development Initiative* of the Food and Agricultural Organization of the United Nations, human-wildlife conflicts are a growing global problem. These occur everywhere around the globe where wildlife and humans coexist and share limited resources, but especially where wildlife's requirements overlap with those of human populations. Human-wildlife conflicts are not limited

to poor countries only. A brief review of some newspapers from around the world reveals that humans and wildlife collide in many countries. In India, elephants entered into human settlements from the forests and killed 48 persons in 2006 (Kolkata Newline, 28 July 2007). In Sri Lanka, about 150 elephants and between 50–70 humans die in conflicts with wildlife when menacing elephants raid crops in villages close to the national parks (Science and Environment Online, 5 December 2007). In northern Sweden, a brown bear killed an elk hunter and his dog in front of the cabin in October 2007 (Expressen, 8 October 2007). These are just the few examples of the deadly human-wildlife conflicts which took place in the nature-culture borderlands. Farms, holiday cabins and zoos are all characterised by the presence of an interface between human and wildlife and between culture and nature.

Case studies from different geographical regions and climatic conditions show that these conflicts are more intense in areas where livestock holdings and agriculture are an important part of peoples' livelihoods. Human-wildlife conflicts are particularly intense along the boundaries of protected areas. The erection of physical barriers, such as fences, between protected areas and farms can prevent these conflicts only in a limited number of cases (Treves and Karanth 2003: 1495) because some species, such as elephants, monkeys, wild pigs and antelopes, have ways to get around such physical barriers. Treves and Karanth (2003) suggest that in order to tackle the human-wildlife problem a greater understanding of the socio-economic and cultural contexts

within which these conflicts occur is required. Traditional knowledge and practices should be recognized and used in integrated community development and wildlife conservation initiatives, which would secure the rights of locals to use natural resources in a sustainable way. The ability of fences to prevent livestock predation by large carnivores was also studied around the Masai Mara National Reserve in Kenya by Kolowski and Holekamp (2006). They pointed out that improved fencing alone was not an effective solution to livestock predation on pastoral ranches. Leopards preferred to attack relatively isolated villages while hyenas were attracted by large villages with more human activity. The use of pole material in fences more than doubled the likelihood of leopard attacks and the use of bush material in fences more than doubled the risk of a hyena attack. They concluded that the size and location of the village were important spatial predictors of predator attacks on livestock in the study area. Improved fencing of the villages, the use of guard dogs, and active guarding of the villages by its people should be used together in order to reduce predator attacks.

People-wildlife conflicts can be found on land and in waters, in the city as well as in the countryside. Sukumar (1998: 303) described the incursion of elephants into the suburbs of Bangalore in India as a modern example of human-wildlife conflict. He pointed out that such encroachments of elephants into human habitations are not a new or recent phenomenon in India. These kinds of incidents were already recorded into old lore of the *Gajasastra* in the fifth or sixth century BC. This lore describes

how elephants invade the kingdom of Anga causing severe damage. Magige and Senzota (2006) studied rodents at the human-wildlife interface in Western Serengeti, Tanzania. They found out that protected areas which neighbour agricultural areas may be sources of existing rodent invasion into farmlands and houses. Many of the rodent species which are among the most serious crop pests across sub-Saharan Africa are also very anthropogenic and live mainly in man-made structures, such as houses and stores. These species cause considerable damage to crops and property, and spread diseases. According to a study by Porter, 60% of Tanzanian farmers rated pests as their main economical problem (Porter 1978 cit. Naughton-Treves and Treves 2005: 254). Similarly, Igoe and Brockington (1999: 34) described how the presence of wildebeests caused problems for cattle herders because this animal spreads malignant catarrhal fever which is fatal to livestock in northern Tanzania. Local Masai pastoralist deliberately converted the traditional calving grounds of wildebeest to wheat farms in southern Kenya to reduce the contact between their livestock and the wildebeest, which carry this malignant disease (Woodroffe et al. 2005: 11). According to John Knight (2000: 2), human-wildlife conflicts appear universally but occur most often in human settlements in forest-edge regions. He distinguished eight different human-wildlife conflicts:

- attacks on people
- attacks on livestock
- crop-raiding
- forestry damage
- competition for wild forage with humans, livestock or with game animals

- competition for prey with hunters
- house and other building infestations
- threats to other natural species and to biodiversity

He notices that there are also many other kinds of conflicts, such as garden damage, traffic accidents and diseases caused by wildlife. People-wildlife conflicts usually arise from territorial proximity, reliance on the same resources or threat to human livelihoods and safety. Competition and predation are essential elements of human-wildlife conflicts which can be horizontal and vertical (Fig. 14.). Many people-wildlife conflicts can also be understood as people-people conflicts (Knight 2000: 2–3), such as the stag hunting (Woods 1997) in Somerset, England, and fox hunting (Milbourne 2003) in England and Wales. These people-people conflicts can also be struggles over different ways of seeing wildlife in human and animal spheres, such as the case study of Estes Park in

Colorado described by Alice K. Wondrak (2002). She noticed that the insiders' and outsiders' senses of place conflicted with the idea of displaying small local fauna in plexiglass environments. The perceived nature-culture divide is clearly present in this conflict because the idea of a zoo-like institution built so close to a nature reserve is strongly opposed by those people who support the ideals of nature preservation. Wondrak then raises a reverse question on the acceptability of caging small animals in urban areas. The proponents of this activity may, however, strongly oppose the caging of small animals near a more wild nature setting, such as a nature reserve. Plexiglass cages are considered to be an environment which is not natural and which display wild animals as out of place, namely out of the wilderness, which the visitors come to experience in nature reserves.

Ari A. Lehtinen (2006: 93–104) discusses the human-brown bear conflicts in Finland and shows how current debates on wild nature has been shaped

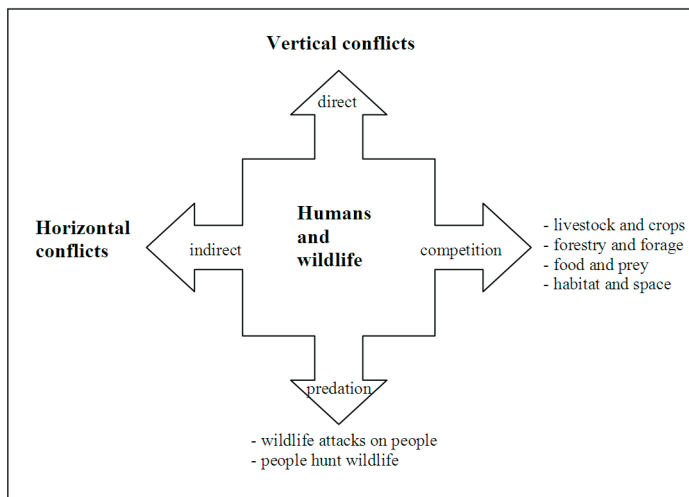


Figure 14. Horizontal and vertical human-wildlife conflicts. Vertical conflicts are direct and based on predation of humans by wild animals or vice versa. Horizontal conflicts involve indirect competition between humans and wildlife on sources of food and habitats. Modified from (Knight 2000: 3).

by historical-cultural mechanisms, such as transformation of the last remaining old-growth forests into economic forests. Loss of habitat pushes bears closer to human settlements and revives risks of confrontation that were very common in the past when the ancestors lived under pressure of the hostile wilderness. Today, brown bears visiting Finnish home yards can be regarded as hybrid remnants from the past, which also mediate the socioenvironmental risks from the outside. Treves and Karanth (2003: 1491–1493) write that human-carnivore conflicts and the resulting carnivore harvest have faced increasing political opposition in the United States and Europe. The opponents of carnivore hunting are not only urban or suburban residents but also rural residents. They base their critique towards carnivore hunting on animal welfare, conservation, tourism and scientific issues. Human-carnivore conflicts pose an urgent challenge world-wide because they do not only result in confrontations between humans and carnivore but they also cause a juxtaposition of different groups of people. The humans experience wildlife conflict both directly through exposure and protective labour, and indirectly through various cultural practices and performances (Knight 2000: 8). The wider social conflicts over large carnivore conservation often include conflicts on knowledge systems, where rural communities feel that they are overruled by urban societies and for that reason they generally resist outside influence in their affairs (Linnell et al. 2005: 164). These people-people conflicts are very common in modern nature conservation because in addition to local interests, there are also national

and international interests involved in the processes. In spite of the different scales, the norm is a chronic political conflict, including different stakeholders and interest groups, over wildlife management practices, the impacts of resource extraction, land use on animal habitats and risks of extinction (Wolch and Emel 1995: 634). Lehtinen (1991: 67) points out that most of the current interest conflicts on natural resource-use are “*expressions of the confrontational assessments and expectations on the utilization of nature*”. An interesting work on the multidimensional characteristics of nature conservation controversy is the PhD dissertation of geographer Annukka Oksanen (2003). She studied the establishment of Natura 2000 network and related environmental conflicts in south-western Finland. She points out that people-people conflicts originate from the different values, attitudes and conceptions of nature which people have. The socio-cultural dimension appears to be as important as the ecological and economical dimensions in these conflicts. Oksanen uses the model of Rauno Sairinen (1994) to explain three different and often overlapping reasons to environmental conflicts. Sairinen divides environmental conflicts into cognitive conflicts, conflicts of interest, and conflict of values (Oksanen 2003: 5–36). All these three conflict categories are simultaneously present in the case study from North-East Tanzania by Igoe and Brockington (1999).

In the modern world, humans coexist alongside numerous wild animal species. There are species which try to avoid the presence of humans as much as possible and remain in their shrinking and evermore remote habitats. On the

other hand, there are species who have adapted to and benefited from human-modified environments and seek to find subsistence in human spaces. This phenomenon is called *commensalism*. The commensal species include many wild herbivores and wild predators (Knight 2000: 7). Wild predators occasionally prey on domestic livestock and other farm animals. Some bears have even started to feed on the composts and garbage of households. Foxes have found new habitats in the suburban gardens and roadsides in Great Britain. In many cases, commensal wild animals are beneficial to humans, at least indirectly or directly through hunting. Snakes and foxes reduce the rodent population, birds kill harmful insects and large predators kill wild herbivores which would otherwise cause considerably more damage to crops if populations were allowed to increase. However, despite the benefits of shared territoriality the presence of wildlife in human spaces often leads to conflict. Conflict is typically caused by rivalry between humans and animals on the material conditions of existence. Human settlement and agriculture has been based on the territorial exclusion of wild large mammals throughout history. Even today this rivalry is most clearly visible among the forest-edge farmers whose labour does not only include agricultural production but also the protection of that production from the threat of wild animals. One of the roles of African kings was to protect their people from predators and other wild animals (Knight 2000: 6–7). Graham et al. (2005) studied the literature on conflicts between humans and predators around the world. They noticed that

are also the product of socio-economic and political landscapes. There has been a shift in predator conservation from decisions primarily based on competing economic interests to decisions which are based on the integration of ecological and socio-political systems. Competition between people and predators for shared limited resources has been the primary cause for these conflicts. The two most well-known types of human-predator conflicts across the world center on attacks on livestock and competition for game species. These conflicts usually arise, when the large home ranges of carnivores overlap with areas inhabited by humans, and lead to resource-competition. Habitat loss and fragmentation often drives carnivores to expand their home ranges in order to find enough prey. Human hunting of game may also reduce the availability of prey for carnivores which can increase attacks on livestock. Changes in animal husbandry have played an important role in many predation incidents. The anti-predator behaviour has diminished in most domestic livestock, which makes them an easy prey. In parts of Europe, domestic livestock are today no longer guarded by the shepherds and these animals are more vulnerable to carnivore predation. The fear of carnivore predation of livestock has launched persecutions of carnivore, opposition to protected areas in the vicinity of farms and resistance to the reintroduction of carnivores to these areas. (Graham et al. 2005; Thirgood et al. 2005: 17). The reduction of human-predator conflicts on farms requires changes in the behaviour of the producers (Treves and Karanth 2003: 1495).

Lion attacks on humans are a common problem in the areas bordering

the protected areas in Africa. In Tanzania, lion attacks are not only confined to these protected area boundaries but are widespread throughout the southern and eastern parts of the country. Lions killed 175 people in four regions of mainland Tanzania between 1989 and 2004. This number of fatalities may be an underestimate as many attacks are not recorded at all. In Kenya, elephants killed 221 and predators killed 250 people during 1990–1997 (Thirgood et al. 2005: 14). Brian Morris (2000: 36–39) provided a historical outlook into the man-eating predators in Malawi during the first half of the 20th century. He writes that man-eating lions killed hundreds of people there, mostly women. This threat of lions caused people in many villages to stop cultivating and guarding their gardens. Monkeys and other wild animals were able to destroy their unprotected crops which finally made people to abandon their villages.

Quigley and Herrero (2005: 29–33) divide wildlife attacks on humans into two categories, namely provoked and unprovoked attacks. A provoked attack takes place when a person enters the individual space of an animal. The individual space of the animal is the area around an animal where it reacts to the presence of a human being. A provoked attack may also be caused by persons who try to touch, injure or kill the animal or who have brought with them food or garbage which attract the animal to move closer to the humans. The individual space of an animal and the distance at which the animal reacts on a threat are not constant but change with situations. An animal can be especially aggressive when its offspring is present

or when it is defending a source of food against intruders. However, a provoked attack can also take place without aggressive intentions from the human side, when a person accidentally moves too close to an animal. Unprovoked attacks are incidents where animals approach and attack people as predators. Here the target is a person, not food nor garbage. The unprovoked attacks are often preceded by stalking or pursuit. Diseases, such as rabies, may also launch an unprovoked attack by a sick animal.

According to the study of Naughton-Treves et al. (2003a) in Peru, large herbivores and carnivores and most primates are unlikely to live in permanently settled, multiple-land use zones around national parks if hunting is not restricted there. Wild animals encroaching the swidden cultivations and fallows in search of rich food sources are often hunted by people. This activity is called *garden hunting* by anthropologists. They call the wild animal species which inhabit human-managed ecosystems *anthropogenic fauna*. In the ideal scenario, there is an assumed balance where hunted animal protein substitutes crop losses suffered by the farmers and the mosaics of swidden cultivations and forests provide a rich habitat for certain game species. However, in reality wildlife survival in such ecosystems depends on a variety of conditions including hunting intensity, cultural norms, property rights, forest cover type and the size and disturbance-tolerance of the species (Naughton-Treves et al. 2003a). Wildlife pestilence changes over time and is usually relative to changes in land-use. Introduction of permanent farms, for example, has marked a decline of swidden farming pests (Knight 2000: 9).

Human-wildlife conflict management is affected by land use structure. Conflict management is much more complicated in fragmented landscape mosaics where agricultural areas and pasture lands are mixed with forest patches, as in the case of human-wolf conflicts in Wisconsin and Minnesota. There is no clear edge or boundary between wolf habitat and human land uses, so conflict management is difficult when livestock and poultry operations are located in forested pastures or in the vicinity of forested lands where they overlap with wolf ranges. Dense vegetation in the forests favours predation on livestock by large carnivores, while proximity to dense road networks and human settlements decreases predation (Treves et al. 2004: 115–116). In a study carried out in Kenya, it was detected that hyenas will more likely attack small stock from farms which are located close to the bushy vegetation cover. However, no significant correlation was found between the distance to cover and small stock predation by other carnivores, such as lions or leopards (Ogada et al. 2003: 1527).

A brief look into the situation in Asia demonstrates that in general, attacks on livestock are much more common than attacks on people. Sukumar (1998: 305–307) found that tigers and leopards killed 622 heads of cattle near the Bandipur reserve in India between 1974 and 1983. Every year the elephants kill from 165 to 210 people in India. A study from southern India shows that 45% of these killings take place within the settlements. Tigers killed about 57 people annually between 1975 and 1984 in the Sundarbans of India and Bangladesh. The number of human casualties by tiger

attacks has, however, decreased since the early twentieth century as tigers killed over 900 victims in 1908 in British India. One of the reasons for human-wildlife conflicts in India has been habitat and resource depletion. New human settlements and farms have been established around wildlife habitats and as a result the length of the boundary between forest and human settlements has increased which in turn has caused more frequent contacts between humans and elephants and tigers, and many other wild animals.

All in all, it can be summarized that human-wildlife conflicts around the world are basically conflicts about exclusion or inclusion of wildlife into a particular landscape or place. Usually, a conflict takes place when wild animals cross a line or border between the domesticated and the wild and enter the human sphere uninvited. Different types of fences around the farms, as discussed above, are a very common technological measure to keep the domestic animals in and wild animals out of these human-controlled places. Any wildlife which is found inside the fences will be treated as intruders and will face consequent actions by the humans. The sudden appearance of wild animals inside the domesticated sphere causes humans to lose total control over the contents and activities of that place and they usually take immediate actions to regain that control by chasing the intruder away from the domesticated sphere. This is done by catching the animal and relocating it into the wild or simply by killing it. The borders between the domesticated and the wild are not static but appear on different scales and are also species-related. For example, a fox seen in a corn

field does not necessarily cause a conflict between the fox and the farmer, but if that fox enters the courtyard or even the hen house, a conflict will most likely take place. A fascinating element in human-wildlife conflicts is that a non-dangerous or non-harmful wild animal, which crosses the culture-nature border and enters into the human-controlled space, will usually face similar defensive actions by humans as crop-raiding and predatory wild animal intruders do. When a fly enters a dining room from the open window and tries to land on a piece of bread on the dinner table, it is very common that everyone tries to chase it away from the food or kill it while it flies inside the house. A fly may be perceived as dirty and impure as a contrast to the state of purity maintained in kitchens and dining rooms. The fly represents dirt and disorder, (Douglas 1966), in the house and eliminating is a positive effort to organise the space and restore order there. Death is almost certain for a non-poisonous spider which suddenly walks across the living room rug and takes the breath away from any arachnophobic in the same room. In these two examples, the fly may be killed because it is considered that it might spread some bacteria into the food stuff but the spider will also be killed despite its harmlessness. The conflict occurs because the wild spider is inside the house. I emphasize the word wild here because some people keep pet spiders, such as tarantellas or Black Widows, voluntarily in their homes. These pet spiders, just like some other uncommon pets like scorpions and snakes are kept in glass terrariums and are seldom taken out from these cells. However, a pet spider owner may without hesitation kill an

intruding wild spider inside the house. This brings us to the categorization of pets, domestic animals and wild animals, which is discussed later. I use the concept wildlife in close accordance with that of Lyimo and Ndolezi (1996: 38). They define wildlife as all non-domesticated species of mammals, birds, fish, reptiles and amphibians, including their natural habitats and environment. I do not, however, include the natural habitats and environments of wild animals in the concept of wildlife in my study. Thus the way I define wildlife here encompasses only the fauna. Another important concept in this study is culture. I will use the concept of culture defined by Anderson and Gale (1992) in Head et al. (2005: 255) as “*a dynamic mix of symbols, beliefs, languages and practices that people create, not a fixed thing or entity governing humans*”. Culture has the ability to change and adapt to prevailing social and environmental conditions. Head et al. (2005) emphasize that culture is not only transmitted over generations but is being actively produced by each generation.

4. The origins of the nature-culture and human-animal divide

New animal geography critically examines and challenges the ontology of the human-animal divide. In the next five sub-chapters, I will present how the human-animal divide has originated and changed in time and space through the advancement of civilization. The distinctions of nature-culture and human-animal spheres are deeply attached to Western culture, norms and

behaviour. The Western ideas of nature-culture and human-animal divide were exported to Africa in a process of establishing protected areas for wildlife and nature during the colonial era. The ideas of nature-culture and human-animal divide provide an essential basis for understanding the current human-wildlife conflicts in Africa.

4.1. The mythical past

The coexistence of human beings and wildlife is a phenomenon as old as *Homo sapiens*. The evolution of human beings from our anthropoid ancestors took place in an environment rich in wildlife and encounters with animals through hunting has raised anthropological interest for the reasons why the man-apes become humans. The hunting hypothesis, originally introduced by Raymond Dart in 1957, was based on the idea that *Australopithecus africanus*, one of Man's ancestors, had been a hunter ape and had adopted human characteristics as a result of this. The hunting hypothesis was embraced by researchers of human evolution, anthropologists and the mass media from the 1950s to the mid 1970s. The hunting hypothesis was further developed by several anthropologists and zoologists, especially on the side effects of hunting on our ancestors, such as coordinated group effort, tool use and differentiation of sex roles, which were distinctively human characteristics. The adaptive shift in the evolutionary process from ape to man was emphasized in neo-Darwinian theory of that time and the hunting hypothesis filled the demand perfectly. Washburn and Lancaster (1968) were proponents of the hunting hypothesis

and wrote that hunting has dominated the course of human evolution for hundreds of thousands of years and has made *Homo sapiens* to what it is now. Agriculture has dominated less than one percent of human history and has not resulted in any major biological changes to humans during that time. However, more recent research has questioned the conclusions of Dart, as well as the whole hunting hypothesis, which today is considered to be a fable or a myth. The acceptance of the hunting myth among the scientific community after the World War II was based more on new conceptions of the animal-human boundary than on facts about our anthropoid ancestors (Washburn and Lancaster 1968, cit. Allison 1991: 120; Cartmill 1993).

Man has been a hunter-gatherer for roughly 99% of his history on Earth (Serpell 1986: 4). Throughout the history of Man, the natural world and wildlife have had an influence on human culture, especially through the arts, crafts, beliefs, rituals and myths. Hunter-gatherer societies across the Globe depended on the availability of meat, skins, furs, bones and antlers of wild animals, which were important raw materials for survival. The perpetuation of the nomadic hunting cultures required an extensive knowledge on wild animals and their habitats. This knowledge was integrated with subjective beliefs and values of the natural world, which formed the basis of the culturally conditioned orientation toward nature and wildlife. For the Oglala Sioux of the North American Plain the bison was not only an animal hunted for meat but also believed to have sacred and feminine aspects. The Oglala Sioux respected

the healing powers of the bear, which represented the masculine part of nature. They also believed in a metamorphosis of man and a bear (Brown 1992: 23–33).

The Achuar Indians, living in the forests of Upper Amazon in Ecuador, practice slash and burn agriculture and hunt certain wild animals only during the day. The Achuar have a specific taxonomic order for animals and all game animals belong to the category of diurnal animals. The only nocturnal animals ambushed are nocturnal curassow and rodents, which enter the gardens to eat manioc tubers. As the hunters return to their homes at the end of the day, the wild predators, which pursue their prey in dark replace them. The Achuars do not eat certain animal species, which are considered as the metamorphoses of human beings or their deceased body parts. They believe, for example, that the lungs turn into butterflies, the shadow of a deceased into a brocket deer and the liver into an owl. The tapir and the spider monkey are also considered to be reincarnations and are not consumed by the Achuars (Descola 1994: 91–92). These geographically diverse examples reveal the various coexistences between human beings and wildlife. The rural communities in Liwale even today share beliefs and superstitious elements in their relationship with wildlife indicating that these elements are remnants of their past during hunter-gatherer times. Transition from hunter-gatherers to small scale agriculturalists has not yet caused the total disappearance of traditional taboos and beliefs among the studied communities in the Liwale district.

The separation of humans and non-human animals in philosophy and science in general, has been a

controversial topic among scientists and clergy for centuries. The Christian doctrine is a strong proponent of the distinction between humans and animals. It emphasizes human dominion over nature and supports the transformation of nature. Humans belong to a totally separate order, namely culture, while the non-humans belong to nature. However, the distinctiveness and dominance of humans over nature was questioned during the 1500's. Erasmus, Thomas More and Montaigne, for example, criticize hunting because it gives people certain animal characteristics and behaviour (Anderson 1997: 472). Michel de Montaigne spoke out in the mid-16th century in favour of animals and emphasized that cruelty to animals was wrong (Serpell 1986: 128). The works of Francis Bacon focused on the inductive methodology for scientific inquiry. He also wrote extensively about the question of man's control over nature. In *The New Atlantis*, Bacon (1627) points out the aesthetic, existence and the scientific value of parks and enclosures where wild animals and birds live. He writes that such places can be used for viewing rareness and also for dissections and trials for discoveries (Glacken 1967: 471–475). The metaphysical foundation of Western science has been grounded in the work of René Descartes, who in the first half of the 17th century describes animals or beasts as machines without sentience and moral standing. He overlaid the ancient dualism of reason/nature with the distinction of mind and body (Anderson 1995: 277). At the same time, philosophy was slowly detached from theology and the divine origin of nature started to be questioned by Rationalist thinkers. The dividing line between

humans and animals was not very clear before the Age of Enlightenment. Prior to the early eighteenth century, animals had even been sued in courts and tried for crimes in the same way that humans were. Jeremy Bentham's *Introduction to the principles of Morals and Legislation* in 1780 argues against cruelty to animals and advocates their humane treatment. Bentham did not directly question the superiority of humans but pointed out that cruelty towards animals was immoral because animals suffer just like humans. Concern for animal welfare was widely adopted by the educated middle-classes of Britain at the turn of the 18th century. However, the Catholic Church did not accept moral responsibilities toward animals even as late as the middle of the 19th century. Anthropocentrism and resistance to the Darwinian evolution are still widespread in the United States as scientific creationism is taught alongside the theory of evolution at some schools (Serpell 1986: 129–133).

In many human societies, certain aspects of the human-animal relationship have disappeared through time or have been replaced by new aspects during the modernization process. The coexistence of man and wildlife in present day Europe is not so much grounded on beliefs, myths or the importance of meat acquired from these animals, like it used to be in the past. The economical, existence and intrinsic values aspects of wildlife have mainly replaced these earlier important aspects of the coexistence. Sukumar (1998: 303) points out that in India the religious taboos used to play an important role in people's tolerance towards animals in the past. Today, human societies are changing rapidly and such traditional attitudes and beliefs

can no longer sustain conservation in the long run. However, in Liwale, for example, the beliefs, myths and bush meat still play a part in human-wildlife interaction.

Animals have had a central role in African mythology. The African hunters had a great respect for buffalos because of their size and strength. The Kiswahili name of the buffalo nyati refers to a man of muscular force, bravery and endurance. Elephants are often regarded as wise chiefs who settle disputes among the other forest creatures. The Wachanga in Tanzania believe that the elephant was once a human being who was cheated out of his body except for his right arm which now operates as a trunk. The hyena is believed to have the ability to carry the spirits of the ancestors to visit their relatives as ghosts at night in East Africa. It is also believed that if a person is eaten by a hyena, the spirit of the dead can be seen through the luminous eyes of the animal. Therefore some tribes take their dead into the bush to be eaten by hyenas. In many African religions it is believed that God can take the shape of a lion and appear to humans. The man-eating lions of Tsavo in Kenya were believed to be kings and queens of ancient times who reappeared in Tsavo to defend their territory against the intruders. Many chiefs and kings in Africa trace their descent to lions. Their sons, the princes, could change themselves into lions when they went out hunting at night. Snakes have a special status in Africa because it is believed that they are the incarnations of the spirits or carry spirits with them. The python has had a very important status among the Nyamwezi of Tanzania. If they met a python in their fields or in the bush,

they greeted it in the same way as they greeted a king by clapping their hands. If a python entered their house, people offered oil and water to it and informed the local chief about such a honorable visit. The chief usually ordered a goat to be sacrificed to the python. When the Nyamwezi found a dead python it was buried just like human beings (Knappert 1990: 42–221).

4.2. Domestication and agricultural revolution

Domestication of wild animals launched a huge shift in the relationship between humans and animals. The birth of agriculture and animal husbandry launched a shift away from traditional hunting and gathering in the human societies. The egalitarian relationship of the hunter and the prey animals disappeared with the advent of domestication. Archaeological evidence has shown that the first wild animal species to make the transition from wild to domestic was the wolf in the Near East about 12,000 years ago. Soon after the domesticated wolves, which are the ancestors of the dog, sheep and goats were also domesticated by catching their wild ancestors and bringing them into close contact with humans. Cattle and pigs were being raised in parts of Asia about 9,000 years ago. By 2000 BC all the important domestic plants and animals had been domesticated (Serpell 1986: 4–5). According to Sauer (1969), agriculture emerged among sedentary communities which were not suffering from shortage of food but lived at a comfortable margin above the subsistence level. He claimed that agriculture began in wooded land,

where trees were cut to make open space for cultivation. Sauer mentioned that the domestication of plants and animals originated in areas with a high diversity of species. Sauer believed that hunter-gatherers had acquired special skills that allowed them to start agricultural experiments, domestication and breeding of plants and animals. According to Wolch (2002a: 724), Sauer resisted economism in understanding society-animal relations. Other geographers who followed the Sauerian tradition emphasized that economic benefits of animal domestication were not as important as the religious motivations for taking animals into the human sphere.

In agricultural societies, domestic animals, crops and other farm products reduced the dependency on wildlife resources, although wildlife provided important protein subsidy during the times of bad harvest or drought. In Europe about 600 BC, the Celtic peoples were small farmers who hunted wildlife, such as elks and boars, but mainly for sport and training for warfare. They mainly used domestic animals for food, sacrifice and rituals. The Celtic legends contain tales of animals with superhuman wisdom or the ability to communicate with gods and humans. Shape-changing and metamorphosis from human to animal form are a common thread in the early Celtic tales. The Celtic people had many Gods, which were the mediators between humans and animals and could take the animal form whenever they wished to do so (Green 1992). The Hellenistic period between 323 BC and 146 BC was one of the periods in Western civilization when the contrast between natural and cultural landscapes

was the sharpest. The large size of many Hellenistic cities and the profusion of urban life increased the distinction between the natural and the cultural in poetry and landscape descriptions. Life in the country was considered as more natural to man because it was based on gifts originally given to man by the gods (Glacken 1967: 32–33).

Kay Anderson (1997) describes how domestication of wild animals has defined the location of both humans and animals along the boundary between nature and culture. She concludes that the domestication of the wild means drawing it into the boundaries of the known and to fix it into a secure state. Anderson refers to that Nathaniel Shaler who wrote about domestication in the 1890's and noticed that when the Neolithic peoples began to domesticate wild plants and animals some 11,000 years ago these people started their transition beyond the threshold of barbarism. This was an advance of culture that separates people from animals in nature. Domestication was conceived as a civilizing activity for the savage men and women leading them to a higher level of perfection. Domestication enabled the development of pastoral and agricultural economies which had enormous impacts on the landscapes and the human-nature relationship. Domestication was also a process where wild animals were brought into a human nexus and control away from the wilderness. Domesticated wild animals were nurtured and included into the cultural practices of humans. Anderson also mentions that Ian Hodder who locates the distinction between civility and wilderness in the Neolithic era at the dawn of domestication. He used many

archeological sites in Europe to describe the organization of life of the Neolithic Man. The built forms of the excavation sites revealed a distinction between the *domus*, which was the place where wild resources, such as clay, plants and animals were brought in and transformed; and the *agrios* which lay beyond and contained danger and death. This distinction between the inside and outside has been under constant construction and negotiation through human history. The domestication process has significantly affected the terminology and concepts which we currently use in the discourse on dualism between culture and nature and civilization and wilderness. The domesticated wild animals were the reference point for distinction of tame nature, which people make, and the nature which was indomitable in the era before year 300 AD. The word culture in its earliest European use meant to cultivate or tend crops or animals. Nature which was not cultivated came to signify a space of danger and space which was not tame. Andersson (1997) writes that According to Hodder, the walled city of the classical era represented a space where civility and wilderness were clearly separated. Domestication has significantly altered the content and construction of space through enclosure practices. Domestication started a process where human activities shifted from hunting to protection of food sources. Cultivation made animal husbandry possible and created spheres where these domesticated animals became habituated to people and vice versa. The locus of the house became situated within the setting of a more inclusively domesticated nature. The domestication of animals was integrated into the ideas

of human control and improvement of the wilderness. The Cartesian worldview with the distinction of mind and body further increased the segregation of humans from animals. The conceptual boundaries between animal and human were included into the larger Cartesian framework of western dualistic thought. As a result, animals were the opposite of humans and placed into the inferior realm of nature which these non-human creatures shared with plants, soils and stones. The idea of improvement, adopted by the European states by the mid-eighteenth century, formed an ethical basis for the transformation of nature and reclaiming the frontiers of the new world from their wilderness. This civilizing mission did not only focus on nature but was also extended to the indigenous people of the colonies (Anderson 1995: 277; Anderson 1997: 464–481). Wild animals who were considered useless by the people or which tried to compete with them on their own domesticated ground were universally classified as vermin that needed to be exterminated. Uncultivated areas, such as forests, were seen as bleak and hostile wilderness where dangerous animals and monsters lived and it was the duty of people to tame such areas and bring them under human domination and control (Serpell 1986: 137). Turnbull's interpretations of oral traditions of the Bantu forest-dwellers in central Africa show signs of culture-nature dualism in the non-Western worldview. Part of the Bantu oral tradition described their penetration into the forests from the savannas where they had previously lived. These oral traditions reflect the difficulties they faced when trying to clear and maintain a domesticated

space within a physically and spiritually untamed forest landscape. However, the Bantu adapted into this new environment over time and developed a new tradition where their savanna traditions merged with those traditions adopted from other forest-dwelling tribes (Köhler 2005: 413–414).

4.3. The wilderness

The wild embraces a special place in the imagined entities of human civilization. The hunter-gatherer societies did not make a distinction between wilderness and the rest of the environment. Since all land was uncultivated, there was no division between cultivated and wilderness and therefore all animals were considered as wild. Wilderness as a social definition emerged during the agricultural revolution about 10,000 years ago. Its usage marked the transition from a hunting and gathering economy to an agricultural society. The English concept wilderness may originate from an old English term *wildeoren* which means wild beasts. The wild has been understood as a place which is situated outside a historical and geographical realm of civilization. It is a place without civilized humans and populated by creatures. This image of the wild has provided a framework for the spatiality of non-domestic animals, which live *out there* in the wild. Wild animals are seen as animate figures in uninhabited landscapes. Such categorical binaries between society and nature, human and animal and domesticated and wild were reproduced in the conservation discourses in the nineteenth century (Short 1991: 5; Whatmore and Thorne 1998: 435–436). The Western concept of

wilderness originates from the distinction between nature and culture, and from the conquest and transformation of the wild, not from the perspective of living in the wilderness itself. Historically, wilderness was conceived as an opposite of culture, civilization and development, even as an obstacle to progress in Western and Anglo-American societies (Saarinen 2002: 29). Yi-Fu Tuan (1974: 112) writes that “*wilderness is as much a state of mind as a description of nature*”. He adds that wilderness can not be defined objectively.

The culture-nature dichotomy is not only a central theme in academic discourse but has been made tangible by the process of drawing boundaries between human spaces and nature in the name of biodiversity protection. People are evicted from their homes in the forests and other areas with high biodiversity values to make way for nature. They are asked to move to the other side of the boundary of the nature reserve. This kind of boundary-making can in fact be a matter of life and death. According to Demeritt (1994: 176), William Cronon linked the nature-culture dualism to another binary, namely the country and the city. Cronon highlights that these two elements are closely intertwined and cannot exist without tensions between them. Cronon mentions that the ontology of the two is based on their difference which marks off the place where the city or country/nature is not. The city and the country are symbolic opposites which we alter with our presence and with the ways that we think about them. In addition, Cronon displaces the culture-nature dualism and provides stratigraphic metaphors of surface and depth to make

a distinction between the *first nature* (original, pre-human nature) and the *second nature* (the artificial nature that people erect on the first nature). Cronon points out that the nature which we inhabit is never just purely first or second nature but a complex mix of both (Demeritt 1994: 176). A similar point of view is represented by Jonathan Maskit (1998: 266–274) who studied the impossibility of wilderness through the works of two philosophers, Gilles Deleuze and Félix Guattari. Maskit describes a few characteristics which can be used to define wilderness in the classical sense. A place can be classified as wilderness if it has a certain level of purity and remoteness and has no or few visible signs of civilization. Wilderness can also be associated with wildness as the nature in question is considered to be pristine, apart, uncultured and uncivilized. Wilderness is the other of culture, something raw, dangerous and unpredictable. It is a place where one may get hurt. Wilderness is often regarded as a space where the wild things are, namely objects and species of wild nature. Maskit also provides alternative ideas of wilderness by using the examples of contemporary ecophilosophical literature, especially those writers who he names as the *wilderness constructivist camp*. These writers do not regard wilderness as something independent and free but as a human construct. For the wilderness constructivists, wilderness was not the other of culture but a product of culture, which is formed by the act of naming, marking or designating spaces. Wilderness can be considered as a geographically produced human product. According to the works of Deleuze and Guattari, all space in

the world is a mixture of smooth and striated. Smooth space is the space of the nomad who lives outside state control. Smooth place has a sense of wildness in it as it is characterized by openness, freedom and unconstrained by laws and regulations. Striated space is the space of the State and can be characterized as Newtonian or Cartesian space. It is impossible to find a space belonging purely to one category because the mixture of smooth and striated spaces is unstable and constantly changing and transforming in both directions from smooth to striated and vice versa.

Whatmore and Thorne (1998: 437, 451) introduce the concept *topography of wildlife* to mean that wildlife is being constructed as an imagined agent between people and animals, and where wildlife operates in heterogeneous social networks performed in and through multiple places and fluid ecologies. Whatmore and Thorne use the topography of wildlife to move beyond the familiar utopian space/time of pristine wilderness and to describe and refigure wilderness as a *heterotopic* space or other space, in accordance with the original *heterotopia* developed by Michel Foucault (1967). The topological approach opens up the traditional spaces of wildlife and brings wildlife from the exteriority to the multiple spaces and ecologies of performative networks. Naughton-Treves (2002: 500) emphasizes that the nature as a garden metaphor is misleading in wildlife conservation because it ignores the social and ecological conditions outside the garden. Wildlife conservation areas cannot be seen in isolation from the surrounding realities.

4.4. Human-animal boundary

The human-animal boundary is not static but constantly negotiated. Sociologists have pointed out that human and animal identities are constructed through interaction. They have also shown that the social meaning of the human-animal boundary is socially and historically constructed with the concept of species being one such construction. Drawing the boundary between humans and what are considered animals, is an important part of modern human activity (Hobson-West 2007: 27–29, 34). In Liwale, the multidimensionality of human-animal interaction has affected and still affects the social construction of human-animal boundary today. The distinctiveness of the human-animal boundary has increased among the locals after the transition of communities from hunter-gatherers to shifting-cultivators. Traditional beliefs are no longer strongly followed by the youth and the effect of these beliefs on the human-wildlife relationship is about to diminish further as the modernization process continues in the rural villages.

Adrian Franklin (1999) mentions that the human-animal boundary has been dismantled in a shift from modernity to post-modernity. The loss of distinction between nature and culture and the weakening of the human-animal boundary take place in post-modern societies because it is understood that humans have the capacity to destroy the planet and therefore animal and human interests in safeguarding the environment are tied up together. Also, the mutual dependency of humans and animals, especially pets, has significantly increased as animals have become substitutes

for love objects and companions to some people in post-modern society. In addition, there is a growing notion that pure wilderness or nature as such, does not exist because everything around the world is subject to human control. These notions of post-modern society can be seen as characteristics of Western society but cannot be planted universally as these appear to ignore cultural differences (Franklin 1999, cit. Hobson-West 2007: 26).

Interestingly, one strand of structuralist approach to animal symbolism has emphasized the role of classifying animals in terms of space. Here space is understood as being culturally divided into different spheres, such as land and water. Some species will become anomalous because they are associated with more than one different sphere. Such social understanding of environmental order makes animals, which are found out of space, pests or vermin. This anthropological point of view explains that at least some wildlife pestilence is connected to boundary-crossing behaviour of different spatial spheres as much as its economic consequences. Those species crossing the spatial boundary are often subjected to negative symbolism and regarded as immoral characters, such as thieves or murderers (Knight 2000: 14–16). For example, in Sumatra, the wild pig is regarded as a polluting and an evil creature hiding in the surrounding forest, where it continuously competes with human beings and threatens their cultivated lands. There, forest is clearly regarded as a non-human space which is uncultivated and threatening (Rye 2000: 111). Kay Milton (2000: 234–235) introduces three culturally

defined boundaries with varying degrees of inclusiveness in the discourse of the *ruddy duck campaign* in the United Kingdom. The least inclusive boundary is the one between two species. The second and more inclusive boundary is the boundary between native and alien species. The third boundary is the most inclusive one, namely the boundary between human and non-human processes or between culture and nature, respectively. These boundaries are a part of the human understanding of the world, especially from within conservationist discourse. In this discourse the ruddy duck is an alien species introduced by humans and is out of place and disrupts the natural order in its current habitat which it shares with the conserved white-headed duck.

Since the beginning of the agricultural revolution, people have had the need to keep wild and domesticated animals out of planted fields. The old metaphor of nature as a garden eventually brings up an image of a spatially divided environment with bounded spaces subject to human control. In this image, wildlife is relocated inside the uninhabited spaces and outside inhabited spaces. The idea of created and mutually exclusive spaces for people and wildlife originates from the nature/culture dualism in Western thought. Nevertheless, wild animals often defy these boundaries and move inside restricted spaces and thus threaten human interests. These border incidents reveal the limited ability of people to keep good animals in and bad animals out. The actions of each gardener and their interplay with the broader social and physical landscape shape the type of wildlife surviving in nature and also define the status of these species as pests,

game or protected species (Naughton-Treves 2002: 488–490). Animals, such as wild pigs, elephants, hippopotami and baboons, are considered as problem animals if they live in the vicinity of agricultural areas.

The zone between protected areas and agricultural land is a complex and dynamic place. Osborn and Hill write that Bell describes the human-animal interface as a rolling zone of attrition, in which wildlife is utilized during the elimination process. Many protected areas are unfenced and wild animals are able to move in and out to forage in the agricultural areas. Similarly, people are able to enter the protected areas to hunt animals, collect fruits and fallen trees and graze their livestock. The main task of the game guards is to keep the wild animals away from the agricultural areas. Different animal species have different dietary preferences, body size, dexterity and food processing capabilities, which make it very difficult for the farmers to find sustainable preventive measures for all the species which create problems. There exists no single management option which would stop all problem animal encroachment into the agricultural areas. Different animals have different activity patterns and ranging behavior which also influences the types of crops damaged and the seasonality of the crop-raiding (Osborn and Hill 2005: 72–76).

4.5. Pets and humans

Pets are an interesting category of animals. They often share the same space with humans and enjoy privileges which other animals are not entitled to. Pets are usually named by their owners. People

also attach more human characteristics to pets than to any other animals. Pets are animals which are humanized and treated almost like human beings. In the U.S.A. alone millions of pet owners' dollars are used for pet welfare. Pets have day care centers and hotels just like humans do. Pet fashion, trimming and pet psychology are growing sectors in the pet business nowadays. Sometimes wild animals enter the gardens and even houses where pets are kept and attack and kill these companions of humans. These incidences usually launch a strong human-wildlife conflict. James Serpell (1986: 35-62, 101–102) writes comprehensively on the relations of people and their pets using several examples of different historical periods, ethnic groups and animal species. Pet keeping has been a common activity among people across the planet for about 12,000 years. He points out that pre-historic pet-keeping, such as dogs and cats in many hunter-gatherer societies may have paved the way towards domestication of other animals as well and contributed to the development of animal husbandry and livestock farming. Serpell's book describes how pet-keeping on the one hand reflected a definite class distinction in human societies over time and how pet-owners on the other hand were in a risk of being accused of sorcery in Britain during a period from 1560 to 1700. He tries to find an explanation why people keep pets in the first place. According to Serpell, Yi-Fu Tuan argues that pet-keeping is based on a patronizing relationship where people display their abilities to dominate, control and subdue the unruly forces of nature. Many researchers have regarded the contemporary popularity of pets in

modern industrial societies mainly as a direct product of Western material affluence, but Serpell sheds some new light on this discourse. He shows that when compared with wealthy Western societies tribal societies around the world also share many similar affections and rules towards animals classified as pets. Pets are not eaten or killed by their owners even though some pets may belong to species which are classified as edible. However, there are differences among societies in the classification of animals into edible and non-edible. In Europe, dogs are not eaten because it is considered as a cruel, barbaric and disgusting habit while in some Asian cultures, such as in Korea, Vietnam and Thailand, dog meat is considered a delicacy. Serpell uses the horse as an example to reveal differences also among Western societies. Horse meat is regularly eaten in some European countries while in Britain and in the United States horse-eating is a taboo. There is a tendency to interpret pet-keeping in non-Western cultures as only based on practical or economical reasons which ignores the gratuitous affection, desire to protect and nurture. Serpell provides a reason to why dogs and cats are today the most common and pets around the world. He explains that wolves and wild cats possessed particular characteristics, such as development of social bonds, the habit of remaining within one specific area and being active during the day-time, which made them suitable and desirable animal companions for humans. These animals also learned to defecate in the gardens and parks outside their homes, which gives humans control over the mess they produce.

Pets are a category of animals which belong to the culture side of the nature-culture divide. Although pets are physiologically regarded as animals, they are located in the grey area between the human-animal divide. Recent findings in cognitive psychology show that animals also have cognitive abilities. These findings question the whole idea of dualism. Overall, the human-animal divide has become blurred and lost its clarity in the shift from modernity to post-modernity.

5. Landscapes of conservation

I will now expand the perspective of my study towards a more holistic examination of animals in the changing context of human relations with nature. I will take a look back at history and examine these relations through the concepts of landscape and wilderness. The changes in human relations with nature have shaped the ways how wildlife has been perceived, managed and protected in different continents. The Western environmental ideology has largely determined the current human relations with wild nature globally, so I will briefly introduce the background of this ideology and show how it has shaped our comprehension of landscapes and the formation of the national park model.

5.1. Religious roots of the conquest of nature

The widespread environmental changes, especially the increased clearance of forests, which took place in Medieval Western Europe in the 11th and 12th

centuries, faced resistance and concern among hunters from the nobility. They started to maintain the remaining forests at the expense of poorer people who wanted to cut the forests and increase the area of arable land. The Mediterranean and the Chinese cultural landscapes were simultaneously created by clearing the forests, building irrigation systems and canals, driving back wild animals and causing the extinction of some larger predators. Many of the landscape changes were not yet permanent or progressively expanding during the Middle Ages. The main objective of the time was to maintain the cultural landscapes against the powerful recuperative forces of nature. The effects of Christianity on the relationship between humans and nature were strong, although economical, social and technological factors should not be underestimated either. In the Middle Ages, it was strongly believed that landscapes which formerly were frightful wastelands occupied by wild beasts could become pleasant places of residence for humans. Man was seen as God's helper in finishing the creation by transforming the nature into a fertile Garden of Eden before the Fall. Monks often built their monasteries deep in the forests where they cleared patches of forests into tillage. These improved lands which were previously deserted or inhabited became places of spiritual perfection for the monks. Monks also cut down the sacred groves and sacred trees which were the centers of pagan worship. Gadgil and Vartak (1998: 85) point out that the sacred groves and associated cults had their origins in the hunting-gathering stage of the society. The biographies of saints often tell of legends in which wild animals appear to

the monks in the forests and become their helpers. These legends may be based on events, where monks reclaimed deserted agricultural lands using feral animals and redomesticated them. There are also legends on the friendship of monks with wild animals, such as deer and wolf. The monastic enclaves in the forests also provided asylums for wild animals hunted by the royalty. The Christian lore is full of stories about saints and their harmonious life with wild animals, for example Saint Mark and Saint Jerome with their lions and Saint Euphemia with her lion and her bear. However, wild animals were also hunted in the forests owned by the abbeys to supply the monks with leather and skins for bindings (Glacken 1967: 289–294, 303, 308–313). This classical perspective on wilderness predominated the Western world until the end of the 18th century when the romantic perspective started to gain more attention. In the classical perspective on wilderness the activities of human societies conferred meaning to space and brought nature from the darkness of the past into the light of the future. Wilderness was a place outside the society. It was regarded as a fearful place, a wasteland which had to be brought into salvation by mankind. For the classicists, the conquest of the wilderness manifested human achievement. The romantic perspective on wilderness emphasized the purity of untouched spaces and their deep spiritual significance for the humans. The romantics were more pessimistic about human conquest of the wilderness and they wanted to save these spaces from human caused degradation. For them the conquest of wilderness was a measure of the fall from grace

(Short 1991: 6). The romanticists valued escapist and isolating views of nature, namely the virginal and wild (Lehtinen 1991: 63).

The rational land use philosophy in John Evelyn's (1664) *Sylva or a Discourse on Forest Trees*, which is considered a classic in the history of conservation, has strongly influenced the history of conservation in Europe. He realized that landscape changes very often resulted from the continuous deforestation and appealed for proper understanding of the relationship between forestry, agriculture, grazing and industry. Evelyn's philosophy supported the creation of useful and pleasant landscapes. The *French Forest Ordinance of 1669* was a pioneering work in forest legislation in Europe. This revolutionary ordinance placed severe limitations on the use of forests. It regulated the cutting and collection of wood from the forests and also prohibited grazing of livestock there. Restrictions also concerned charcoal making, uprooting of trees, furnaces, and removal of acorns and other forest products. Burning trees and removing their bark also became forbidden activities in the forests. The ordinance also set a certain radius around the forests inside which it was prohibited to build huts. Huts within this circuit or border were demolished (Glacken 1967: 485–493). These new approaches to forests marked a clear transition in attitudes toward wilderness. In traditional agrarian societies large tracts of forest were regarded as wilderness, the home of evil spirits. People living in the forests were considered as uncivilized and marginalized elements of the society. These people were called *savages* which literally meant *belonging to the*

woods. This concept originates from the Latin word *silva*, which means wood. Fear of wilderness dominated European attitudes up to the nineteenth century. This fear was not only directed at forests but also towards other inaccessible parts of the landscape, such as mountains. Both spaces were regarded as homes of demons and gods. Fear of wilderness was found in most societies where a sky-centered religion had replaced earth-bound animism practiced by many hunter-gatherer societies. When Christianity replaced animism, the uncultivated wilderness became a place to fear. This fear was also directed towards those humans and animals which lived in the wilderness. They were not considered part of the normal social order. People were also afraid of being exposed to the influence of wilderness, which as wild and untamed brought them into contact with the wild unconscious. Wilderness was believed reveal the dark underside of humanity. In addition to these causes of fear, there were also more solid reasons to fear the wilderness, such as dangerous wild animals which could attack people and their livestock in frontier settlements (Short 1991: 6–9).

5.2. Social construction of landscapes

Landscapes are important parts of our *life world*. *Landscape* is a concept which has been extensively studied and widely and loosely used as a concept in human geography, where it has been given several different definitions. Carl Sauer (1938: 26–30, 48) defines landscape as “*an area made up of a distinct association of forms, both physical and cultural.*” He says that geography is based on the

reality of union between physical and cultural elements of the landscape. He also writes that landscape has an organic quality and it means more than just an actual scene viewed by an observer. Sauer highlights the individuality of the landscape and its relationship to other landscapes. The content of a landscape is determined by personal judgment, often based on anthropocentric valuations. People select those contents of landscape which are or may be of use. Sauer sees culture as a geographic expression, such as the imprint of the works of humans upon the area. As a result, Sauer argues that there is no place for a nature-culture dualism of landscape. However, he points out that geography has never disregarded the subjective aesthetic qualities of landscape.

The concept of landscape has been defined in various ways in cultural geography. Since the 1980's, the *cultural turn* in geography increased emphasis on the study of culture and simultaneously placed less emphasis on the study of economics and politics in human societies. This has also affected the definitions of landscape. Cosgrove and Daniels define landscape "*as a cultural image, a pictorial way of representing, structuring and symbolizing surroundings*" (Cosgrove and Daniels 1988:1, cit. Widgren 2004: 457). Hard defines landscape as a cultural landscape which is "*the unique-individual regional result of the encounter between man and nature*" (Hard 1982 cit. Leimgruber 1991: 44). Greider and Garkovich (1994: 1–15) define landscapes as "*the symbolic environments created by human acts of conferring meaning to nature and the environment, of giving the environment definition and form from a*

particular angle of vision and through a special filter of values and beliefs". Thus landscapes can be understood as symbolic environments which humans create by conferring a culturally related meaning on nature and the environment. The physical characteristics of a landscape may be the same but that very landscape carries multiple symbolic meanings for different people filtering through their personal and cultural values and beliefs. Landscapes reflect people's cultural identities and self-definitions. Greider and Garkovich also write that postmodern theorists, such as Edward Soja, point out that space is not a given but socially constructed and it reflects and configures being in the world. The symbols and meanings in landscapes are negotiated, renegotiated and imposed on other groups, who encounter those places, through the use of power. The concept of landscape can be used to interpret conflicts within communities or differences between ethnic groups with regard to the natural environment. Head et al. (2005: 252, 257) write that all people have a culture in which they are socialized into think about land and natural species in particular ways. These diverse cultures of nature continuously lead to conflict over land management decisions and give birth to contested landscapes. Greider and Garkovich (1994: 1–15) mention that changes in the environment which cannot be incorporated into the *everyday life world* or that threaten access to valued resources will require a renegotiation of the self-definition and its relationship with the environment among the members of the group. People often use traditional symbols and beliefs as an interpretative framework within which they construct

meanings for these changes and new technologies.

Milbourne (2003: 158–159) describes nature as a social nature which is reproduced through the social relations of production. Meanings which are attached to nature originate from cultural representations and social practices. He writes that nature has become closely connected with discourses on countryside and rurality. In such discourses, the countryside has started to represent the spatialization of nature. These constructed spaces of the countryside represent transitional spaces between the city and wilderness where the landscape, animals and indigenous people are expected to function and express themselves according to the pastoral myth of rural idyll. Williams (2002: 123–124) emphasizes that the meaning of socially produced landscapes is anchored in history and culture and is thus continuously created and recreated through social interactions. In the social construction of wilderness landscapes, there is an interplay between representing the meaning and values for landscape and managing that landscape according to these meanings and values. Conflicts are inevitable when several different communities and stakeholders offer multiple representations and values to a single place or landscape. All these different meanings cannot be reduced to any single form. Leimgruber (1991: 44) points out that the concept of landscape must be considered from both a spatial and a temporal point of view.

Widgren (2004: 459) identifies three interrelated landscape concepts in modern cultural landscape studies. These landscape concepts are scenery, institution and resource. *Landscape*

as a scenery builds on the cultural image, a picturesque and symbolized representation of nature and environment. This concept often links landscapes with environmental perception or “*a way of seeing*”. *Landscape as an institution* is based on an idea of territory where land is governed through customary law and rules. Here landscape is understood as a lived-in territory which is formed through “*a way of communicating, a way of acting*”. The third concept, *landscape as a resource*, describes it as a resource which is transformed by labour. Land is not only a resource for biological production but also for the production of capital. I will use and define landscape in this thesis according to these three interrelated concepts. To me, landscape is not just constructed through a way of seeing but also through a way of acting, experiencing and producing.

Lehtinen (2006: 118) in his study on the Finnish landscapes lists three key elements of landscape formation. First, landscapes provide a spatial framework by which the familiar environment is identified as a territory under domestic control. Second, landscapes are a tool for (re)producing a distinction between the familiar and unfamiliar. Here landscapes are formed in a process of socioenvironmental exclusion and inclusion. Third, landscape identification provides a basis for self-identification and cultural differentiation. These three key elements of landscape formation can also be identified in south-eastern Tanzania where this study was carried out.

Gerber (1997) writes that language, metaphors and categories are very important for the social construction of nature but the relationship between

them and nature has not been studied widely. She brings up Lefebvre's search for a theory of the social production of space where the unity of physical, mental and social fields is of crucial importance. Gerber shows that these three fields are inseparably linked and interact through complex processes. Her analysis using this triad revealed that the Cartesian dualism between nature and society, mind and matter or reason and emotion does not exist at the concrete level but has been very influential at the abstract level. Palang et al. (2004: 5) point out that landscapes are full of borders, which can be interpreted as dividing lines between different territories both in a human and a natural sense.

Demeritt (1994: 164–179) reviews the works of environmental historians and cultural geographers in order to find mutually accepted metaphors of nature. He finds out that these fields of science occupy alternate poles of the nature-culture dualism. The environmental historians emphasize that nature is an autonomous agent while cultural geographers view nature as a cultural product. Environmental historians tend to represent the agency of nature as autonomous from cultural understandings and metaphors. They believe that there are no landscapes which are completely cultural but all landscapes originate from the interactions between nature and culture. For cultural geographers, landscapes are not something which already exist out there autonomously waiting to be discovered and represented without cultural influences. Demeritt (1994) criticizes the cultural geographers' appeal to the hermeneutics of the anthropologist Clifford Geertz whose *text metaphor* has

been applied to the analysis of landscapes by some geographers, such as David Ley. Demeritt mentions that the metaphor of landscape as a text excludes non-human actors from the production of landscape. This approach views landscape as a black space that only humans can read and write upon. Demeritt introduces the ideas of Denis Cosgrove who analyzes the history of landscape as a way of seeing. Cosgrove acknowledges the dualism of landscapes by combining the affective engagement of people with nature scenery through art and the objective observation of real phenomena visible in nature. Cosgrove's work raises important criticism of geographers' uses of landscapes as a central disciplinary concept. Geographers search for objective knowledge of landscapes is interrupted by the affective senses and emotions of landscapes which dissolves these claims into individual subjectivity. Sally Eden (2001) points out that if nature is categorized as a merely culturally constructed object and not as a concrete whole under threat, environmental problems can be viewed as fictional outcomes of these constructions which do not have to be solved or prevented. She also states that the postcolonial debate on culture and nature is highly Americanized and as a result it does not pay enough attention to how nature and the environment are differently perceived, classified and used by different groups of policy outcomes across different continents. I will not go any further into the details or definition of the social construction of nature because it has been extensively discussed by Demeritt (2002), who made a distinction between the conceptual and the material social construction of

nature. I have tried to adopt an approach in this dissertation which regards nature as both a real material actor and a socially constructed object.

5.3. National park model and the wilderness ideal

Since the colonial times, the European way of seeing the landscape and ideas of nature has perpetuated the process of nature conservation in Africa, Asia and South-America. Roderick Neumann (2000: 117) writes that environmental conservation in Africa has its own unique policies deeply rooted in colonial history. Wildlife conservation in colonial Tanganyika was built up on strong governmental control and policies which fundamentally changed settlement, land and natural resource use patterns. International conservation NGOs had a strong influence on the formulation and implementation of these policies in Tanganyika. International conservationists encouraged colonial governments to establish national parks in Africa. Neumann (1995) argues that the English landscape tradition was transported to East Africa through colonialism and the nature aesthetic underneath supported the adoption and formulation of the national park model there. The national park model also reflected the influences from the United States of America, where the debate and practice of wilderness conservation was supported by two different groups in the late 19th century. Economic conservationists, such as Chief Forester Gilbert Pinchot, highlighted the idea of sustainable production in the management of wilderness. They believed in the tradition of good husbandry and

rejected any romanticization of the landscape. Their idea of conservation was based on the sustainable management of renewable natural resources. Parallel to the farmers' views of the countryside in England, which over-estimated the management for sustainable production over aesthetic values, the economic conservationists used similar expressions in the United States. Aesthetic conservationists or Transcendentalists, such as Horace Albright, Stephen Mather, Ralph Waldo Emerson and John Muir, emphasized the recreational values of wilderness and the aesthetic pleasures it provided for people. They believed in natural harmony in an unspoiled landscape. Conservation was based on a concern for the intrinsic value of wild species and nature. The non-market values, aesthetics and recreation values provided a strong justification of the establishment of wilderness reserves in the United States (Allison 1991: 96–98; Adams and Hulme 2001: 14). This has also been the dominant background to wilderness conservation in sub-Saharan Africa.

The *Naturdenkmal* movement in Europe in the early twentieth century promoted the protection of valued attributes of European landscapes. Hugo Conwentz, who was the visionary of this movement, believed that nature monuments had to be protected because they were places where people could learn to appreciate their homelands. He considered certain landscapes as natural monuments which needed to be commemorated (Jepson and Whittaker 2002: 135–136).

The characteristics of contemporary landscapes have been formed through different natural processes and human

activities throughout the course of time. Landscapes are constantly changing but landscape representations and discourses tend to maintain and reproduce cultural values and political power-relationships. Landscape discourses can be understood as definitional struggles over cultural heritage. Heritage is the primary instrument for shaping local representations of place (Graham et al. 2000: 204). A circuit of the production of cultural heritage and three different ways of understanding the landscape in this process is described in fig. 15. Landscapes are not neutral images of the earth but instruments to represent a region or space through different interpretations at both institutional and communal levels. Additionally, personal images of landscape may contain both descriptions of what the landscape is like, and descriptions with certain imperative on how the landscape should be (Nagy and Kumpulainen 2006: 16–18). The historical roots of the Anglo-American countryside and landscape ideal have been discussed in many previous studies, such as Bunce (1994), Jackson (1994), and Neumann (1998) so I will not go into the details here. There were two important philosophical shifts, namely romanticism and transcendentalism, which have affected the formation of the late-eighteenth century landscape ideal and also influenced the establishment of protected areas in the U.S.A. and in Africa. At the beginning of the 18th century, the Enlightenment fostered significant changes in science, technologies, societies and in the interpretation of nature in Europe. The industrialized and market-oriented economic order in the modern world is the legacy of the Enlightenment. Its

universalizing perspectives emphasized the role of nation states, placeless national society, universal rights and individual sovereignty. Nature was understood as a mechanical object which could be reduced into individual parts (Williams 2002: 120–121).

The foundations of the British countryside ideal lie in landscape aesthetics, which started to develop in the turmoil of the urban-industrial revolution. In the second half of the eighteenth century, the influences of romanticism brought an artistic and philosophical shift in values by encouraging people to return to nature and seek identity and consciousness there. Jean-Jacques Rousseau was one of the philosophers of the time who believed that a human should live a life which was natural. He stated that living in the natural state was the prerequisite for the perfect human society. This romantic view of nature appealed to the middle-class who experienced the problems of industrialism. The European romantic tradition also influenced North American art, literature and philosophy. The nature ideal of the American romanticism was represented to the public through the picturesque scenes of untouched wilderness by Thomas Cole and through the books of James Fenimore Cooper. Cooper's five novel chronicle *The Leatherstocking Tales* tells a life story of the noble backwoodsman Nathaniel Bumppo, who lived in harmony with the forest and adapted to both European and Native American cultures. Following the American romanticism, the spirituality of nature was highlighted by the transcendentalist philosophy and its practitioners, such as Henry David Thoreau. They

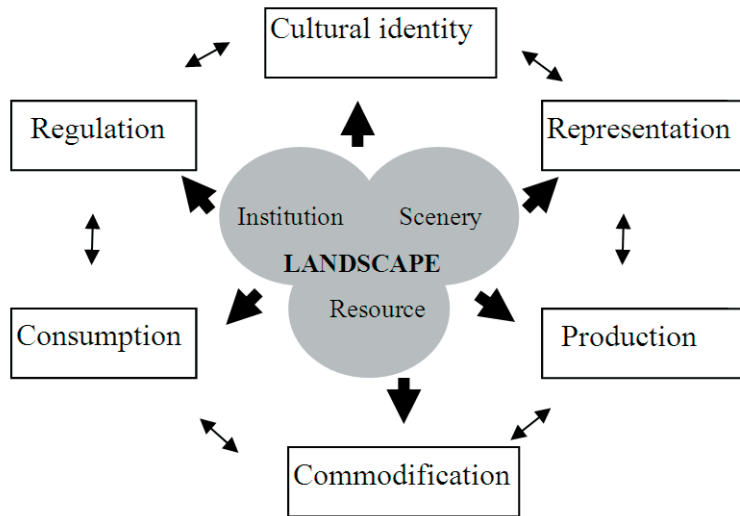


Figure 15. Three ways of understanding the landscape in the production of cultural heritage. Reproduced from (Nagy and Kumpulainen 2006: 17).

saw nature as the source of spiritual fulfillment through personal experience. For Thoreau, self-reliance, simplicity and living in close contact with nature were virtues which finally led to true freedom. However, the growing public interest in wilderness was based more on the creation of pleasant sceneries and their picturesque values than on higher personal spiritual virtues of nature. The appreciation of scenic values of the British countryside increased in the late nineteenth and early twentieth centuries when many workers left rural areas and moved to towns (Bunce 1994: 10, 26–28, 35).

Designating places for wilderness, where people could escape modern civilization, reflected a romantic critique of Enlightenment views on nature. Preservation of nature for its ecological values rather than for its commodity values can also be interpreted as a critique of the Enlightenment. The process of abstraction, which science has inherited from the era of the Enlightenment, has

de-contextualized local and particular meanings in universalizing discourse. For example, indigenous meaning of a wilderness is often marginalized in these discourses. The abstraction process also decreases the highly subjective experience of place and moves toward a more public, external and objective experience of that place. In the modern world, globalization has continued to destabilize place meanings and create conflicts over the management of wilderness landscapes. Nowadays, place meanings are increasingly created and produced in a spatially de-contextualized world of mass consumption and communication. The social construction of meaning is not a discrete process but involves interalia several social interactions structured by interest groups, administrative procedures, law and planning processes. It is often a question about power relations (Williams 2002: 122, 124–130). In geography, places have been treated rather differently if one compares the scientific discourses

of the 1950's with those of the late 1970's. In the early 1950's, places were increasingly considered as abstractions rather than actualities, while by the late 1970's many geographers returned to treat places as experienced actualities. In the early 1980's, the role of arts and humanities became central in geography. Humanistic geographers focused their interest in creative arts and literature in studying the sense of place (Ley 1985). By the 1990's, places became playgrounds of postmodern consumerism, stylishness and social status. Philosophies of place are closely related to place making, which consists of three consecutive steps, the act of marking the place, the act of naming the place and the act of narration. A place becomes visible and designated when it is marked. Marking brings order to the wilderness. When a place is named, it actually means a symbolic transformation of a space into a place with a history. Narration, in turn, gives significance and identity to a place (Smith et al. 1998: 1–4).

The social construction of landscapes has defined the content and activities of protected areas in most of Eastern Africa. Natural landscapes are regarded as cultural constructions, which have a long tradition in pictorialized and artistic representations of landscapes in European history. The national park ideal has been adopted from the cultural practices of pictorialized nature in the nineteenth century Anglo-American culture, where the American romantic constructions of the wilderness and the English aesthetic tradition of nature merged into one. One of the typical features in European landscape painting from the eighteenth to the nineteenth century was the absence of labour in

nature. Landscape was divided into two different spheres, practical and aesthetic. By the end of the nineteenth century, two new types of landscapes emerged with the new division of labour. Rationality and profit ruled in the productive landscape while recreation and contemplation occupied the consumptive landscape. African people and nature were regarded as representatives of a romanticized wilderness or an earthly Eden by the arriving European colonists who had traveled a long way from the decadent metropolises. The Edenic landscape accommodated African people, regarded as noble savages who were closer to nature than to civilization. Preserving both wild natural landscapes and noble savages was an integral part of the European national park mission in the colonies. National parks were established to represent the remnants of the pre-European landscape.

National parks, nature reserves and game reserves found in different parts of the world today all carry a legacy of certain cultural perspectives which date back to the late nineteenth and early twentieth centuries (Jepson and Whittaker 2002: 130–131). For example, the development of the national park concept in Yellowstone reflected certain characteristics of the picturesque European landscapes, such as the absence and removal of human labour, the separation of the observer from the land and the spatial division of production and consumption (Neumann 1998: 15–24). Environmental historians view conservation as a social movement, which develops and maintains values in society regarding the human-nature relationship. Most of the social values in conservation can be regarded as elitist

because these values have surfaced from a small group of influential well-educated opinion makers in international lobbying networks (Jepson and Whittaker 2002: 130–131).

After the Second World War, there was a significant shift in Western landscape values. Landscapes of natural resource production gave way to landscapes of aesthetic consumption. Local inhabitants who were still mainly involved in the natural resource economy had to start to adjust local industries to the landscape image that suited the exurbanites' and primarily the urban aesthetics of pristine nature. These aesthetic environmental ideologies were not obstacles to capitalist accumulation in the rural areas. These ideologies formed the core of a new kind of capitalism based on tourism and leisure industry (Walker 2003: 17). In the modern world, more and more people live in urban areas and in cities where they are separated from the process of rural production. Cities are centers of power, both financially and legislatively, where decisions on the future of rural areas are made. In the post-productive countryside, the symbolic values have now a supremacy over the material values of rural landscapes. People, who are no longer engaged with farm production or forestry have no bonds to rural areas, seem to encounter the rural environment more and more as a commodity. They often regard the rural landscape as a marginal place with nostalgia and fascination. A sense of place is important in understanding environment as a lived in place (Soini 2004: 83–86). Norton and Hannon (1998: 127–131) describe that sense of place values, especially place-relative values, such as conditional transferrability and locality,

are meaningful only to those people who experienced them. Place-relative values are therefore not often part of the market analyses or environmental policies developed by outsiders. Policies and natural resource management projects which ignore local variation and local experience of place will not be successful in protecting biological or cultural diversity. The competing constructions of nature and the rural environment by ex-urban incomers and farmers in rural areas represent the key components of social conflict in the countryside today. The incomers do not necessarily share similar knowledge of the traditional elements of rurality, such as farming and hunting, with the local farmers. The incomers may have adopted a more complex relationship between nature and society where farming and hunting constitutes a less significant element of rurality (Milbourne 2003: 170). The majority of human-wildlife conflicts take place in the countryside where the natural and cultural spaces are in close proximity. There are also human-wildlife conflicts in urban areas, but they are not as common as conflicts in rural areas. I will next examine some elements of the countryside which make wildlife conservation a challenging task there.

5.4. Countryside as a stage for wildlife conservation

Conservation of biodiversity is one of the many functions that rural areas have in the future. The successful implementation of this function in rural areas is difficult because conservation, especially of large mammals, whose presence demands the adaptation of

local communities and their livelihoods. This may be rather difficult because rural people's threshold of tolerance towards wildlife damage changes over time and was recently lowered due to the modernization of rural lifestyles through the use of pesticides and other new technological inputs. These thresholds are particularly low in areas where large mammals have been absent for many years and are now returning. The emotional factor has an important role in the perception of wildlife damage (Fourli 1999; Knight 2000: 9–10). Large mammals are a valuable resource, which could be utilized through ecotourism. Local farmers' image of rural nature, countryside and its functions are often relatively different from those of conservationists, who want more large mammals to roam in rural areas. Large mammals represent the image of untamed and wild nature, echoes from the past and a desire to preserve a piece of wilderness in rural nature. Higher densities of freely roaming large mammals do not easily fit into farmers' modern, cultural image of rural nature, whose livelihood is based on the control of natural processes to achieve the best productive results.

The concept *countryside* is a very complex one. It means different things to different people. The countryside can be understood as a combination of space, nature, ecological complexity and food production. In addition, there must also be other elements present to make the countryside fit our images. The temporal dimension of countryside includes the historical complexity where shifts in agriculture, infrastructure and livelihoods have left their marks on the surface of the earth. The countryside

has been created and shaped by violent changes, but also a sense of harmony, which does not tolerate such changes. Traditional ways of living and doing, which are indications from our past still constitute the core of the countryside idyll. The countryside is considered as threatened because the reality of living in the countryside often disappoints people when they compare it to the images associated with childhood memories. Thus harmony, nature and tradition are paradoxes, lies and hopeless ambiguities in relation to the concept *countryside*. It is a typically complex ecological concept, which involves humans and animals, as well as observers and would-be controllers. Protected *islands* have been formed in this complex landscape to preserve the variety of places and the perceptions of diversity and tradition, which are so meaningful for us in the image of *countryside* (Allison 1991: 98–101).

Rural people play the most central role in the conservation of large mammals in rural landscapes because they are the ones who have to bear the costs of living with these animals and should consequently benefit from doing so. They manage forests and pastures, which are also wildlife habitats. Without their participation and commitment, wildlife conservation is not sustainable in the long run. Many previous studies support this view, (see Western 1989, Wells et al. 1992, Munasinghe and McNeely 1994; IIED 1994). Local attitudes towards wildlife have become more important in modern wildlife management and the human dimension is a central part of sustainable wildlife management planning. However, Baland and Platteau (1996) argue that

one should not adopt a too romantic view of the ability of traditional societies to manage their natural resources. They point out many examples of pre-colonial societies who hunted some wildlife species excessively and almost caused their extinction. In some cases, locals believed in supernatural forces, which provided them with enough wildlife to eat and hunt; so, people themselves were unable to regulate the amount of wildlife by changing their behavior. Baland and Platteau also point out that many traditional management practices may rather be a coincidental than intentional way to protect natural resources. Some practices were originally developed to maintain the local political and social order, not to protect natural resources from excessive use. Nummelin and Virtanen (2000: 224) mention that conservation of biodiversity is seldom the primary driving force of the traditional institutions responsible for protected forests. It is rather a side effect of religious beliefs.

The dichotomies of urban/rural and conservationists/rural residents are common in environmental and conservation debates. The public image of the traditional dissimilarities between the attitudes of rural residents and urban dwellers (conservationists) towards wildlife is quite rough and one-sided. The starting point is that the rural peoples' objectives and motives of action are almost entirely economical. In reality, the conflicts of wildlife conservation are very complex and based on social as well as economical issues. According to Rannikko (1995: 78) many cultural theorists, such as Theodor W. Adorno, pay attention to the functional approach to nature of rural people. They regard

nature as an immediate object of action, not just as a manifestation of natural beauty. Not only fields but also forests are productive landscapes for rural people. The forests provide logs, berries and game for local consumption. The aesthetic valuation of nature is quite a new phenomenon, a product of modern society. Chavez et al. (2005: 524) write that rural people often have utilitarian attitudes towards nature because most of their occupations are nature-extractive. These utilitarian attitudes may spread across rural communities through mechanisms based on shared longing of rural lifestyles. According to Martin Holdgate (1993), the ethical views of conservation cause conflicts because urbanized people have lost their rural roots and their attitudes towards wildlife have changed, making them unhappy with any commercial use of wild species. This growing dichotomy separates people with different lifestyles, especially dwellers in urban and rural societies. The denial of markets for wildlife products would erode conservation because it eliminates the socio-economic value of wildlife and hence the incentive to maintain it (Holdgate 1993 cit. Chavez et al. 2005). The international anti-hunting lobby concerning the consumptive use of wildlife in Tanzania and elsewhere in Africa shows that, the rural lifestyles of African communities and their relationship with wildlife are not truly understood by the argumentative Westerners who mainly live in urban areas in their home countries.

5.5. Hunting and conservation

The changes between human relations and wild nature are best epitomized by our attitudes towards and relationship with hunting. This sub-chapter will introduce the close relationship between hunting and nature conservation, which is not so well-known among the general public. The early conservationists in colonial Africa were hunters who wanted to safeguard the availability of game through the establishment of game reserves. They did not only hunt wild animals for status or leisure but also to provide trophies for the collections of natural science museums and private collectors. Hunting is also an activity which is carried out to maintain order in domesticated spaces through regulating the number of encroaching and proximate wild animals. Hunting is often carried out in rural areas to prevent crop damages or to control the number of predators which may prey on livestock. In rural areas, hunting has also provided a source of animal protein to substitute bad harvests or lack of livestock.

The relationship between hunting and agriculture dates back to Middle Age Europe when a shift away from the preservation of wildlife to the preservation of crops and domesticated animals took place. Wild animals became a threat to farms and their livestock. Hunting was a sensitive issue in the Middle Ages because it was closely related to theology. The Christian Church and its doctrine emphasized friendship with animals and requested its members to refrain from cruelty towards animals. The biographies of the Christian saints can be seen as a form of protests against killing of wild animals. The Church

opposed hunting and tried to restrict it mainly because it was believed to expose certain instincts which might lead to an evolutionistic throwback in humans. However, the utilitarian arguments in favour of hunting were very strong. Hunting was not only regarded as a pleasurable free-time activity but it also provided food, helped to control wild animals which damaged crops and killed domesticated animals, and it provided skins, fur and hides for gloves and book bindings for the monks. Hunting was very popular among the royal, noble and ecclesiastical landowners who practiced it in their forests. These powerful groups of people opposed deforestation and simultaneously changed the forest landscape by building wide roads across the forests to make their hunting easier. The role of hunting in forest conservation is emphasized by the historians of European forestry (Glacken 1967: 346–347).

Natural history and hunting were fashionable preoccupations amongst the elite societies of Europe and North America in the nineteenth century. These two popular enthusiasms acted as the main motivations for the protection of nature at that time. The European exploration in the tropics, especially in the colonies, contributed huge amount of specimens to natural history collections in Europe. Hunting which was a popular sport among the aristocracy, was believed to be a source and a test of manly qualities, such as courage, physical strength and shooting skills. Opening new frontiers in North America, Africa and Asia also provided great opportunities for the European hunters to hunt big game such as buffalos, elephants, rhinoceros and crocodiles. Charles Darwin's (1859)

revolutionary book *Origin of Species* brought new perceptions to the human-nature relationship and launched the formation of a new worldview. The idea of humans as divine creations, which were lifted to a higher status above all other creatures, was replaced by the realisation of kinship with animals. This new worldview was translated into social values and public policy goals concerning the establishment of protected areas and wildlife legislation by a group of well-educated and politically powerful elites, who were enthusiast hunters themselves. Cruelty to animals and human-induced wildlife extinction were seen as the negative consequences of the earlier human-nature relationship, which now had to be redirected along a humanitarian path. At the same time with the Darwinian worldview, the countryside ideal was rediscovered in European societies. Supported by the romantic ideas of picturesque landscapes and a desire to escape from the urban decadence of the European cities, rural nature was seen as a reflection of the Garden of Eden where pastorals lived in harmony with nature. Theodore Roosevelt, who was a big game hunter, popular writer and President of the United States, was one of the founders of the first international lobby for the conservation of nature in the United States, namely the *Boone & Crockett Club* in 1887. He opposed the unnecessary killing of wildlife and requested a moral responsibility to preserve threatened species. The Boone & Crockett Club was an elite club for the most accomplished hunters, politicians and businessmen. The British equivalent of the Boone & Crockett Club was the *Society for the Preservation of Fauna in*

the Empire, whose members also were in high positions in society. Members of these two organisations participated in the Roosevelt-Smithsonian Institution Expedition to East-Africa in 1909–1910 where they hunted 13,000 animal specimens for the natural history collections. The leading zoologists of that time believed that there was not much hope left for saving African wildlife from extinction making it necessary to hunt a large number of animals to complete the collections of the natural history museums before the animals disappeared. It was believed that the rapid human population growth, access to guns by native African hunters and rinderpest would be the prime causes of wildlife extinction in Africa (Jepson and Whittaker 2002: 131–137).

Hunting is still an important social and cultural tradition among many ethnic groups around the world. In many cultures animals and hunting form an important part of the world view. Youngsters have to learn the secrets of hunting in order to achieve manhood, gain respect within the community or to win a bride (Bennett and Robinson 2000: 2–3). In Africa, hunters are considered brave because they face the dangers of forests even during the night time (Knappert 1990: 111). Access to wildlife and the right to hunt have historically been powerful symbols of class privilege and an important source of class identity and status in colonial Africa (Neumann 1998: 37). The history of wildlife conservation in Africa cannot be understood without its legacy to hunting. The hunting of large animals is closely tied to the history of colonialism (Adams and Hulme 2001: 11). The thrilling descriptions of colonial

hunters in the mid-nineteenth century hunting literature partly shaped the popular image of African nature within the community of armchair nature-enthusiasts in Europe and the United States. The big white hunters represented imperial masculinity and bravery in African colonies as they were slaughtering hundreds of animals in hunting safaris, which were often organised like military campaigns. Hunting was mainly carried out for pleasure and to collect specimen and trophies for private and museum collections. It was commonly believed by the Europeans that eating too much venison was unhealthy and uncivilized so the colonial hunters did not hunt for subsistence like the African communities did. By the end of the nineteenth century, the protectionist ideas started to slowly influence Africa. Compassion towards animals among the middle-class English was growing and influenced the opinions in the colonies too. Cruelty towards animals had to be avoided because it was regarded as uncivilized. Traditional African hunting methods had to be banned because they were considered to be just as brutal but yet the white hunters were allowed to continue to hunt with bullets which were regarded to be more humane! Colonial hunters also got more involved in vermin control, where many undesirable species were killed. At the time, the category of vermin species included wild dogs, lions, leopards, cheetahs, crocodiles, jackals and hyenas; most of which are rare today compared to the time before and considered as ecologically important. Some of these animals were killed because they had an anthropomorphically distasteful appearance or unacceptable habits. Some, such as lions, were considered

as worthy opponents, the killing of which was a test of bravery and strength among the colonial hunters (Carruthers 2005: 185–192). The focus of global conservation concern shifted to Africa in the 1950's because its fauna consisted of high densities of large and charismatic species which were threatened by the impacts of development and landscape change. Africa also provided conservation images for the masses, which launched the global discourse of extinction (Adams and Hulme 2001: 11–12).

In Europe, hunting has been and still is an important free-time activity for millions of people. Arguments for and against hunting have fuelled political debate, as in the United Kingdom, where the preparation of a ban on traditional fox hunting caused a clash between public opinion and the proponents of this activity. The anti-fox hunting lobbyists wanted to prohibit this traditional activity because the use of hounds and horses cause an excessive amount of suffering to the poor fox that is considered inhumane. In this activity, the fox is mostly killed by the hounds, not shot by the hunters. The proponents of fox hunting mostly justified their activity on the basis of rural traditions and resource management point of views. What was not often emphasized in the argument was the important ecological role of hunting. The traditional English fox hunting with horses and hounds is a relatively inefficient way of killing foxes. The traditional rural norm that the foxes were not hunted with shotguns or rifles, had greatly contributed to the survival and prosperity of the species. Similarly, the gamekeepers maintained many rural landscape features to sustain the quality of the fox hunt while also safeguarding

the survival of many other species and their habitats (Allison 1991: 119).

Bennett and Robinson (2000) describe that changes in five different factors; physical and geographical, social, cultural and religious, and economic, all of which affect the sustainability of hunting. Protected areas, such as national parks and game reserves, can be regarded as source areas for wildlife. These source areas are net producers of wildlife in a certain region. Outside these protected areas, where most hunting takes place, can be considered as sink areas for wildlife, because more animals are killed there than are born locally. For a net drain or sink area, there is a need for annual immigration of wildlife from the source area in order to keep the population stable. Accessibility from the source area to the sink area is crucial in maintaining the populations through immigration. If the distance from the source to the sink area is increasing, or the connectivity within the landscape between these areas is degraded, then immigration will be more difficult as populations are not easily replenished. They mention also that the geographical location of a hunting area in relation to nearby markets or commercial centres can have an adverse effect on the sustainability of wildlife use. Commercial hunting tends to increase as the distance of households to these markets decreases. Demand for wildlife products is the most important social factor, which affects the sustainability of harvest. Population density, immigration and sedentarism all increase pressure on wildlife populations. Bennett and Robinson (2000) point out that the tropical forest ecosystems cannot support much more than one person per square kilometer if people rely exclusively

on wildlife for meat. Savannah and grassland ecosystems have a higher productivity per square kilometer and thus have a higher carrying capacity. If immigration increases the number of people in the hunting areas then the demand of wildlife products locally will also increase. Immigrants may be accustomed to use a narrower range of wildlife species, which places some species at the risk of depletion. They do not often follow local traditional custom and taboos concerning hunting, which causes these control mechanisms to die down.

Bennett and Robinson (2000: 11–16) write that a possible transition of a hunter-gatherer lifestyle into swidden cultivation or other forms of agriculture can increase human population densities and pressure on wildlife. There are certain ecosystems, such as tropical forests, where domestic animals do not provide enough protein for the farmers who thus continue to hunt wild animals. Agriculturalists are often more involved in market economies and sell wildlife meat for non-farm incomes. Sedentarization of indigenous people may lead to the break down of traditional hunting territories, decrease hunting zone rotation and concentrate hunting to a smaller area. It may also increase reliance on agricultural practices, integrate societies more closely into market economies and increase availability of modern hunting technology, such as rifles, ammunition and vehicles. Even small changes in hunting technology, such as batteries and flashlights which allow hunting at night, can lead to an increased harvesting of wildlife. The largest ethnic group in the Liwale district, the Wangindo, began a forced transition of hunter-gatherer

lifestyle into permanent settlements in the mid-1940's. This is not more than two generations ago. In addition to their cultural tradition as hunters, poor agricultural harvests and lack of livestock have maintained the need to hunt wild animals for protein. The hunting laws have prevented the locals from acquiring modern firearms in the Liwale district but they still use traditional weapons and methods (Fig. 8).

Bennett and Robinson (2000: 25–26) mention that traditional hunting practices are more likely to be sustainable than hunting based on modern technologies. These traditional hunting practices are usually supported by different social taboos and religious beliefs which set rules against over-harvesting and hunting of certain species. Solutions to the problem of unsustainable hunting should be area specific, based on detailed knowledge of hunting patterns, ecology of hunted species and local cultural, economic and political conditions. The community-based conservation programmes should be designed in a culturally appropriate way and be understandable for local communities. In some cases, it is better to use traditional practices, such as hunting territories and disperse hunting, rather than introducing alien systems like hunting quotas and seasons. Bennett and Robinson (2000: 25–26) also suggest that local communities and agencies working with them should establish mechanisms which would reduce or stop the sales of wildlife products outside of local hunting areas. This is in contrast with the aims of the Selous Conservation Programme in Tanzania, where annual hunting quotas of the villages are not harvested fully because of the lack of local and regional

markets (Hahn and Kaggi 2001: 47).

There are some important international legal instruments which regulate the hunting industry in Tanzania and elsewhere in the world. The *Convention on International Trade in Endangered Species* (CITES) was approved in 1973. The main objective of this Convention is to prevent international trade of endangered species and by doing so to ensure their survival and save these species from extinction. The government of Tanzania signed the Convention in 1979 (Majamba 2001: 11). The CITES instrument, especially Appendix I, restricts the number of elephant hunting trophies that can be annually exported from Tanzania to 50. The number of trophies for leopard is 500 and for crocodiles 100 (Baldus and Cauldwell 2004: 8). Kenya has made a proposal of uplisting the lion into the Appendix 1 of the CITES agreement. Uplisting the lion into Appendix 1 would prohibit all tourist hunting of lions and prevent the export of lions as trophies. This would have a detrimental effect on lion management in Tanzania, which has the largest lion population in the world. According to Professor Graig Parker, the Kenyan listing is irresponsible. It would stop lion trophy hunting and then the species would not have any economic value and there would be no incentive to conserve lions. The opponents of trophy hunting have not provided any alternative mechanism for funding the large-scale conservation efforts of the lion in Tanzania. In Kenya, lions have not been legally hunted for 30 years and still the population has decreased markedly. Tanzania has allowed legal lion hunting and the lion population has remained stable. This controversy

can be explained by the human-lion conflicts which have increased in Kenya because the problematic and threatening lions have not been hunted. The angry Maasai illegally exterminated lions in the Amboseli National Park in the early 1990's and three-quarters of the lions in Nairobi National Park were poached in 2003 (Baldus 2004: 57–58). In Tanzania some villagers started to systematically kill chimpanzees in their local forests after a visit of a national park official. They had misinterpreted the official's visit as preparations for gazettement of the forest for nature protection (Murray 1992 cit. West and Brockington 2006: 614). These examples clearly show that, the survival of certain species cannot be guaranteed by increasing their conservation status in international agreements if the opinions and preferences of locals are ignored in the management activities.

The key wild animal species for the tourist hunting industry in Tanzania are buffalo, leopards and lions. These species generate 42% of all trophy fees for the Wildlife Division with 22.1% of this income being generated by buffalo trophy hunting alone. This makes it the most important wild animal in the country and places pressure on the wildlife authorities to maintain a healthy buffalo population. Elephant hunting in Tanzania is confined to the Selous ecosystem and generates 7.6% of the trophy fees there. Due to the regulations of the CITES agreement, the Wildlife Division has not listed the elephant as a species in the hunting quota system. The hunters must apply for special elephant hunting permissions, which also include minimum trophy size limits. These regulations have allowed elephant populations to recover and the carrying

capacity has been reached in some areas, including the Selous ecosystem. Elephants are forced to seek for forage outside the game reserve where crop raiding elephants have become a serious problem in the villages. The CITES quota should be adjusted according to the population increase in Tanzania. The wildlife census methods are not always good enough to provide accurate data on animal populations for setting the hunting quota. For example, lions and leopards are very difficult to count in aerial surveys and this method often also fails to provide reliable estimates of buffalo populations. The hunting quota for lion may be too high because on average only 52% of the lion quotas in Selous Game Reserve (SGR) have been used since 1996. Careful design of trophy size and age limits is essential for those few wildlife species, such as lions, who are being culled by tourist hunting (Baldus and Cauldwell 2004: 21–26).

6. Wildlife conservation

The preceding chapter has set up the venue and context for the actual wildlife conservation initiatives that take place around the world. The national park model and wilderness ideal are not often compatible with local inhabitants' preferences on land and natural resource uses. In Tanganyika, environmental ideologies and policies that lean towards the national park model and wilderness ideal were imported from Europe by the colonial government. I will next provide a brief overview to different conservation narratives and explain existing human-wildlife conflicts as one form of resistance towards the externally designed conservation policies.

6.1. Narratives of conservation

There are several different narratives within wildlife conservation. These narratives are used to standardise environmental problems. The logic of the dominating narrative dictates a solution which is applied to solve these problems. Narratives facilitate decision-making in complex and uncertain situations. Dominant narratives can only be overturned by creating a completely new or altered counter-narrative which should also be plausible (Campbell 2000: 168–169). Whatmore and Boucher (1993: 169–170) write that the conservation narrative, where nature is considered as external to society and as a source of scientific and aesthetic value, has characterized environmental planning and practice for most of the twentieth century. These values of nature have been realized through the establishment of nature reserves for scientific purposes and national parks for aesthetic purposes. The conservation narrative is based on a regulatory state-led system of land use zoning and formal blueprint plan-making. The spatial segregation of natural and built environments and the designation of protected areas have reflected an opposition to development in the conservation narrative. This narrative has been challenged by an ecology narrative and a commodity narrative. Both of these narratives question the construction of an external nature as external and aim at reconstructing nature as a product of socio-economic processes. The ecology narrative shares the conservation narrative's idea of land development as a potential threat to nature but simultaneously highlights the

integration of ecological principles into the regulation of all land use activities and rejects the idea of enforced zoning of nature. The commodity narrative totally rejects the regulatory planning idea of the other two narratives and emphasizes the free-market ideology and the market language in planning.

Campbell (2000) points out that today we can no longer speak of one conservation narrative. Currently, there are two conservation narratives. The traditional conservation narrative or crisis narrative emphasizes the need to protect wildlife from human activities by establishing exclusive protected areas and prohibiting all human activities there. This narrative follows a top-down planning approach which promotes the institutional state control of natural resources and conservation initiatives. The wildlife conservation narrative has been in a transitional stage during the last two decades. The new counter narrative of wildlife conservation, which highlights the importance of local participation in the management and a sustainable use of wildlife, has challenged the previous exclusive approach. The new narrative can be regarded as a bottom up approach which builds on post-modern values. Brandenburg and Carroll (1995: 382) state that, although people have used animals and other elements of nature to symbolize spiritual values, beliefs and ways of life throughout the history, these emotional, symbolic and spiritual values or intrinsic values of the environment have been suppressed by the economic values of the natural resources in planning. The current existence of two competitive and often overlapping wildlife conservation narratives is evident. Some scholars,

such as Wilshusen et al. (2002), argue that people-oriented approaches have failed to protect biological diversity and therefore these approaches should, in certain locations and situations, be replaced by a renewed emphasis on exclusive and authoritarian protection in national parks and other protected areas.

6.2. National parks – landscapes of consumption and resistance

Today wildlife conservation is a global phenomenon. Endangered wildlife species can be found on every continent and in every country. Habitat loss, over-hunting, competition with introduced or newcomer species, diminished gene pools, diseases and environmental poisons, among other things, have contributed to the extinction of many wild animal species. The presence of man has had a detrimental effect on wildlife populations world-wide. Among the conservationists, there has been a voiced concern for more than a century now over the disappearance of large mammals, such as the elephant, the lion, the wolf, the rhinoceros and the hippopotamus and this concern is still a vital force behind the new wildlife conservation programmes. Wildlife conservation is primarily practiced in landscapes that include forests, savannas and swamps, where wildlife habitats are mainly located.

Ulrich Beck writes that the ecological protest to conserve nature does not rise among those societies which are already poor and exposed to risks. The ecological protest thrives among the rich who live in urban centers and feel that the fruits of their hard work, such as leisure time,

recreation and gardens are taken away by ecological destruction. Beck thinks that the reason behind the ecological awakening of societies is not based on the destruction of nature itself but rather on the fear that the prevailing cultural image of nature is endangered (Beck 1990: 85–86). Beck claims that at the end of the twentieth century nature had become society and society had become nature. He writes that nature is now so integrated into culture that people are no longer able to distance or exclude themselves from it (Beck 1992: 81 cit. Campbell 2005: 283).

The development of the national park concept has been deeply affected by the social history of landscape and its role in social constructions of nature. National parks have become landscapes of consumption, where the ideas of culture and nature, and the boundary between these two entities are conceived. In Africa, local resistance has forced conservationists and state officials to reassess existing protected areas and wildlife conservation policies (Neumann 1998: 7, 11). National parks and game reserves have often been established in areas, which have a low agricultural potential that are unsuitable for animal husbandry. However, this does not mean that the lands set aside for wildlife conservation are worthless for the rural people neighbouring these demarcated areas. In some cases, local communities were forced to move away from the established conservation areas for the sake of wildlife protection. This was the case in virtually every established national park in Tanzania. In most cases, rural communities were removed from the designated national parks or they lost their customary access and rights

to those lands and natural resources (Neumann 2000: 130). However, the protected areas are not completely isolated ecological entities, but overlap with the surrounding inhabited countryside. The protected wildlife can freely move in and out of the national parks and game reserves in search for food and water and cause severe damage to the neighbouring farms and villages. This in turn leads to an increased poaching of wildlife and opposition towards wildlife conservation among the affected societies.

Illegal hunting of wildlife, encroachment of people and livestock and collection of fuel wood in the protected areas can be seen as everyday forms of resistance by the local communities living in the vicinity of conservation areas. Wildlife conservation is a political issue and protected area violations may be highly politicized acts of resistance and protests against nature conservation policies. The practices of wildlife conservation have created their own policies which extend far beyond their own sphere. Currently, the wildlife conservation programmes have to find new ways to safeguard the existing protected areas against historically hostile communities living in the neighbourhood (Neumann 2000: 118, 131). Jürgen Habermas (1984) points out in his book *The Theory of Communicative Action* that social movements of resistance emerge when *life worlds* are colonized by commodifying systems. Resistance struggles are directed as much against dominant rationalities as they are against institutional control (Habermas 1984 cit. Peet and Watts 1996: 30). Landscapes with certain modernist symbols and heritage of

the deposed authorities may become a central emblem of oppression in the construction of nationalism, like in Ireland where the manors of the landed elite became the main target of the nationalist movement and were burned down (Graham et al. 2000: 258). The confrontations of humans and wildlife are imminent in areas surrounding the protected areas because these are located on the borderline of culture-nature spheres. Wildlife is a fugitive natural resource capable of passing the borderline from the nature sphere into the culture sphere. This makes wildlife conservation and management very different from other natural resources, such as firewood, minerals or medical plants, which are stable and local resources. Lincoln Allison (1991) writes that any recommendation of policy involves controversial value-judgements about resources, ethics and aesthetics which may be compatible with utilitarian judgement or might not. Ecology cannot cross the logical gap between facts and values and thus it is not so useful for managers. Ecologically correct actions depend on the values we place upon choices (Allison 1991: 92). Group consciousness and collective identities are established through the sharing of confined spaces in places with definitive environmental conditions, and as a result, common environmental imaginaries may surface among such groups (Peet and Watts 1996: 30). Wildlife conservation in Africa today is principally a product of international conservation agencies who wish to protect and conserve wildlife for its intrinsic, symbolic and aesthetic values. Rural Africans do not necessarily share these values and goals and their conservation ethic is

more likely based on instrumental and economic values of wildlife (Barrow and Murphree 2001: 29). Crowe and Shryer (1995) write about the juxtaposition of conservation and preservation and mention that the problems of wildlife conservation in Africa will become severe as a protectionist and animal rights philosophy infiltrates international conservation organizations. This total protection and preservation would jeopardize long-term conservation of the region's wildlife.

The relevance of such environmental ideologies to the issue of wildlife conservation in Africa has been studied by Rosaleen Duffy (2000). She mentions that wildlife is central to the people-versus-nature debate in Africa. Various interest groups use the rhetoric of conservation to depoliticize a highly complex set of ethical, political, social and economic dilemmas. As a result, wildlife conservation in Africa continues to be an area of heated political debate in the local, national and international political arenas (Duffy 2000: 2). According to Mason (1999: 132–135), there are currently two competitive discourse ethics in science which affect the policies and politics of nature preservation and conservation. Anthropocentrism confers instrumental value on non-human life according to human ends. In other words, wildlife is only valuable when it can be utilized by humans. For example, in strong anthropocentrism the value of non-human species is limited to consumptive preferences, such as market value from adventure tourism in wilderness areas. According to this ethic, large natural areas are conserved as habitats for animals and plants which are valuable to humans. In contrast, the

non-anthropocentric discourse ethic builds up on intrinsic or inherent value on non-human life. Mason refers to this approach as *ecocentric ethics* that was developed originally by Aldo Leopold. He enlarged the boundaries of moral community to include flora, fauna, water and soil. This environmental ethic placed intrinsic value on natural ecosystems and the integrity of ecological processes. It highlighted the right to continued existence of all species within a biotic community. Thus animals were deemed to be no less valuable than humans. Each species is equally valuable even if they do not have any intrinsic value for humans. Mason (1999: 132–135) mentions that the ecocentric ethic was further shaped by Arne Naess (1972), who introduced the term deep ecology. In deep ecology, self-realization in relation to an expanding identification of the self with all life forms is the ultimate norm. It highlights the integration of humans with the whole of non-human nature. Naess developed the idea of ecological egalitarianism, which is the intrinsic value of every life form. This means that all things in the biosphere have an equal right to live, self-unfold and self-realize. The protection of large natural areas for their intrinsic value is supported by deep ecologists. Sibanda and Omwega emphasize that the notion of intrinsic value will not save wildlife in African rural reality where people are poor and threatened by starvation. A more pragmatic and people-oriented management approach is needed. They point out that wildlife must be seen as a resource which can provide food and income to locals. The imposition of external values and attitudes has worked against the survival of wildlife and

continues to threaten its future survival. Sibanda and Omwega also claim that international organizations usually treat wildlife as a global common property and deny locals an opportunity to own and control the use of wildlife (Sibanda and Omwega 1996). Mick Smith (2001: 112–114) makes an interesting contribution to the discussion on instrumental and intrinsic values of nature. He mentions that our conceptions of nature are highly dependent on the cultural circumstances, which means that nature acquires its meanings and value through *local* cultures. For the social constructivists, nature is socially constructed and there is no such thing as intrinsic values in nature.

Experience from previous wildlife conservation have elucidated that the exclusion of local communities and a denial of their traditional rights to use wildlife have not been very successful in the long run. The physical damages caused by large mammals to agriculture and domestic animals can be compensated with money but there are also deeper perceptions and cultural values involved in these issues.

The governments have difficulties to react when certain species, such as elephants or rhinoceros, cause damage to rural people under the cover of international treaties. Hunting quotas are not increased as a result of damages even though a few problem animals may be eliminated. These species are globally endangered, although in some countries, such as Zimbabwe, Botswana, Zambia and Tanzania there are still locally viable populations. The CITES Convention prohibits the international trade of endangered species and does not allow Tanzania to earn foreign income

by selling its elephant products abroad. This is a good example of increasing international control over natural resources on the national and local level. Ramachandra Guha (1997: 84–85, 97) notes that nature conservation in the tropics is big business which is run by five large interest groups: the city dwellers and foreign tourists, national elites, international conservation organizations, conservation officials and biologists. Guha thinks that all five groups share hostility against the farmers. Guha also writes that wildlife conservationists want to preserve the tiger for the future generations but expect others to sacrifice for that cause.

Some authors have accused the prevailing wildlife and nature conservation programmes of *eco-colonialism* (Crowe and Shryer 1995) or *deep colonization* (Howitt and Suchet-Pearson 2006). Howitt and Suchet-Pearson (2006: 323–325) point out that the continuous *deep colonization* by Eurocentric ideas takes place in both material and discursive spaces, especially in the development of new wildlife and natural resource management systems in indigenous lands. The Eurocentric ideas marginalize and trivialize local perspectives and relationships between people and between people and their surroundings through the processes in which these dualistic ideas operate in the guise of co-management, collaboration and participation. Locally situated knowledge is silenced, ignored, undermined and replaced by dominant Eurocentric discourses, concepts and practices of wildlife and natural resource management which are assumed to be universally applicable and legitimate.

During the colonial times, the Europeans wanted to protect the African nature, especially wildlife, which they saw as an image of the *Garden of Eden*. They wanted to protect African nature for the purpose of the European psyche, rather than as a complex environment in which people live. The Europeans saw the activities of the locals as the biggest threat to this *Eden* (Anderson and Grove 1987: 5–6). The idea of a picturesque landscape in national parks and other protected areas in sub-Saharan Africa is implicated in an historical struggle over land and natural resources. Poaching, livestock trespassing and illegal logging are all part of local resistance against protected area policies which have colonial roots. European colonialism and European ideals of the scenic African landscape have given birth to this decades-long rural conflict (Neumann 1998: 2–3). According to Peet and Watts (1996: 13–15), post-structural theory views truth as “*statements within socially produced discourses rather than objective facts about reality*”. This notion of truth was evident in the European’s images and descriptions of African people and their relationship with nature in the colonies. These images were mainly based on the European’s own nostalgia, not primarily on descriptions of real African people. Arturo Escobar points out that in modernity there is a progressive semiotic conquest of social life by expert discourses and economic conceptions. Today, the symbolic and semiotic conquest has been extended to nature and local communities, including local knowledge (Escobar 1996: 56–57).

Campbell (2005: 281–293) considers the changes and new ideas in nature protection policy as rhetorical movements

rather than real improvements of relationships on the ground. He adds that community-friendly biodiversity agendas can still impose nature-society dualism in the target societies. Campbell suggests that Tim Ingold’s (1990) dwelling perspective of human-ecological engagement could be used as an alternative to dualistic objectifications of nature-culture. The dwelling perspective emphasizes that “*people understand environments primarily through engaged practices of dwelling rather than through mediations of concepts*”. Local resistance to conservation can no longer merely be explained by the economic consequences for livelihoods, which can be substituted with the gains from the conservation programmes. Resistance evolves from the radical ontological conflict where an objective material environment is separated from human involvement. The regulation of natural resource use as a management of the externalized and controllable environment involves cultural transformations in the ontological contexts. The spatial and zonal regulation in the protected areas has not acknowledged the lived-in experience of place which is central to peoples’ sense of their relationship with the environment.

6.3. Evolvement of community-based wildlife conservation

Criticism of modernization theory and the growth of environmentalism in the rich industrialized countries since the mid- 1960’s has contributed to the emergence of new approaches in nature conservation. Criticism include poaching, encroachment of livestock and illegal wood-cutting within the

borders of protected areas among other setbacks of the previous *fences and fines* approach to natural resources conservation and management. This resulted in the adoption of a more revolutionary approach focusing on both natural resource conservation and rural development. Experience from different protected areas around the world has shown that nature conservation is not successful without the collaboration and participation of local communities. They should benefit from these activities in order to promote conservation in the long term. The *Man and Biosphere Programme* of UNESCO which highlights the ecological, social and economic dimensions of biodiversity loss adopted these principles in 1979. The programme promoted and funded the creation of specially designed buffer zones between protected areas and rural villages. Local inhabitants were able to use these transitional buffer zones to meet their livelihood needs. The *Man and Biosphere Programme* was the first global initiative to include the social and economic dimensions of development in nature conservation (Wells et al. 1992: 1–3; Ghimire 1994: 198–199; Adams and Hulme 2001: 13). It was a first step towards integrated conservation and development programmes.

MacKinnon et al. define buffer zones as “*areas adjacent to protected areas, on which land use is partially restricted to give an added layer of protection to the protected area itself while providing valued benefits to neighbouring rural communities*”. According to this definition priority is given to nature conservation in buffer zones where human livelihoods are considered as a secondary function. Human activities inside the buffer zones

are usually restricted to sustainable uses of natural resources, such as collection of wild fruits, honey and fallen timber, limited hunting and seasonal grazing of livestock. Buffer zones have expanded areas under total or partial protection and by doing so these demarcated areas have pushed the negative impacts of human activities further away from the core protected areas (MacKinnon et al. 1986, cit. Wells et al. 1992: 25–27). Buffer zones are one dimension of the zoning approach which tries to reduce the spatial overlap between wildlife and human activities (Linnell et al. 2005: 165). Krishna Ghimire (1994: 225) criticizes the establishment of buffer zones because these areas do not provide a sustainable means of livelihood to the local inhabitants but only threaten to reduce the opposition to the expansion of protected areas. He claims that rural development in buffer zones still follows the top-down planning approach where the participation of locals in designing and making decisions about these zones is limited.

Buffer zones are an interesting feature of community-based wildlife conservation for this study because they add a new category of space situated on the nature-culture borderline. In theory, the buffer zones will make this borderline to loose clarity as they allow both human activities and nature conservation to take place on these zones. Buffer zones are usually established along the major nature-culture borderline (Fig. 12.), such as the frontier between game or forest reserves and agricultural areas. In practice, the prioritizing of activities in the buffer zones largely determines how the stakeholders perceive the order, norms, content and value in these spaces.

In the worst case, some stakeholders, such as the villagers, may regard buffer zones mainly as an extension of the game reserve if most of the traditional human activities are forbidden there. Such prohibitions may also be interpreted as external actions to move the nature-culture borderline towards the village, which would all the more reduce the livelihood options for the villagers. David Sibley's (1995) *Geographies of Exclusion: Society and Difference in the West* discusses the forms of socio-spatial exclusion which are implicit in the design of spaces. Referring to his findings, it is possible to interpret that the villagers who are excluded from the buffer zones may experience oppressive realities where the dominant culture defines the boundaries and determines which social groups are allowed to enter these spaces.

Communities were eventually regarded as major actors in natural resource management as the *World Conservation Strategy of 1980* emphasized the importance of linking conservation with development. This idea was further adopted by conservationists and protected area managers at the 1982 *World Congress on National Parks and Protected Areas* in Bali. Since the mid-1980's hundreds of integrated conservation and development programmes have been established all over the world. Most of these programmes are implemented in developing countries (Wells et al. 1992: 2–3; Munasinghe 1994: 27; Barrow and Murphree 2001: 25).

The shortcomings of integrated conservation and development programmes created a need to take the idea of local participation to new levels in nature conservation. The lack

of genuine participation of locals and the commitment of political decision-makers were among the most important obstacles in the programmes. West and Brechin (1991) point out that local participation and cooperation in the integrated conservation and development programmes should not only be formal without real decentralization of decision-making. There was a need to involve locals in the decision-making process in order to build confidence between the stakeholders and strengthen their collaboration (West and Brechin 1991, cit. Munasinghe 1994: 27–29). This kind of criticism led to the development of a new concept in nature conservation, namely *community-based conservation* or *community conservation*. Adams and Hulme (2001: 9–10) defined community conservation as “*those principles and practices that argue that conservation goals should be pursued by strategies that emphasize the role of local residents in decision-making about natural resources*”. Community conservation is a counter-narrative in development policy which has replaced the narrative of *fortress conservation* based on isolated protected areas and the exclusion of local residents. This counter-narrative emphasizes the need to involve locals in the conservation efforts. Institutionally, the community conservation concept was developed in the two *World Congresses on National Parks and Protected Areas* held in 1982 and 1992. The aims of community conservation include increased participation of locals in the management of conserved resources and strengthened linkages between conservation objectives and local development needs (Adams and Hulme 2001: 9–10, 13).

The community-based natural resource management approach has its origins in the nature conservation and development discourse of the 1970's, which then began to question the contemporary models and ideas implemented in the Third World. Prior to that criticism, nature conservation was usually based on the principle of isolated protected areas where flora and fauna were protected from human action. In the worst cases, residents were even relocated from their homes and pasturelands to make room for the established protected areas. The residents lost their rights to use land and the natural resources inside the demarcated protected areas. In many parts of the world, rural people's subsistence relied on the natural resources such as water, firewood, herbs, spices, medical plants, honey or bush meat, which were taken out of their disposal during the process of nature conservation. Community-based approaches received theoretical support from political ecology, which currently is one of the most influential development discourses. Political ecology also started to evolve in the 1970's when there was a theoretical need to integrate land use practice and ecological concerns from within local-global political economy. Political ecology developed in two main ways, as a reaction to the growing politicization of the environment and; as a critical alternative to cultural and human ecology. This focuses on market integration, commercialization and dislocation of traditional forms of resource management in Third World societies (Peet and Watts 1996: 4–5). Walker (2003: 10) writes that the focus of political ecology has typically been on local political contestations of informal

institutions, which include cultural and symbolic contests and everyday resistance within the household, community and civil society.

Fikret Berkes (2004: 622–628) argues that conservation has become participatory because the proliferation of stakeholders and civil society throughout the world. Participatory approaches have also made a breakthrough in natural resource management and conservation because the nature of the emerging environmental problems has required an approach which is different from earlier exclusionary conservation approaches. Community-based conservation emerged at a time when three conceptual shifts took place in ecology. These were a shift from reductionism to a systems view on the environment, a shift to incorporate the dynamic interactions between societies and natural systems, and a shift from expert-based approach to participatory approach. Since the mid-1980's, as a result of community-based conservation programmes in Africa, locals have been allowed to participate in wildlife conservation in their own villages and even profit from conservation.

At the same time, local wildlife resources have become a global heritage which is managed far from the rural areas where these animals live. Community-based conservation programmes have provided international environmental NGOs with an opportunity to move away from strictly protectionist approaches to more human-centered approaches and respond to charges of eco-imperialism (Hulme and Murphree 2001a: 284). Literature analysis clearly points out that local inhabitants in the peripheries of rural areas often have no authority to

make the most fundamental decision on conservation, which is: “*should there be large mammals in the areas surrounding their village, in the first place?*” This decision is usually made in the capital cities by more powerful interest groups.

By the late 1990's, the active participation of local communities in natural resource management has practically become a prerequisite for any donor support to natural resources management projects. State-centered strategies have been partially replaced by decentralized management strategies in Tanzania (Nummelin and Virtanen 2000: 220–221). However, most CBC programs are dependent upon outside funding that requires technical, financial and political support from central governments. So far, these programs have rather been co-managerial in character rather than community-based wildlife management programs (Hassler 1996).

Community-based conservation (CBC) programmes emphasize the principles of local participation and benefit sharing but some programmes have actually enhanced increased state control over land and natural resources. Studies on protected area conflicts, such as the IUCN survey in 1991, seldom take the political, socioeconomic or historical contexts of these areas into account. The standard explanations of protected area and human-wildlife conflicts accuse population growth (for example, Quigley and Herrero 2005: 47) and local residents' ignorance of conservation values for the emergence of such conflicts. Alternatively, the underlying causes of these conflicts may be grounded in the confluence of political struggles over landscape meanings

among different stakeholders and their struggles over land and resources. The European takeover of the African landscape for aesthetic consumption goes hand in hand with its takeover for material production (Neumann 1998: 8–9). Conflicts over natural resource use and access often arise from diverging goals and interests of local communities and those of state authorities. From the local communities' point of view, the goal is usually to secure the basis of their economic, social and cultural survival and, as a result, to preserve their identity. Through establishing protected areas the government's interest is purported to be the long-term conservation of natural resources for society. Economic interests may be hidden under the charade of nature conservation (Wanitzek and Sippel 1998: 114) like in the case of South Africa where wildlife laws prevented Africans from hunting and forced them to sell their labour under the pretext of protecting wildlife. Granting hunting licences to African people was considered an obstacle to the much-needed labour in the country (Ramutsindela 2003: 43).

The main objective of the CBC programmes is to create conditions from the bottom-up, participatory approach where local communities benefit from a sustainable management and use of wildlife. The aim is to change rural residents' current behaviour and practices (Gibson and Marks 1995 cit. Songorwa 1999: 2061). However, the critics of the CBC approach suspect that these programmes established in the buffer zones of the protected areas are not designed to provide sustainable livelihood alternatives to locals but to reduce their opposition to the protected

areas. The community-based wildlife management approach relies on altruism and voluntary participation (Songorwa 1999: 2061, 2076).

Some geographers, such as Matless et al. (2005), use the term *animal landscapes* in their studies on human-wildlife relations. Matless et al. studied the lives and deaths of otters and wildfowl in two different animal landscapes. The divergence of the two animal landscapes was described through the different practices performed in these landscapes and through the impact of local geographies and narratives of history which have shaped the present actions and practices. Dickman (2005: 7) writes that 21st century conservation will be carried out in an arena of increasingly fragmented wild places within a matrix of human-dominated land. It is therefore crucial to develop strategies where both people and wildlife can coexist in the same landscape. The paradigm of hierarchical patch dynamics within non-equilibrium ecology has challenged the ecological foundations of the fortress conservation which is based on isolated protected areas, especially in savanna ecosystems. This paradigm emphasizes that *patchiness* is an inherent characteristic of savanna ecosystems. The ecology of each patch within the ecosystem depends on its relationship to other patches and larger-scale ecological processes. This paradigm points out that the long-term ecological viability of parks and protected areas are directly dependent on ecological processes beyond the boundaries of these areas. Community-based conservation has often been justified by the ecological limitations of the protected areas and it is thus of importance to incorporate the neighboring communities into

conservation activities. As a result, many international conservation organizations, such as the World Wide Fund For Nature, now support a more comprehensive approach to conservation, namely eco-region or large landscape conservation (Igoe 2006: 80).

7. Community-based wildlife conservation in Africa

The previous chapter pointed out that community-based wildlife conservation is a counter-narrative in development policy dealing with nature conservation. Community-based conservation is not a panacea to all the problems in wildlife conservation, but it provides an approach which tries to address the most critical question in the recent conservation narrative; namely the participation of local stakeholders. This chapter does not aim to provide a comprehensive description of the community-based natural resource management or community-based conservation concepts or examples of different projects around the world. There is a vast literature available on the topic and recent publications such as, Hulme and Murphree (2001b), provide a detailed introduction to the topic. There are also several scientific articles presenting different case studies, such as, Brosius, Tsing and Zerner (1998), Dzingirai (2003), Schafer and Bell (2002).

7.1. Overview of the approach in Africa

Wildlife conservation is associated with cultural and sociological obligations in many African societies. Taboos and myths have served as guiding principles in traditional wildlife conservation within these societies. The classic approach to wildlife conservation ignored these dimensions and was based on a protectionist philosophy which only focused on the ecological aspect of conservation. The colonial era and about three decade-long post-independence conservation approaches were based on the 3Ps system which means *protect*, *prohibit* and *punish*. Locals were denied access to wildlife conservation areas, which had previously been common lands where they had collected building materials, medical plants, and grazed livestock and established cultural sites. As a result, local communities reacted by poaching wildlife to revenge the denial of access to these natural resources. A stable, viable and sustainable natural resource system must include the human dimension as well. Such a system must not only be ecologically possible, but also economically gainful and ethnologically adoptable. People do not adopt a natural resource management system which is not convergent with their beliefs, techniques and system of activities, no matter how superior it may be by other criteria. For example, the prohibition of hunting may not be accepted by the locals because hunting and the killing of animals has been an activity which helped individuals to gain a certain status in the society through enhancing social bonds. Hunting has also been an important component of training boys

to manhood in some African societies. Current community-based conservation projects have not fully addressed this human dimension and have thus faced problems. For example, some culturally valued animal species, which are used in traditional rituals and ceremonies, cannot be found inside the established Wildlife Management Areas so therefore locals will trespass into the wildlife conservation areas to find them. This ethnological aspect is often ignored in community-based conservation in Tanzania (Maganga 2002: 5–10).

Community-based conservation is today a concept and an approach, which is very often considered to be convergent with sound and sustainable ways to manage renewable natural resources around the world. This participatory approach to natural resource management was incorporated into the global discourse of conservation and development during the 1980s and since then it has been widely approved by different development agencies and natural resource management institutions. Africa is a continent where most of the forerunners of the modern CBC approach were implemented and reformed. As a result, there are dozens of larger CBC programmes involving several districts and many more small-scale CBC initiatives in Tanzania alone. Most of these projects have been protected area outreach initiatives in East Africa. The projects have been built up in and around existing protected areas and reserves to educate and benefit local communities. The establishment of buffer zones around the protected areas and reserves is an integral part of protected area outreach programmes (Barrow and Murphree 2001: 30). These

programmes differ from each other by their level of community involvement, property rights regimes and control and access to natural resources. Similarly, the community-based natural resources management concept comprises a wide variety of different programmes and small projects around the world, which problematizes definitions of the concept. The framework and actors of a CBC are often very case specific and one working model cannot be easily transferred and implemented elsewhere with guaranteed success. Before going into the details of community-based conservation in Tanzania, it is necessary to make a brief review of the scientific literature on CBC to clarify the concept itself and to detail the larger framework for contextual purposes.

7.2. Community as an operational unit

Community-based conservation (CBC) usually operates on the local level and aims at involving locals in the management of the natural resources available in the areas where they have legal rights to utilize these resources. The smallest operational unit is the community. The romantic notion of a community is a homogenous and harmonious group of people closely interacting with its environment, sharing common values and culture and striving toward a commonly agreed goal with shared interests. This is hard to apply in reality because it lacks the dynamics of the communities, for instance in contemporary rural Africa. Barrow and Murphree (2001: 25–26) argue that such a definition of a community can only be identified in areas where rural

people are sedentary, primarily rely on arable agriculture and where population mobility and migration are low. They define a community as “*an entity socially bound by common cultural identity, living within a defined spatial boundary and having a common economic interest in the resources of this area*”. One must, however, understand that communities are much more internally differentiated and dynamic than it is assumed by the model. Benedict Andersson (1983) introduced a concept *imagined communities*. He argues that nations are imagined communities because they are too large for one member to have contact with most of other members but still everyone shares an illusion of a *community* there. The concept *community* may also mean an entity of people who do not share a spatially defined boundary, such as different on-line communities in the Internet. However, in this study I understand a *community* more in accordance with a shared place-based spatiality than with shared cyberspace. Adams and Hulme (2001: 16) mention that idealistic notions of organic human communities in Africa will continue to support the neo-populist ideas about development. Nature and traditional livelihoods seem to be threatened by modernization and development. Thus, following the romanticized idea of a *community* it is easy to assume that if indigenous communities are empowered they would automatically support conservation in rural areas.

Communities are rarely homogenous because of differences based on gender, ethnic background, religion; means of livelihood, wealth and political power (Mäkelä 1999: 32; Barrow and Murphree 2001: 26; Berkes 2004:

623). Jean-Philippe Platteau (2000) challenges the idea that small and homogenous communities would be the ideal vehicle of collective action in natural resource management. Platteau writes that the current evidence does not confirm that community-based development projects are any more efficient in equity or sustainability than conventional approaches. He points out that community-based development projects are vulnerable to elite capture at local level (Platteau 2004). As a result of the complexity of the concept of community, Berkes (2004: 623–624) suggests that the focus should preferably be on institutions rather than on communities and added that place-based models are required to understand the dynamic interaction between nature and society.

A case study carried out in the Liwale district in Tanzania revealed that even in the most remote and poorest villages of the country, the communities are rather heterogeneous and consist of many different ethnic groups. There was also some in- and out-migration in the studied villages which affected the natural resource management there (Mwamfupe 1990:17–20). In addition, different religious backgrounds also impacted on the use of natural resources within the communities in Liwale.

The concept of community is often approached in spatial, socio-cultural and economic terms. Spatial or geographical definitions of a community are often used for administrative purposes as groups of people living in the same place (Mäkelä 1999: 32; Barrow and Murphree 2001: 25). The Government of Tanzania in the Wildlife Conservation Regulations 2002 adopts this spatial approach by defining

that “*community means an assemblage of Tanzanian citizens, ordinarily residing in a defined geographical area*”. The same document defines community-based organization as “*an organization whose primary objective is to conserve resources in a manner that facilitates the sustainable utilisation of the resources by and for the benefits of local community members ordinarily resident in the resource area*” (The United Republic of Tanzania 2002a: 7). This spatial definition of the community is also present in the Forest Act of Tanzania of 2002. The Act defines a *group* as the operational unit in community forest reserves. A community forest management *group* may be formed by any group of persons who are the members of the village or spatially located in or near a forest. An interesting addition to this definition of a group is that other cohorts of people who are managing the forest or forest reserve are connected with its communal ownership, and they may also form a community forest management group (The United Republic of Tanzania 2002b: 1220–1221). This extends the definition of a community to socio-cultural and economic terms in Tanzania and reveals how the legislation on different natural resources affects the definition of the community in CBC. A person does not necessarily have to live in a certain area to be able to join its associated natural resource management unit. The socio-cultural and economic approaches become more clearly visible in the text describing the principles of a community forest management group. It states that “*all persons within the neighbourhood or living in close proximity to or deriving their livelihood from or otherwise having strong traditional ties to*

the forest in respect of which it is proposed to apply to manage as a community forest reserve shall be given an opportunity to join the group" (The United Republic of Tanzania 2002b: 1221). Forest as a means of livelihood is related to economics and strong traditional ties focuses on the socio-cultural importance of the forest to the person in question. However, it is important to notice that the spatial approach is always present in all of the definitions of community or, the community group in the contemporary natural resource legislation of Tanzania. Furthermore, the membership of a certain village does not automatically mean that a person is a member of a community-based conservation group. Therefore the concepts of the community and the village are best kept apart. Barrow and Murphree (2001: 26) criticize the above-mentioned *communities of place*-model because, inter alia, it ignores the population dynamics and changing agricultural practices. The *community* boundaries will also change in the course of development as governments impose new units of local regulations on rural areas. This model may not be easily applied to the pastoral communities of semi-arid or arid areas. The seasonally changing pastoral way of life in Maasai communities is completely different from that of the Wangindo and Wandonde people of Liwale, who are shifting cultivators, beekeepers and hunters. Therefore the spatially defined concept of a *community* may not be successful when applied to all cases and communities in Tanzania, although it is so defined in the legislation. Barrow and Murphree suggest instead using an actor-oriented and functional approach to the definition of the

concept community. They highlight the importance of governance level and civic organization, which the concept of community addresses. This is currently a very critical issue in Tanzania and other African countries as the decentralization process of natural resources management is extended to the sub-regional and sub-district levels. Barrow and Murphree also point out that communities are small-scale organizations, which cannot endlessly be extended in size, because their operations are primarily based on inter-personal and mutual reciprocity rather than on bureaucratic prescription. According to Barrow and Murphree (2001: 26–27), the collective action of communities for effective natural resources management requires four characteristics, which are cohesion, demarcation, legitimacy and resilience. Cohesion means a sense of common identity and interest, which supports and persuades the collective action of people towards a mutual interest. Demarcation means the setting of spatial or social boundaries on the basis of mutually agreed criteria for certain areas and their natural resources to define jurisdiction and authority. Legitimacy focuses on the internal and external power and authority to legitimise the processes and leadership within the community. Internal legitimacy arises from socio-cultural and socio-economic criteria and is considered to be more important than external legitimacy.

Resilience is the organizational capacity of a community to adapt in content and structure to the external and internal changes in uncertain environments and livelihood systems. Resilience is a crucial concept in both ecosystems and social systems. Resilience

means the capacity of a system to absorb disturbance. Loss of resilience will move the system closer to the thresholds of carrying capacities and finally cause the system to collapse (Holling et al. 1998: 353). The above characteristics of social organization provide more depth to the understanding of the concept of community than the spatial approach does. Theoretically speaking it would be ideal to adopt a holistic approach to the concept of community and apply all the above characteristics to a given community. However, the communities often lack one or more of these characteristics which may be an obstacle to a successful implementation of a CBC project.

7.3. Natural resource management and participation in CBC

The impasse of the previously predominating strategy to conserve natural resources by establishing designated protected areas with various levels of human activity has led to the adoption of a more participatory approach in contemporary natural resource management. The implementation of the previous strategy, often called the *fences and fines approach* or *fortress conservation* usually results in the creation of large protected areas in the less fertile lands and the exclusion of locals from these demarcated areas. The protected natural resources are excluded from the consumptive use of local residents and all kinds of traditional human activities become illegal inside most of the protected areas. The colonial governments and later the independent governments in Africa were the owners of the wildlife and other natural resources

inside the protected areas including National Parks, Nature Reserves, Game Reserves and Game Controlled Areas. Wildlife living outside the protected areas was also state property and its use was regulated by bureaucratic organizations based on hunting licenses and fees. Poaching and encroachment by people and their cattle into the protected areas was continuous and costly staff resources were required by the governments and conservation organizations to sustain the conservation strategies and natural resources. In the end, it was recognized that conservation and sustainable natural resource management are not possible without the participation of the people who live in the resourceful areas and whose livelihood partly depends on those resources. Participation is the key word in community-based conservation (CBC) but Barrow and Murphree (2001: 28) emphasize that not all projects and programmes that speak of participation are communal in nature. In fact, there is a range of community participation approaches, which integrate nature conservation and sustainable natural resource management. The different levels of community participation and natural resource ownership are described in Fig. 16.

Community service and protected area outreach programmes are often established between the protected area management and the surrounding rural communities to resolve conflicts by creating revenues for the communities near these protected areas. Tanzania National Parks Community Service and Udzungwa Mountains Agro-forestry Programme (TANAPA 1999: 16) are examples of this type of programme. *Integrated Conservation and Development*

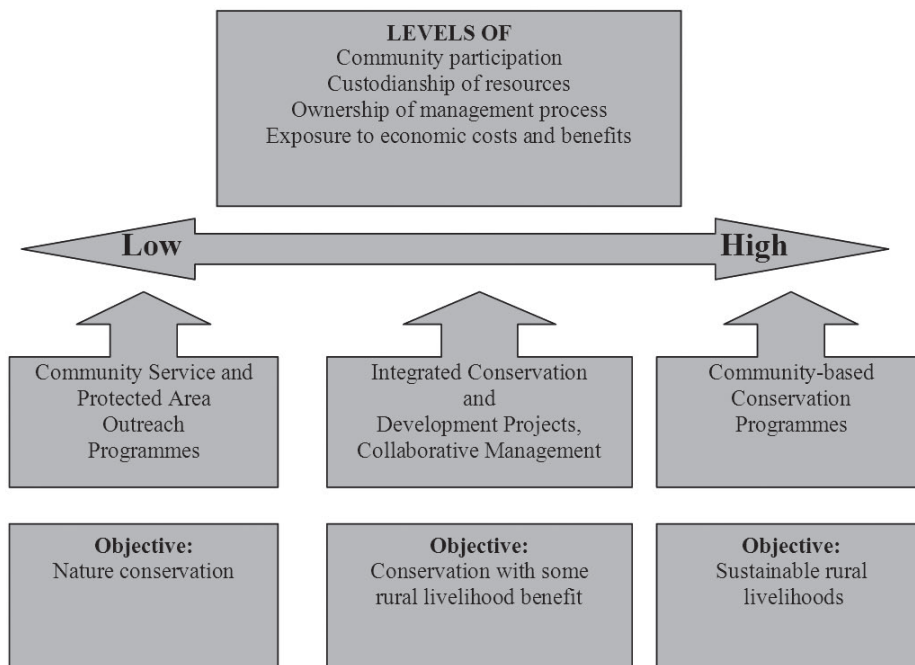


Figure 16. Community involvement in different types of community conservation approaches. Adapted from (Williams et al. 1998:4; Barrow and Murphree 2001: 32).

Projects also emphasize the maintenance of biodiversity through trying to solve conflicts between conservation and development. In these projects, the level of community involvement in planning and decision-making is higher than in protected area outreach programmes. The socio-economic aspect is also emphasized more in the conservation efforts. In Tanzania, Integrated Conservation and Development Projects are found in the East Usambara Forest. Community-based conservation programmes focus on high levels of resource ownership by the local communities. These projects try to empower communities to manage their own natural resources as means for development and conservation. The participating communities receive rights to control and manage their natural resources and earn revenue through

the sustainable use of these resources (Williams et al. 1998: 4). According to Marshall Murphree (1991: 2), there are two main reasons why people seek to manage the environment. The first reason is that the management of natural resources improves their livelihood. The second reason is that they want to avoid environmental degradation, which is threatening life-sustaining processes and peoples' aesthetic values. He also proposes that "people seek to manage environment when the benefits of management are perceived to exceed the costs".

The basic principle of the CBC is that local rural communities should benefit from the conservation and management of natural resources. Other approaches focus more on nature conservation wherein community

participation is often more passive than in the CBC approach. Quite often the communities remain passive recipients of instructions and handouts from the management agencies. In community-based conservation projects the main focus is on improving the livelihoods of local communities through the sustainable use of natural resources. Local communities are given a role of active participants involved in all stages of the projects from planning to evaluation. According to Zerner (2000), community-based natural resource management programmes, which link markets and income streams to collective property rights, are impressive experiments in economic justice, environmental governance and democratisation. He highlights that markets, commodities and natural resources are cultural conceptions which are invented, validated and circulated at specific historical situations in particular cultural-political contexts. The nature, cultural meaning and value of commodities changes when they are moved from one place to another through different cultural regimes of valuation and interpretation. The wide variety of images and ideologies which form the basis of conservation and natural resource management programmes should be examined through culture and politics. Popular images of nature and local communities in the media and nature conservation brochures are often policy directives in disguise (Zerner 2000: 3, 6–7, 10).

East-Africa was among the first regions in the world to introduce community-based natural resources and wildlife management systems. There are two main categories of community-

based wildlife management programmes. The first category contains programmes which are based on the existing protected areas and implemented inside the National Parks and Game Reserves or outside these areas by establishing buffer zones in the surrounding areas. The second category contains programmes which are not associated with protected areas and implemented in, for example, communal areas far away from National Parks and Game Reserves. Unlike in the two pioneering southern African countries in CBC, in Zimbabwe and Zambia where the projects are carried out on communally owned land, the projects in East-Africa are mainly implemented in buffer zones bordering protected areas. All community-based wildlife management programmes in Tanzania are buffer zone programmes. The projects in East-Africa like their counterparts in southern Africa mainly focus on wildlife and forest management, proving that these two initiatives are currently the most critical and conflict-prone fields in natural resources management. The economic value of wildlife is a threat to its conservation if that value only benefits people who do not have sufficient responsibility for it (Songorwa 1999: 2063–2064; International Resources Group Ltd. 2000: 49). The underlying principle of the CBC is that if communities are given legal rights to control their own natural resources, then they will have a stronger incentive to sustainably manage these resources as the main beneficiaries (Schafer and Bell 2002: 402). Community-based conservation is based on collective management and the use and control of local common pool natural resources. This also includes

the distribution and sharing of benefits which result from such collective use. These local collaborative regimes of natural resource management define membership and jurisdiction (Murphree 2001: 8). One of the basic problems, which the integration of wildlife management with rural development tries to address, is the poor ability of rural people to find non-farm alternatives to diminishing farm opportunities. Diversification of livelihood options with wildlife management could help households to spread their risks over multiple choices and cope with bad times (Maganga et al. 2003: 5). Community-based wildlife management does not assume that it will solve Africa's food problem. However, wildlife management does have the potential to make a contribution to the subsistence production in rural areas. Wildlife has a special, though limited, role in extensive agricultural development (Balduis 1991: 9). Community-based conservation is based on an approach where the concept of nature is transformed from protected land units with exclusive state control, into conserved land units with inclusive participatory and community-based endeavours. Community-based conservation in its modern form has been implemented in Africa for over two decades now. However, an examination of various community-based conservation processes across Africa reveals that, even though communities have been included into the politics and policies of wildlife management and conservation, they have not yet been given the power to actively define the ways in which conservation is perceived and nature managed. Nature is still partitioned into protected and unprotected land

units through privileged knowledge and exclusive control of state and non-state conservation agencies (Goldman 2003: 834). This process has been interpreted as a de-concentration of central power, where the devolution of power to the communities is only administrative i.e. giving the communities the power to administer rules without giving them the power to create and refute these rules (Agrawal and Ribot 1999 cit. Goldman 2003: 834). CBC is basically about devolution of responsibility, rights and authority of natural resource management from the central government to local communities. The stage of this transition can be assessed by the level of local control over socio-economic benefits and revenue flows from natural resource management.

The concept CBC has been globally applied to various stages along the transitional axis from full state control to full community control (Fig. 16.). Tanzania is in the middle of transitional axis, where the central government has the decision-making authority but the service and administration functions fall under the regional and district level government. Co-management of natural resources provides some revenue to local communities. There are many milestones, which countries have to cross in order to reach a more democratic and participatory natural resources management. The first milestone includes a national political will to move towards CBC and national support to enable policy, legal and institutional frameworks to develop support for the process. The second milestone includes clear, simple and transparent procedures for mutual accountability between the local, district, regional and national

levels. The transition from a state-based natural resource management to a CBC takes a lot of time and Tanzania has just passed the first milestone (Alcorn et al. 2002: 7–9). The difference of the two concepts decentralization and devolution has to be taken into account here. Decentralization means the delegation of responsibility and limited authority to subordinate units, such as district offices which have accountability toward their superiors, namely the regional offices further up the hierarchy. However, devolution creates relatively autonomous realms of authority, responsibility and entitlement, which mainly are accountable to their own members. In the latter case, decision-making is shifted from the state down to localized jurisdictions. The devolutionist approach to natural resource management faces strong opposition because the state and private sector stakeholders have their own conflicting interests in local natural resources and they do not want to lose decision-making power or their ability to claim the benefits generated from these resources (Murphree 2001: 8). Community-based conservation has been criticized for being a government and donor driven and not developed from within the communities. Generally speaking, the modern community-based conservation schemes are not rooted in African traditions. The history of the social and institutional change in Africa has shown that the implementation of new concepts has not failed because they are foreign but rather because they are ill-conceived or contradict existing social structures, cultures and beliefs (Siege 2001a: 21).

Natural resources managed in CBC generally consist of renewable resources,

including flora and fauna. Most projects in Africa focus on wildlife and forest resources management. Community forest reserves are an important source of firewood, timber and other wood products. Forests are a fixed resource available in certain locations and their demarcation for communal use is much easier than the wildlife resource which is a fugitive or constantly moving from one area and community reserve to another if no fences are built around the reserves. Moreover, it is very common in Tanzania that wild animals living inside the protected areas migrate into the farms and pastures of the villages to feed and search for water. The wildlife resource is a valuable source of meat, hides and trophies but it also kills domestic animals, people and it destroys crops. These are important considerations when implementing a community-based conservation projects.

7.4. Property right regimes in CBC

One of the most important characteristics of the community-based conservation (CBC) is the concept of *property rights regime*. Generally, natural resources are located and managed in four property rights regimes. These are *Open-Access*, *Communal Property*, *Private Property*, and *State Property*. Property rights regimes, in principle, determine who the managers of the area and natural resources are and who have the right to exclude outsiders from using the resources. The use of natural resources usually overlaps these four property rights regimes. Private property is the most straightforward type of regime. Privatisation of land to individuals or companies clearly excludes all other users from that area.

In the context of CBC, the Open-Access and Communal Property types are often mistakenly confused. Open-Access types of regime occur when the resources are no-one's property and available to everyone. In fact, the Open-Access is not a property or management regime at all. An Open-Access situation may develop, for example, when a previously communally managed resource regime is taken over by the state. Due to the breakdown of the traditional management system and the poor law enforcement by the state, the resource users may consider the state property as an open access for all which is then uncontrolled and quickly depleted. In this kind of situation people opportunistically use the existing resources but do not manage them. Communal Property regimes have resources, which are controlled and managed by an identifiable group of people (Murphree 1991: 3; Mäkelä 1999: 33–34).

CBC programmes are usually implemented in communal property rights regimes but they can also take place in state-owned areas, such as the buffer zones of protected areas. Generally, natural resource use overlaps with all four property regimes above and creates a need for the CBC approach to clarify the property rights in areas where the resources are depleted or used in an unsustainable way. This is because these rights are unclear to the resource users or not enforced by the rights owner. According to Zerner (2000), all nature conservation and natural resource management programmes are inevitably political projects. In these programmes, certain species, landscapes and environmental images are privileged

while others are marginalized. Drawing up conceptual, topographic and normative boundaries for protected areas usually includes the implication of a regime of rules with restrictions of access, which clearly manifests projects to govern. In the modern world, we are situated in a landscape of shifting configurations of nature/culture (Zerner 2000: 16–17).

7.5. Values of wildlife in CBC

Although the focus of this study is not on the economic dimensions of wildlife conservation, the benefits and costs of living with wildlife must be taken into account. These are crucial elements in the sustainability of any conservation project and local livelihoods. Community-based conservation projects do not only aim to conserve existing wildlife populations in the target areas but also, aim to improve the welfare of local communities in socio-economic terms. The economic rationale behind the community-based conservation initiatives is that in order to get communities to support wildlife conservation in the long run they must benefit from it. In many community-based conservation projects, local residents have benefited from wildlife through indirect revenue sharing. In such processes, the state returns a proportion of the revenues earned from wildlife back to the local level administration through grass-root development activities, such as provisions for social infrastructure like schools and wells. According to Lucy Emerton (1999: 8, 17; 2001: 208–209), the one-dimensional benefit-based arrangements which have been the guiding principle for many community-based conservation

projects in East Africa, have often failed to provide economic incentives for locals to conserve wildlife because these models are based on an incomplete understanding of community economics, conservation and wildlife benefits. These benefit-based approaches neglect the local economic forces that motivate communities to contribute to the loss of wildlife. The economic and community incentives to conserve wildlife vary at different times to different people. Benefit distribution is a necessary tool to support the engagement of communities with wildlife conservation but in itself it may not be a sufficient means to achieve this.

In post-modern capitalist societies, animals are equally as crucial as they were to hunter-gatherer societies. The big fierce animals, such as bears, wolves and lions at the top of the food chain are especially crucial targets for extinction prevention efforts (Wolch and Emel 1995: 633). Today, the importance of wildlife as a resource i.e. instrumental value is made tangible through hunting, game ranching and non-consumptive tourism based on wildlife. In industrialized countries and urban areas people no longer rely on wildlife meat as their main source of protein. However, the nutritional value of wildlife is very important to the rural people in many developing countries. Currently, wildlife and fish contribute at least 20% of the animal protein in rural diets in more than 62 countries around the world. In West Africa, wildlife meat provides 25% of animal protein requirements. For example, in Liberia 75% of the meat used originates from wildlife. The nutritional value of wild animal meat is reflected by its economic value to the hunters.

If the wildlife meat was to be replaced by domestic meat, the cost would be significantly higher for the users. The hunters can earn substantial income by selling wildlife meat. For example, in the Arabuko-Sokone Forest, hunters can annually earn up to 275 USD by selling wildlife meat, while the average annual income in the area is 38 USD per capita (Bennett and Robinson 2000: 1–2).

The total economic benefit of wildlife does not only consist of tangible use values, such as meat, hides and trophies and activities like education and wildlife-based tourism (hunting and wildlife-viewing), although these direct values have been the main focus in most economic analyses (Fig. 17). Wildlife also provides many indirect use values in the form of ecological and environmental services, such as pollination of crops by bees and dispersal of seeds by birds, bats and mammals. These ecosystem services provided by wildlife are nowadays widely recognized in economical analyses of nature conservation. Option values include use values, which are being developed or have not even been discovered yet. Discoveries in pharmaceutical research may lead to a use of products obtained from a previously untouched wildlife species. The non-use values of wildlife have not received much emphasis in economical analyses but their importance has been growing during the last two decades. The total economic benefit of wildlife is the sum of all those values discussed above (Emerton 1999: 3–4; Emerton 2001: 209–210).

Many rural livelihoods are based on mixed strategies where wage employment is combined with local natural resource use, so access to these resources is

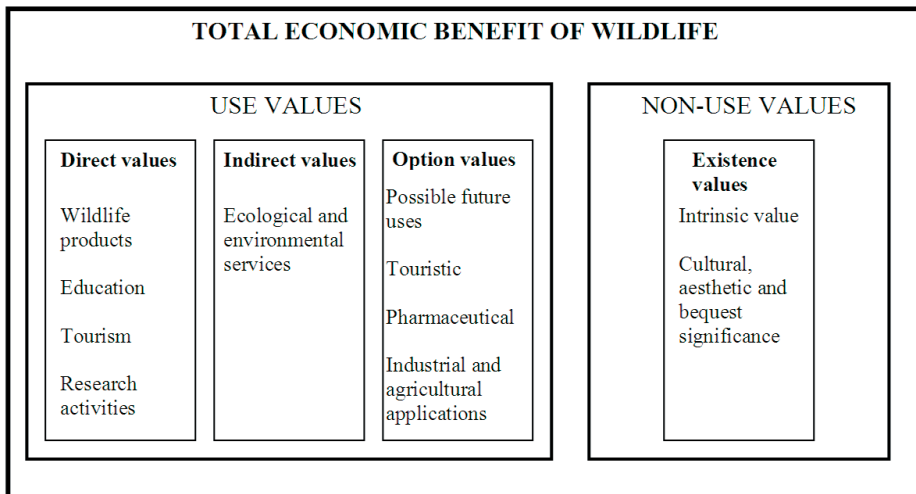


Figure 17. The total economic benefit of wildlife which is operational at global, national and local levels. Adapted from (Emerton 2001: 210).

essential. The conservationists' ideas of community benefits associated with community-based conservation do not often match with the local stakeholders' ideas on benefits from these programmes, which can lead to problems (Berkes 2004: 627). Broad development benefits, such as dispensaries and schools, do not sufficiently address the local economic forces and reasons why people participate in activities which negatively affect wildlife in the area. Successful economic approaches to community conservation must take into account the nature of livelihood systems in areas where people coexist with wildlife. The forms of revenues and benefits must be consistent with these livelihoods and substitute the costs which wildlife imposes on livelihoods (see also Walpole and Thouless 2005: 124). The development of social infrastructure does not sustain daily needs for income, consumption goods and employment. Wildlife benefits can function as incentives for wildlife conservation if they are assessed in relation to the costs

that wildlife causes to local inhabitants. Wildlife damage to agriculture can make insecure livelihoods even more marginal in economic terms. The total economic cost of wildlife is made up of three costs in management, other activities and opportunity costs. Management costs mainly occur at the level which is responsible for implementing national wildlife conservation programmes. Their costs include staffing, equipment and the infrastructural costs of wildlife management. Costs generated by other activities are mainly absorbed by local communities. These costs include livestock losses, crop destruction and human injuries and deaths. Opportunity costs include money, time, land and other local resources which are forgone or not utilized because of wildlife conservation. Economic approaches should also include the broader policy factors which regulate and facilitate local land use and economic activities. Macroeconomic, or sectoral policies, may favour agriculture by imposing price distortions which make it impossible for wildlife to compete

with agriculture as an economically viable land use option (Emerson 2001: 215–222). In many cases, the additional economic benefits generated by community-based conservation have been too small to compensate the direct costs and opportunity costs caused by conservation (Hulme and Murphree 2001a: 281). For example, a case study of wildlife predation on livestock in Gokwe communal land in Zimbabwe showed that the average annual loss per livestock-owning household was 12% of the average household net annual income (Butler 2000: 29). The vulnerability of rural households to wildlife damage is not equally distributed. Each household and individual may have different capabilities to absorb risks and insurance mechanisms towards crop loss by wild animals. Individual self-insurance and social reciprocity between households are important strategies to cope with vulnerability. Wealth and political influence of the households improve their capabilities to absorb risks. In Kenya, land availability is also an important predictor of farmers' capability to deal with crop losses (Naughton-Treves and Treves 2005: 256–257).

Walpole and Thouless (2005: 134–135) criticize the adoption of communal approaches which are solely based on socialist economic principles in the community-based conservation programmes. They mention that the neo-liberal development policies, such as global market-liberalism and free trade policies, have failed to integrate rural communities into the free market economy. Therefore community-based conservation in Africa has mostly been based on the principles of collective ownership and equitable division of

benefits. Currently, these communities are in a state of transition where traditional values and institutions are weakening, and social diversification and heterogeneity are increasing. This leaves the communities in a situation where the focus of the people will turn to immediate personal benefits rather than to long-term communal and societal welfare.

East-Africa is the home of the most well known national parks and game reserves in the whole world, such as *Serengeti National Park*, *Amboseli National Park*, *Ngorongoro Conservation Area* and *Selous Game Reserve*. The *World Wide Fund for Nature* document from 1990 describes Tanzania as one of the most important countries in the world for conservation and highlights the outstanding universal value of its major national parks (Neumann 1998: 7). In Tanzania, approximately 99% of the tourism industry is based on wildlife. Tourism is the third largest sector in the national economy after minerals and agriculture (Severre 2000: 10). Ecotourism is often considered as a potential source of revenues for the community-based conservation programmes. Community-based ecotourism is regarded by its proponents as a locally beneficial way to utilise rural landscapes and cultures in order to support local economic development and conservation of habitats and wildlife. In theory, ecotourism provides economic benefits to those people who bear the costs of living with wildlife in the rural areas. Unfortunately, this is not always the case as was shown by Jill Belsky (2000) in her case study of community-based ecotourism in *Gales Point Manatee Community Conservation Project* in Belize.

There community-based ecotourism is a top-down invention and intervention of conservationists, governmental ministries, non-governmental organisations, and rural elites, which reinforce historic political struggles and intensified human injustice in the process. Separation and construction of boundaries between rural and urban, managed and wild, and human activities and natural processes, remains the basis for most of these development projects. This kind of categorisation makes the daily lives of rural people very difficult because their activities have not been based on such separations or their understanding of these categories may not be parallel to the people in power. The conserved landscapes have mainly been shaped by human activities, such as logging, farming, hunting and an unsentimental approach to wild animals. Wildlife has been hunted for meat and skins or eradicated as pests. Locals have not categorically regarded wildlife as symbols of wilderness or as endangered species (Belsky 2000: 285–289, 297). There is little empirical evidence that benefits from wildlife-based ecotourism has improved community tolerance towards wildlife. The assumption that tourism-induced poverty alleviation reduces human-wildlife conflicts is also almost entirely untested. Community-based tourism remains a niche market, which rarely produces benefits that outweigh the costs of living with wildlife. The commercialization of wildlife through tourism may also undermine the traditional cultural and spiritual values which have helped to manage wildlife in the past (Walpole and Thouless 2005: 124, 131–133). Alexander Songorwa (2002: 63) points out that tourism is

unlikely to deliver income or net benefits to the local communities in Tanzania. He also quotes Barret & Arcese (1995: 1007–1080) who write that few wildlife areas in Africa attract so large a number of tourists that the incomes would cover the costs in these areas. Examples from Tanzania and Kenya during the last ten years show that the tourism industry is very vulnerable to the disturbances caused by political turmoil, terrorist activities and global economic recession. The bombings of the American embassies in Nairobi and Dar es Salaam in 1998 as well as violence after the recent presidential elections in Kenya in 2008 clearly decreased the number of tourists travelling to Kenya and Tanzania. Therefore community-based conservation programmes should not be solely based on tourism income in order to be sustainable but on a diversity of incentives for rural communities which can be secured on a long term basis even without the reliance on foreign income.

A study carried out in the two buffer zones of the Selous Game Reserve, in the Morogoro District and the Songea District reveals that the two most common expectations in the communities from the community-based wildlife management programme were meat and increased income. The rural people interviewed were more interested in getting meat and revenues from wildlife than conserving them. Local communities expected to get legal access to game meat by joining the community-based wildlife management programme. This study also points out that formal education in rural areas does not necessarily improve the attitudes toward wildlife. People with more formal education tend to oppose community-

based wildlife management programmes when compared with people with less education. The studied communities were generally not interested in joining the programme. There are three main factors for this lack of interest. First, the expectations which were raised among the communities were not met. Second, the costs of living with wildlife were much higher than the benefits associated with the programme. Third, there existed a lack of trust between the communities and the organising partners of the community-based wildlife management programmes. All in all, the decision of communities to accept and join the programme was influenced by the promised socioeconomic benefits for them (Songorwa 1999: 2065–2074).

In Tanzania, many communities still have superstitions and magical beliefs concerning the relationship between humanity and nature. These dimensions of life have not been widely studied but may have a strong effect on the success of community-based conservation programmes in the country. According to the study carried out in Kilombero and Ulanga districts of Morogoro Region, which is located north of Selous Game Reserve, superstitions, magical beliefs and practices were still common in the villages in year 2000. The researchers describe the people in the studied villages as having a *pre-Newtonian outlook*. This outlook together with the presence of the magical institutions as part of the culture and society is considered as a constraint to development there. The researchers observed a culture of passivity and helplessness *vis-a-vis* development issues in the villages. However, this could have also resulted from the weak institutional set up in social and economical structures

within the communities (Mvungi et al. 2002: 76–77).

8. Community-based wildlife conservation in Tanzania

The development of community-based conservation in Tanzania has not surfaced independently but partially reflects the objectives and contents of other national strategies. The *Poverty Reduction Strategy Paper* replaced the structural adjustment framework in Tanzania in 2000. Decentralization of local government is one outcome of this replacement. This Strategy Paper was a donor-led initiative concerning government, transparency and accountability and it represents some of the underlying principles in donor thinking. Rule over public strategies has created tensions between the Tanzanian government and foreign donors, as the government has the desire to have a total command of its policy agendas. These macro-level strategies should, instead of wish lists and consultations, contain understanding of the micro-level circumstances of the rural poor. Rural poverty is strongly associated with lack of land and livestock, and the inability of rural people to secure non-farm livelihoods to substitute for diminishing farm opportunities in Tanzania. Institutional obstacles prevent or hinder rural families from building sustainable livelihoods. The *Poverty Reduction Strategy Paper* highlights the rising of productivity within agriculture as a primary rural development goal. However, a more broad starting point, which facilitates diversity in rural livelihoods, has to be adopted in order to reduce rural poverty (Ellis and Mdoe 2003: 1367–1368, 1381).

Institutional contexts of livelihoods are also emphasized in the *Sustainable Livelihoods Approaches* (SLA), which are based on multidimensional understanding of the living-conditions among the people. The SLAs recognize the different assets and entitlements that people have in relation to various institutions, regulations and cultural norms. The original concept of SLA operating on a global level, which was derived from the work of Chambers and Conway (1992) was later brought to the individual household level by Carney (1998) and Scoones (1998). They adapted the SLA to focus on the idea of how people constructed their livelihoods on the basis of various assets and entitlements. The Department for International Development Framework for Sustainable Livelihood identified five types of capital assets: financial, physical, natural, social and human. These assets are mediated through transforming organisational structures and processes. (Toner 2003: 771–773). This definition of single assets may fail to capture the linkages and trade-offs between different assets. For example, access of individuals to natural resources may be defined through social relationships (Pretty 1999 cit. Toner 2003: 773).

8.1. Protected areas and threats to wildlife conservation in Tanzania

Traditional hunters have not, according to the *Director of Wildlife*, Mr. E. L. M. Severre (2000: 6), been a serious threat to wildlife in Tanzania. Wildlife populations are threatened mainly by commercial poaching and shrinkage of habitats. Severre (2000) also lists population growth, poverty, political

instability in neighbouring countries and drought as problems, which affect wildlife conservation in Tanzania. Human and livestock population growth have increased the competition for farmland and rangeland between people, livestock and wildlife. Poverty has steered the rural population to shifting cultivation supplemented by the use of bush meat and forest resources which in turn has led to an encroachment by people of the protected areas. The influx of refugees and automatic weapons from the politically unstable neighbouring countries has increased human pressure on wildlife in some protected areas and provided the poachers with more efficient tools. Tanzanian droughts in 1974, 1984, 1993 and 2000 caused crop failures and loss of livestock in rural areas and forced farmers to depend upon natural resources, such as wildlife, for subsistence. There are also problems within the current wildlife management system which are threatening the conservation of wildlife. These problems include marginalization of locals through wildlife laws, insufficient numbers of staff to manage the protected areas, and inadequate funding and benefit sharing. Prohibitive wildlife laws have alienated people from the use of wildlife since the colonial period. The ideal staff area ratio for the protected areas is 1:25 km², while the present staff area ratio is 1:28 km² in the National Parks managed by the Tanzania National Parks, and 1:125 km² in Game Reserves managed by the Wildlife Division in Tanzania. This low staff ratio is caused by lack of funding and resources. Economic benefits from wildlife tourism have not accrued to the villages which pay the cost of living with wildlife. This has increased the negative

attitudes of people towards conservation (Severre 2000: 6–9).

In 1996 *Tanzanian Protected Area Network* consisted of 12 National Parks, 23 Game Reserves, 43 Game Controlled Areas and the Ngorongoro Conservation Area. All protected area categories include different levels of protective measures and limitations of human activities (Table 3.). The National Parks and Game Reserves cover approximately 15% of the surface area of Tanzania. In addition to the above mentioned protected areas, there are some 520 Forest Reserves, which cover about 12% of the total area of the country. This means that around 27% of the surface area of Tanzania is covered by a network of protected areas where human settlement is prohibited (Leader-Williams and Kayera 1996: vii). National Parks and Game Reserves do not allow human settlements, cultivation or grazing of livestock. In Game Controlled Areas and Ngorongoro Conservation Area, these human activities are not

prohibited. Licensed hunting can be practiced in Game Reserves, Game Controlled Areas and Open Areas, but Tanzanian residents are only allowed to hunt in the latter two areas. The hunting licence is exceptionally not needed in these areas for hunting down problem animals who threaten human life or damage property (Ndolanga 1996: 13). These limitations in wildlife utilization have an effect on the development of community-based conservation projects across the country in Tanzania. Certain protected area categories only allow wildlife viewing which does not support any consumptive uses of wildlife by the local communities.

The community-based conservation project around the Tarangire National Park in northern Tanzania provides evidence that the people who live in the neighbourhood of the park have cultural values which affect their willingness to see wildlife in their future surroundings. They consider wildlife valuable beyond

Table 3. Different categories of protected areas and open areas, and their characteristics in Tanzania. Adapted from (Department of Wildlife 1996: 170).

Category of the area	Human Settlements	Administration	Legal uses of Wildlife
National Park	No	Tanzania National Parks (TANAPA)	Game viewing
Conservation Area	Yes	Ngorongoro Conservation Area Authority	Game viewing (Game cropping)
Game Reserve	No	Wildlife Division National projects, such as SCP Region and others	Tourist hunting (Game viewing) (Traditional use)
Game Controlled Area	Yes	Region	Tourist hunting (Resident hunting) (Game viewing) (Game cropping) (Live capture) (Crop protection)
Open Area	Yes	Region	Resident hunting (Tourist hunting) (Game cropping) (Live capture) (Crop protection)

the simple economic costs and benefits. The main problem there, however, is the destruction of crops by wildlife and the danger some species pose to humans and livestock. New efforts to prevent wildlife damage were a prime concern for the locals in 1992 (Kangwana and Ole Mako 2001: 158–159).

The relations between the local population and wildlife are often complex, controversial, and difficult to understand for outsiders. Wildlife has not only been a major source of meat in the remote rural areas but also a liability which competes for the scarce land resources with people and causes damage to agriculture. Dislocation of people from the established game reserves and national parks with scientific natural resource management severely disrupted the livelihood strategies of rural African households. Through the legislation of wildlife conservation, land inside the game reserves was shifted away from local property rights and control to state control. Traditionally wildlife conservation focused on safeguarding the existence of wildlife by prohibiting human activities, such as hunting and livestock-raising in certain ecosystems. Colonial administration made traditional hunting an illegal activity while allowing sport hunters to utilise the same animals legally. Locals and local hunters did not profit from these activities at all. This *conservation against the people* -approach still dominates European conservationist thinking to some extent (Balduš 1991: 6, Neumann 1998: 34–35). In Tanzania, protected areas are not fenced off and wild animals are free to move in and out from these areas all year round. Outside the protected areas wildlife populations are relatively big in sparsely populated

rural areas, which creates a permanent competition of habitat between wildlife and local communities (Hahn and Kaggi 2001: 55).

The discontent and opposition of rural people towards the established protected areas in their neighbourhood has been most clearly manifest in Africa. Centralized control over natural resources had detrimental effects on both the economic development of the rural communities and the sustainability of the natural resource base (Schafer and Bell 2002: 402). The poor governments lacked staff and funds to protect the natural resources in the vast protected areas, where poaching of wildlife and encroachment of people and their cattle was common. The poachers were not only local hunters looking for meat but also foreign professional hunters looking for trophies, tusks and horns for the black market. Many internationally popular species, such as elephants and rhinos, became endangered in certain African countries. The fears of extinction of African wildlife received international media coverage and also caused anxiety among the African governments, which received large amounts of foreign exchange earnings through wildlife tourism. While Kenya, for example, banned wildlife hunting in 1975, the government of Tanzania continued to support the consumptive utilization of its huge wildlife resources by encouraging resident and tourist hunting. However, it soon became obvious that the contemporary approach to natural resource management and wildlife conservation was not sustainable and a new approach had to be developed.

The new approach to natural resource management was not separated from

development issues like the previous one. The development discourse of the 1970's and 1980's emphasized basic needs, grassroots level participatory processes and decentralisation as development goals. Environmental concern was also a part of the new international development agenda. This led to the integration of conservation and development in the new approaches to development in Africa and also elsewhere since the mid-1980's. According to Marshall Murphree (2001: 5), this new bottom-up philosophy of rural development and concern for African nature conservation provided the basis for major aid allocations by international donors and gave them a role in the conservation strategies. Similar views have also been presented by Adams and Hulme (2001: 17–18). They show that the community conservation narrative is very strong in those African countries which rely heavily on foreign assistance. In Tanzania, foreign assistance as a percentage of Gross National Product was 48% in 1990. Thus the influence of multilateral and bilateral development agencies on the domestic policies of recipient countries is strong. The community conservation narrative is often supported by donor experts and domestic authorities who are attached to them (Adams and Hulme 2001: 17–18). The merging of conservation and development goals coincided with the emerging role of non-governmental organisations as alternative recipients of development aid. The NGOs were considered as efficient institutional representatives of the *civil society* and their involvement in the World Bank-funded environmental sector projects increased from 67% in 1990 to 100% in 1997. The NGOs were instruments

for the international development community to implement community-based conservation programmes and their focus shifted from conservation and management activities towards local participation, and supporting education and entrepreneurship. The neo-liberal development agenda provides a new emphasis on privatisation in conservation programmes. The neo-liberal agenda simultaneously channels the idea of making conservation pay for itself to the grass-root level through the NGOs. Today, the environmental strategies of international development agencies and those of major conservation NGOs operating in Tanzania are very much alike (Levine 2002: 1044–1050). Conceptually, community-based conservation is not a new approach because it has been practised in Europe since the eighteenth century. Revolutions displaced natural resources from the control of the nobility and allowed landowners and communities to manage their natural resources according to the principles and structures of community conservation (Balduş et al. 1994 cit. Siege 2001a: 17).

8.2. Local government structure in Tanzania

It is very important for the sustainability of community-based conservation programmes that all the stakeholders participate in the decision-making process and its implementation. In Tanzania, the implementation of natural resource management and community-based conservation programmes takes place through existing governmental structures. Administratively, many different national level authorities

have legal responsibility over wildlife-related matters in Tanzania. The wildlife sector contains a number of competing management agencies in Tanzania (Bergin 2001: 93). The establishment of a functional relationship and trust between the local communities and higher authorities responsible for natural resources has been difficult. There has been uncertainty within regional governments to devolve real responsibility and natural resource management power to local communities. The concepts of *local government* and local administration in this chapter are used in accordance with the definition of the concepts by Pekka Seppälä (1998). The concept *local administration* refers to the administrative set-up from village to district level and highlights certain variations in these administrative practices. The administrators at these levels are answerable to both the central government and the semi-independent district and village councils. The concept *local government* refers to an administrative body with a definitive decision-making power and economic means to use this power. According to Seppälä, the use of the concept local government in a Tanzanian case study can only be used concerning certain periods of time and even then its use must be limited to certain formal and legal structures. For example, the independence of the district councils has been curtailed many times in Tanzania since their existence as separate elected administrative bodies after 1984. The central government holds tight control over the economical resources and uses fiscal policy as a mechanism to implement control on the local administration.

Local government structures are formed by four different administrative levels in Tanzania. The lowest level of local government is the Village Council. It is elected by the Village Assembly representing all constituent households in the village. All residents of a village who are over the age of eighteen can participate in the Village Assembly, who meet four times per year. The Village Council is an independent legal entity composed of between 15 to 25 members, and formed by the Village Chairpersons, Village Executive Secretaries and Chairpersons from all sub-villages, Extension Officers and Heads of other institutions. The Village Executive Officers work as Secretaries to the Village Council without voting rights. At least 25% of the members of the Council must be women. The Village Council forms different committees, such as economic affairs and planning committee, and village natural resource committee. Every local government body has some representatives at the next administrative level (Fig. 18.). The Village Councils have representatives at the Ward Development Council, which is the second level of local government in Tanzania. The Ward Development Council is formed by the Ward Councillor, Ward Executive Officer, Village Chairpersons, Executive Secretaries and the Extension Officers. The wards constitute a Division, which is the next administrative unit up the local government structure. The fourth level of local government is the District Council. It is formed by the Members of Parliament, the District Executive Director, and the Ward Councillors, the District Commissioner, the District Council Chairperson,

the District Administrative Secretary, the District Heads of departments, Ward Development Officers and one representative from each village. Finally, some members of the District Council participate in the Regional Consultative Committee, which is the highest administrative unit in the region. The Regional Consultative Committee comprises the Regional Commissioner, Regional Administrative Secretary, Members of the Regional Secretariat, the District Executive Directors, Members of Parliament, District Council Chairpersons, District Councillors and District Administrative Secretaries (Sandi 1996: 46; International Resources Group Ltd. 2000: 25–27).

In the Local Government Reform of 1996–2000, the first step was to

push aside the regional administration in 1997. The aim of this reform was to increase the independent executive power at the district level. However, this local government reform was delayed until May 1998 (Seppälä 1998). The goal of the reform was to improve the delivery of services to the public. Sustainable development or natural resource aspects were of no concern to this reform. The Local Government Reform aimed at political, financial and administrative decentralisation, which would ultimately change central-local relations. This kind of a reform is rare elsewhere in Africa (Lipp 1999: 3–4). The impacts of the Local Government Reform in Tanzania on governance, finance and service delivery was studied by Fjeldstad et al. (2006). They found that citizen’s

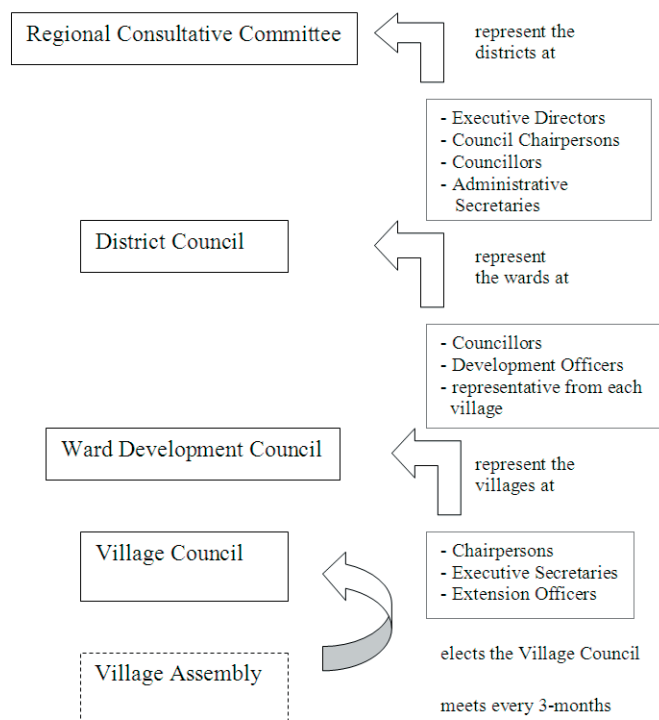


Figure 18. The structure of local government in Tanzania. Adapted from (International Resources Group Ltd 2000: 25–27).

participation in decision-making and planning was substantially increased in urban councils while this was seldom the case with the rural councils during 2002–2005. Many village plans could not be implemented due to financial and other constraints. In some districts, the bottom-up, community-based planning was in practice an ad hoc exercise, where the actual planning was carried out by the council management team. They also found out that ordinary people had no effective instruments or procedures to make council officials accountable. The fiscal autonomy of rural councils was limited and this affected the local government bodies' autonomy (Fjeldstad et al. 2006: 1–2).

In addition to the Local Government Reform, a Land Law reform also took place in Tanzania at the turn of the millennium. This reform had strong impacts on the organization and the implementation of natural resource management at the village level. Appropriate land tenure systems are as fundamental as natural resource tenure systems for the community-based conservation strategies. The *Tanzania National Parks* (TANAPA) authorities, who had previous experience in working with locals in the protected area outreach projects, noticed that despite the allocation of title deeds, the villagers had no real control over land, which limited their dedication to the initiatives. A community conservation programme was institutionalized within TANAPA by the creation of a community conservation steering committee for all national parks in Tanzania. In 1991, it developed the first set of national policies for park management which were based on community conservation. TANAPA's

community conservation programme is called *Ujirani Mwema* which means *Good Neighbourliness* in English. The basic principle of that programme is that parks should have a good and mutually beneficial relationship with local communities and land owners. TANAPA has included community conservation staff in all planning and policy decisions since year 1994 (Melamari 1996: 8; Bergin 2001: 90–92, 97).

8.3. Legislative guidelines for community-based conservation in Tanzania

Next, I will turn my attention to the laws and regulations that affect community-based wildlife conservation in Tanzania. The legislative environment lays the foundation for the establishment of community-based initiatives which aim to reduce human-wildlife conflicts in the country. I will make a brief introduction of the national policies in connection with community-based conservation in order to describe how these policies have shaped the circumstances for implementing buffer zones or to be more specific, Wildlife Management Areas, in the Liwale district.

8.3.1. Forest Policy

Community-based conservation in Tanzania has been limited because there have not been enabling policy mechanisms or clear legislative guidelines to support its implementation. The *Tanzanian National Forest Policy of 1998* and *Forest Bill of 2000* introduced the concepts of *Village and Community Based Forest Reserve and Village Land Forest Reserve*. These legislative changes

allowed the communities to start a process which would give them the right to manage forests independently or in partnership with government authorities (Mustalahti and Kinyero 2001: 3). This policy focuses primarily on forest resources management and addresses the problem of forest degradation. The Forest Policy contributes to the establishment of community-based forest management in the country by supporting the development of local institutions and joint ventures in forestry.

8.3.2. Wildlife Policy

At the same time, the new *Wildlife Policy of 1998* was introduced in Tanzania. The new Wildlife Policy of Tanzania provides a strategy to ensure that local communities living adjacent to the protected areas will participate in the conservation and management of wildlife in and outside of the protected area network. About two-thirds of the strategies in Wildlife Policy concern community-based conservation. The objective is to give a mandate to the local communities to operate as custodians of wildlife and its habitats outside the protected areas and to get tangible benefits from this resource. Integrating wildlife resources with rural development is one of the main challenges for the new Wildlife Policy in Tanzania. It would do well to remove the antagonism between local communities and wildlife enforcing agents in Tanzania. The new policy transfers the management responsibility to local communities, with obligations to take care of wildlife corridors, migratory routes and buffer zones (Severre 2000: 11–12; Maganga et al. 2003: 1). The Wildlife Policy recognizes that tourist

and resident hunting form the basis of the country's wildlife utilisation industry. It encourages private investments in both consumptive and non-consumptive uses of wildlife resources. The role of local community members and their indigenous knowledge of hunting are also recognized in the policy. It must be recognized that the *Wildlife Conservation Act of 1974* is the principal law regulating wildlife use in Tanzania. This act places tremendous unchecked powers in the hands of three main authorities. These are the *Director of Wildlife*, the *Minister of Natural Resources and Tourism* and the *President of the United Republic of Tanzania*. A study of the provisions of this Wildlife Conservation Act revealed that the nature and extent of these vested powers do not provide a stable operational ground for an effective hunting industry. According to the law, these authorities can do practically anything in the name of public interest (Majamba 2000a: 1; Majamba 2001b: 13, 16). According to the Wildlife Conservation Act, the Director of Wildlife has the power to oversee the overall management of wildlife in Tanzania. Legally the Minister of Natural Resources and Tourism is the only person who has the authority to make regulations on wildlife management. The Wildlife Division leases hunting concessions on a five-year contract to private companies, which fulfil the requirements. These hunting concessions are not allocated according to a transparent market-driven system. The absence of checks and balances in wildlife management has resulted in nepotism, abuse of authority and allegations of corruption. The income from hunting tourism could be significantly higher in Tanzania if a real market value was

achieved in leasing the concessions to companies. Currently there is no true market-based competition between the companies because the hunting concessions are leased at a fixed rate to a group of previously selected companies. Many of the companies which have made leasing concessions with the Wildlife Division oppose the new concept of *Wildlife Management Area* because they are afraid that their secure leasing concessions might change (Nshala 1999: 1–2; Baldus and Cauldwell 2004: 6, 19, 34, 42). The Wildlife Conservation Act states that hunting of any wild animal is generally prohibited unless authorized by the law. A person has to be above the age of fourteen and possess a valid firearm for hunting in order to be able to apply for a hunting license. Licences for certain species are only available to the citizens or to persons who have lived at least 12 months in the country before the date of license application. The Act prohibits hunting in game reserves and game controlled areas without a written permission from the Director of Wildlife. The Minister of Natural Resources and Tourism has the right to prohibit hunting of any animal in any area during a specified closed season. Normally the hunting period lasts for about six months, starting from July to December every year.

There are some weaknesses in the hunting quota system, which affect the sustainability of the hunting industry. One of these weaknesses is the lack of an overall trophy monitoring system in Tanzania. The annual quota is basically set on the basis of anecdotal reports from the game officers and from the hunting companies. In some cases the issued quotas have been larger than the

total animal population in a particular hunting block. In fact the number of the hunting blocks has been increasing while the country's wildlife population has decreased. In 1965, there were only 47 hunting blocks in Tanzania. By 1997 the number of hunting blocks had increased to over 140. These hunting concessions cover an area of over 250,000 km². Many of the original vast concession areas were subdivided during the 1990's and the original hunting quotas were applied to each new subdivision. There were only nine commercial hunting companies when the government allowed them to start operating in the hunting blocks in 1984. By 1996, the number of companies had increased to 33. The hunting quotas have remained unchanged in the hunting blocks while the number of commercial hunting companies has increased there. This development has led to depletion of animal populations at alarming rates. The Director of Wildlife received complaints about his allocation of these hunting blocks to the hunting companies. He was accused of allocating the hunting blocks according to his personal opinion rather than according to the existing guidelines. As a result of these complaints the Minister of Natural Resources and Tourism and the Director of Wildlife made a Consensus Agreement with the *Tanzania Hunters Association* (TAHOA), which laid out the criteria for the allocation of hunting blocks in 1994. The locals have criticized the laws and the institutional framework for favouring a particular class, namely tourist hunters. Local communities were unable to practice traditional wildlife-related rituals due to the restrictions placed on areas reserved for hunting. They do not understand the logic of the

Wildlife Conservation Act which allows the foreigners to hunt wild animals while local residents are not allowed to do the same. The Wildlife Policy tries to address this major concern and recognises the intrinsic value of wildlife to rural people. The Policy also tries to enhance the use of indigenous knowledge and traditional hunting methods by special rural communities, but these initiatives are yet to be translated into legislation (Nshala 1999: 5, 10–11; Majamba 2001: 13–20; Baldus and Cauldwell 2004: 3–4).

The Consensus Agreement of 1994 made with TAHOA described six conditions stating the guidelines that every hunting company would have to meet in order to be allocated hunting blocks. The companies must utilise wildlife on the leased hunting block in such a way to generate at least 40% of the value of the total allocated wildlife quota. If the companies fail to do so, they are required to pay the missing value to the Wildlife Division to meet the 40% minimum. One condition is that the hunting companies are required to contribute to anti-poaching activities by opening up roads and airstrips for the anti-poaching squads during the off-season, and offer assistance to the communities which are located adjacent to hunting areas. In theory, this requires that the hunting companies make a plan to integrate its conservation activities with the activities of local communities. Actually, this criterion is poorly observed because there is no provision for its implementation and the present system only requires the delivery of handouts to neighbouring villages. Since 1993 the government has agreed to transfer 25% of the hunting revenue to the areas where the hunting activities take place,

but in reality these funds have never reached the target communities because the money has been kept by the district councils (Nshala 1999: 5, 12–13; Baldus and Cauldwell 2004: 6).

8.3.3. Wildlife Management Area

In the Wildlife Policy, participation of local communities in wildlife conservation and management is achieved through the establishment of a new category of protected area, namely Wildlife Management Area (WMA). The first drafts of WMA appeared in the Tanzanian Wildlife Policy in 1996. The Wildlife Policy defines WMA as an area declared by the Minister of Natural resources and Tourism, which is set aside by the village government for purposes of biological natural resources conservation. However, there are legal problems with this new category within the existing Wildlife Conservation Act, which is still in force, and the new wildlife policy's related developments do not render it ineffective. This Act recognises only three categories of protected areas, game reserves, game controlled areas and partial game reserves and human-wildlife interaction is not envisaged in any of these categories. These categories of protected areas do not address the future needs of community-based conservation. The underlying objective of the Wildlife Conservation Act is the segregation of people from wildlife. This problem could be solved by revising the current Act to provide a more solid legal foundation for WMAs. In an early draft of National Wildlife Policy, the WMAs would replace Game Conservation Areas or Open Areas if these areas have significant wildlife populations and

villagers wish to manage their land to support wildlife there. There is also a need to harmonize the Wildlife Conservation Act with all other legislative provisions regulating activities on the village lands, such as the Mining Act, the Tanzania Investment Act, the Village Land Act and the Local Government Act. The management of WMAs established on the lands belonging to villages will be governed by the provisions of legislation which relates to the administration of village lands. Thus the Village Land Act gives the legal framework for the management of these new wildlife management areas (Ndolanga 1996: 14; Majamba 2000a: 1–3; Majamba 2000b: 9–13). According to Jim Igoe (2006: 80) the designation of the WMAs in Tanzania reflects the adoption of a large landscape conservation approach through the African Wildlife Foundation's African Heartlands Programme. The paradigm of hierarchical patch dynamics in savanna ecosystems required the enlargement of the conservation focus outside the isolated protected areas and enrolling stakeholder groups throughout the larger landscape in the conservation of natural resources.

The management responsibility of these WMAs will be devolved to rural communities and to the private sector. Also the user rights of wildlife will be conferred to the villages and private landholders. Community-based conservation and the establishment of WMAs follow and support national macro policies, such as *Tanzania Development Vision 2025*. The new Wildlife Policy contributes to the goals of this vision by supporting equity in natural resource use, reducing poverty and providing employment possibilities.

It is estimated that in the future the livelihoods of over 3.5 million people will partially depend on the WMAs. Currently, no laws support wildlife corridors and dispersal areas in Tanzania so the establishment of WMAs will help to secure these important habitats (Severre 2000: 12, 20).

Mara Goldman (2003: 837–838) brings up some criticism towards the definition of the WMA. She states that in the Wildlife Policy, the WMA system is principally defined as a tool to conserve biodiversity in village areas. The system is based on the demarcation of village lands into additional protected areas around the game reserves and other protected areas. Thus they constitute an extension of the protected area system, not an alternative to it, and reflect a colonial conservation attitude. Local communities remain passive beneficiaries whose appearance in the conservation objectives depends solely on the geographical location of these communities. Ownership of wildlife is another critical issue. Locals do not have the capacity nor the desire to create wildlife migration corridors on their land. There is a danger that local communities will use the authority over natural resources to promote activities which do not promote wildlife conservation. In the worst case, the Wildlife Management Areas will become institutions of decentralized despotism where district officials and wildlife authorities enforce control over village land and locals' activities. Ndolanga (1996: 15) points out that if the villagers do not own the wildlife, they do not feel responsible for it. Currently the government owns all wildlife in Tanzania and the villagers are issued limited quotas for hunting. This supports the top-down

management of natural resources and does not enhance community-based management. Ndolanga suggests that villager's use rights of wildlife should be linked with ownership of land titles. Igoe (2006: 83, 91) writes that Western conservationists have been very active in rewriting national conservation policy and promoting WMAs in Tanzania. Those village governments who have resisted the designation of WMAs in their areas have been strongly pressured by higher authorities to complete the process. Unfortunately, the Wildlife Management Areas appear to undermine local control rather than strengthening it. The establishment of WMAs has already created community-level conflicts between the WMA villages and the farmers with farms located on the boundaries of the wildlife migration corridors. Severre (2000) mentions that the communities who manage the WMAs as production units need inputs like capital and human resources with appropriate skills. The communities would therefore need many partners to help them to manage these areas and provide them with money and investment opportunities. The communities need to establish an authorized association, such as a *Wildlife Management Institution* (WMI), which will finally have the management responsibility of the WMA. The Wildlife Conservation Regulations of 2002 defined Authorized Associations as villages, individual groups and designated organisations which have been given the authority to manage wildlife outside National Parks, Ngorongoro Conservation Area and Game Reserves. Every village which intends to establish a WMA must form a Community-Based Organisation

according to the existing Societies Ordinance (The United Republic of Tanzania 2002c: 6, 12). The partners in WMAs include village governments, the advisory body to the WMI, the District Council, wildlife authorities, such as Wildlife Division or Ministry of Natural Resources and Tourism, the private sector and NGOs and community-based organisations. The private sector partners will enter into concessions or joint venture contracts with the WMI and agree on resource utilisation and investment in the WMA. The private sector will also have responsibility of marketing and promoting the Wildlife Management Area resources. There is a need to carry out environmental impact assessments before investing in the WMAs. The Wildlife Conservation Regulations of 2002 state that all Land Use Plans for the WMAs shall be subjected to environmental impact assessment (The United Republic of Tanzania 2002c: 19). Financing of WMAs may be problematic and hinder the implementation of the community-based conservation concept in Tanzania (Severre 2000: 15–18).

The costs of managing a WMA include capital and operating costs of the Authorized Association or the WMI itself, and contributions to the government, districts and local villages. The hunting block, game and conservation fees have been previously collected by the government, but in a Wildlife Management Area a proportion of these net revenues generated by hunting are taken by the WMI. Therefore, additional economic opportunities must be developed to substitute or exceed the loss of these revenues for all stakeholders in WMAs.

However, there is an estimated revenue shortfall of four to five years during which the revenues collected with WMAs fall short of the revenues collected without the WMA from the same areas. This gap is caused by the capacity limitations, poorly developed markets, poor quality products and inadequate infrastructure (Christophersen et al. 2000: vi-x).

The Village Governments are responsible for the management of Wildlife Management Areas. They will coordinate the use and conservation of natural resources at village level and prepare the Land Use Plans for their WMA. The Village Governments also enter into agreements with Authorized Associations on the management of Wildlife Management Areas. The Authorized Associations acquire a WMA status for the area on village land which is set aside for wildlife conservation and management. The Authorized Associations also recruit Village Game Scouts from the villages and coordinate their activities. The Authorized Associations negotiate and enter into contractual agreements on the utilisation of natural resources in WMAs. They also carry out problem animal control, protect natural resources and conserve biodiversity in the designated areas. Financial management and collection and payment of required fees and taxes is also their responsibility. Village Game Scouts are employed by the Authorized Associations and their duties include the protection of lives and properties of villagers from problem animals, wildlife monitoring, guarding the borders of WMAs against encroachment and carrying out anti-poaching activities. They also guide the visitors and collect trophies as well as ensure the sustainable

utilisation of natural resources. All trophies hunted in the WMAs remain the property of the government, so the Authorized Associations only have the right to utilise the meat obtained from wildlife management and problem animal control (The United Republic of Tanzania 2002c: 14-16, 21, 25).

Fishing, lumbering, hunting, tourism, boating and beekeeping are compatible land uses promoted on the WMAs. Farming and construction of buildings are prohibited as incompatible forms of land use there. The land use plans aim to reduce the amount of land under agriculture and fallows in the WMAs to discourage shifting cultivation there. The land use plans will require villagers to adapt themselves to settled farming and imply a need to develop intensive farming methods (Balduş 1992: 7-8). The EPIQ team studied the economic opportunities of Wildlife Management Areas in 2000. They identify four major opportunities out of a list of 14. The major economic opportunities are tourism and resident hunting, photographic tourism, improved beekeeping and collection centers for its by-products, and natural forest management. The broader base of economic opportunities allows the government to collect more revenues from the WMA than was possible from a single income-generating activity. The sale of hunting rights to tourist hunting companies and resident hunters groups is the main economic opportunity for most of the WMAs. Photographic tourism can also be a clear economic opportunity for some WMAs but it can only be practiced on a very limited scale. These non-consumptive tourism activities are based on the good visibility of wildlife and presence of

other attractions, such as scenic vistas, which is not often the case in the thick bush of miombo forests. Photographic tourism can be viable in locations of good accessibility and proximity to other major tourist attractions. Photographic tourism cannot co-exist with tourist hunting because the hunting companies and the existing law do not support this. However, in the new *Wildlife Conservation Regulations* of 2002, it is written that non-consumptive and consumptive tourism can be conducted within the same zone of a WMA if they are operated by the same company in such a manner that activities do not come into conflict. Photographic tourism can take place in the same WMA with hunting tourism if these activities are both approved in the zoning of the Land Use Plans (The United Republic of Tanzania 2002c: 22). Traditional beekeeping is widely practiced in Tanzania and it is a viable economic opportunity for WMAs if certain circumstances are present. The processing and markets of honey and other by-products of beekeeping are not yet well developed and most of these products are made for local consumption. The quality of honey must be improved and beekeeping must become more efficient to make this a real economic opportunity for WMAs. Natural Forest Management, which is still in its infancy, presents a big economic opportunity for many WMAs located within the present fuel wood and charcoal supply zones of urban centers in Tanzania (Christophersen et al. 2000: 9–15).

The development of Wildlife Management Areas has been delayed and there is no schedule for sharing the tourist hunting revenues with the

local communities who own the land where most of this hunting takes place. The Wildlife Conservation (Wildlife Management Areas) Regulations for the establishment and management of WMAs were released at the end of 2002. These new regulations state that Wildlife Management Areas may be established in areas outside protected areas, in village land and in areas used by local community members. The WMAs can also be established in areas that are parts of a Game Controlled Area. The designated areas must have accessible resources, both biological and non-biological, which are of significant economic value. These areas must also be ecologically viable or form a part of an ecologically viable ecosystem. No area will be designated as Wildlife Management Area if these criteria are not met (The United Republic of Tanzania 2002c: 10). The regulations list 16 pilot areas where the WMA approach will be tested over a three-year period. The examination of the current Wildlife Management Area regulations shows that they do not place any real control in the hands of the communities. The Wildlife Division still has full control over the hunting concessions and quotas on the WMAs. There is evidence of corruption between local village leaders and tourist hunting companies in some pilot WMAs and it is therefore necessary for the Wildlife Division to retain full control over these initiatives (Baldus and Cauldwell 2004: 2, 32–34). General lack of trust in the capacity of local communities to manage natural resources without governmental supervision, scientific training and guidelines is another reason for the communities to be kept on the sidelines. Rural communities have very low

capacities for planning and managing business enterprises. Moreover, there is a legacy of failed communal enterprise initiatives in Tanzania (Christophersen et al 2000: ix). The Wildlife Policy suggests that indigenous knowledges should be enhanced in natural resource management and conservation but generally little has been achieved through WMAs. In order to recognize the intrinsic value of wildlife to rural communities, the conservation authorities should first accept the value and legitimacy of local indigenous knowledges about wildlife and allow these knowledges to be incorporated into scientific conservation planning. However, indigenous knowledges are often disregarded and presented as opposed to Western scientific knowledge due to the constraints of the conservationist culture and institutions. Local indigenous knowledges are not usually very precise, exact nor do they follow the same logic as Western scientific knowledge. Local indigenous knowledges, such as locals' geographical understanding of the landscape including the notions of boundaries, ecological knowledge and resource-management processes, are considered to be more responsive to the spatial and temporal dynamics and heterogeneity at the local scale. These knowledges do not easily fit into the conservation model where clearly defined stable boundaries and land-use zones make the landscape like in the WMA. These landscapes are much less responsive to the uncertain and complex local scale ecological and social processes to which local indigenous knowledges have adapted for centuries (Goldman 2003: 841–845, 856). The establishment of Wildlife Management Areas and

related land use plans will force the communities to get rid of the practices of shifting cultivation and establish permanent settlements and permanent farms (Severre 2000: 20). According to Bennett and Robinson (2000: 13–15), these changes in the social environment may have a detrimental effect on wildlife populations. Sedentarism is very often associated with denied access of local residents to the broader resource landscape. Increased sedentarism, where people do not move across the landscape anymore in search of natural resources but instead settle in permanent locations and rely on agriculture, reduces hunting sustainability and leads to increased population densities and market involvement in human communities. Permanent settlements also tend to increase immigration to those areas, which may change wildlife harvests and put more pressure on the existing natural resources. Many traditional societies will become more deeply integrated into market economies as their material needs increase along with their reliance on the sale of wildlife products to generate cash to buy consumer goods.

The revision of the wildlife management and conservation in Tanzania does not take place in a vacuum. There are many internal and external forces which influence the process. There is a growing demand and political pressure from the communities and their representatives in the Parliament to distribute more power down to the village level. The external forces include international agreements, such as the additional regulations of CITES, which constrains the utilisation of wildlife resources. Also the revised US Endangered Species Act and the negative

influences of the anti-hunting lobbies have an effect on the wildlife conservation and management in Tanzania, which is built up on consumptive uses of resources. It is mainly the external forces which are destructive and dangerous to the Tanzanian economy (Baldus and Cauldwell 2004: 43).

8.3.4. Land Act and Village Land Act

The new *Land Act* and the *Village Land Act* were approved by the Tanzanian Parliament in 1999. The Land Act became a law in 2001 and it divided the land in Tanzania into three major categories for administrative purposes. The categories are general land, reserved land and village land. There is a Commissioner of Lands who administers general land and reserved land, while village land is administered by the Village Assemblies and Village Councils under the Local Government Act (International Resources Group Ltd. 2000: 36, 49). The new land laws decreased the State's administrative control over access to land by the citizens and facilitated the increasing role of local government structures in land designation within the villages. The Village Land Act of 1999 recognized traditional customary land rights by granting each village a certificate of village boundary and empowering the Village Councils to issue certificates granting customary right of occupancy to villagers or groups of people to land within the village. The Village Councils are requested to produce a Village Land Use Plan as a management tool for the designation process (Ojalammi 2006: 33–34). In the Angai Forest Reserve boundary demarcation process, it was

noticed that farming land boundaries between different villages were clear to the most village governments but forest boundaries were unclear. Marking the village boundaries in the forests was considered dangerous because of wild animals (Mustalahti and Kinyero 2001: 7). The Village Councils may also establish joint land use management agreements with neighbouring villages and share common resources accordingly (National Land Use Planning Commission 1998: 14–15). In addition, the Village Land Act allows the Village Councils to declare some of their land as common land. The Act also supports the designation of some village land as a Wildlife Management Area. Part of the success of community-based wildlife management in the villages surrounding the Selous Game Reserve (SGR) depends on *Village Land Use Plans*. The process of creating these plans demands a lot of labour and is very expensive. The Selous Conservation Programme (SCP) assisted many villages in the buffer zone of the SGR to obtain certificates of land boundaries. Finally, the Land Use Plans were officially approved for villages in the districts of Songea, Tunduru, Liwale and Rufiji. However, the Land Use Plans were not complete because beacons were not set up on the village borders as is requested by the new Land Act. The Land Use Plans of the villages participating in the SCP contain information on areas for roads and settlements, agriculture, fuel wood, forest reserves, wood lots, bee keeping, swamps, livestock grazing, areas for future expansion and areas for wildlife management. In these plans, the areas designated for agriculture, livestock grazing and wildlife management are usually zoned far apart from each other

to avoid conflicts. Wildlife management areas are typically located in the buffer zone of the Selous Game Reserve. Land Use Plans also consider seasonal climatic occurrences which may have effects on community-based wildlife management. During the wet season, seasonal floods may destroy crops and increase the demand for meat, which may foster poaching. Bad weather also makes law enforcement difficult as road networks may be cut off by floods and storms (International Resources Group Ltd. 2000: 36, 38–39). The Land Use Plan will also take immigration and population growth through nativity into consideration as they both have an impact on the success of the programme. The plan aims to control and stop unnecessary immigration which may take place due to the attractiveness of improved living standards in the villages through the SCP (Baldus 1992: 8). According to a study of Songorwa (1999: 2075), villagers often perceive that zoning of village lands reduces the amount of lands available for them.

9. Selous Conservation Programme – a CBC in the Liwale District

The aim of this chapter is to present a case study of a community-based conservation (CBC) project and its implementation in the Liwale district of the Lindi region in southern Tanzania. I will describe the background of the Selous Conservation Programme, which is a regional CBC programme in Tanzania, and explain some of the findings of the field study that I conducted in the Liwale district between June and August 2002. In the

course of the CBC project, the natural resource management in Liwale has undergone significant changes, as the established Wildlife Management Areas have created an extensive buffer zone between the Selous Game Reserve and the nine villages located in the neighbouring areas. I will discuss the sustainability of the project on the basis of the interviews and the questionnaire study carried out across six villages. This discussion does not follow the conventional path of stakeholder relations or cost-benefit analysis but uses the framework of critical cultural geography to reveal the broader nature-society problematics within the Liwale CBC setting. The chapter begins with a brief history of the Selous Game Reserve, the core protected area which hosts the Selous Conservation Programme in its buffer zones. These buffer zones are the areas where the WMAs are designated. The history of the Selous Game Reserve has greatly affected livelihoods in the area and shaped the attitudes of local communities towards wildlife and wildlife conservation. The successes and failures of the current community-based conservation cannot be studied without first understanding the historical processes of nature conservation in Liwale. The extensions of the game reserve broke down the previously perceived norms, structures and contents of the spaces which were affiliated into the protected area. The extension of the Selous Game Reserve also led to the redefinition of the nature-culture borderlands by outsiders who did not live in the affiliated areas. The scattered households of local hunter-gatherer groups were assigned to wildlife conservation. Moreover, the wildlife laws did not allow the evicted people to hunt

wild animals in their traditional hunting grounds anymore. In this chapter, I will explain how different ordinances and laws have connived at human-wildlife conflicts in the Liwale district. This chapter will also describe how conservation narratives and wilderness ideals exported from outside during the colonial era became dominant among the political elite after the independence in Tanzania.

9.1. History of Selous Game Reserve

This chapter will describe the shifts in wildlife conservation narratives and show how these have affected wildlife management in Tanganyika, especially in the area of the present-day Lindi district. The establishment of game reserves, including the Selous Game Reserve, and prescription of wildlife laws by the colonial administration with the support of influential preservation and hunter organizations redefined the actual and perceived location of existing spatial hierarchies in the area. These initiatives and regulations were exported from outside and affected the daily lives of many ethnic groups in Tanganyika. Many hunter-gatherer groups lost their traditional hunting grounds and were evicted from the established game reserves. The following sub-chapters will show that the Selous Game Reserve did not reach its current land area at once but expanded to the surrounding areas in stages. A detailed description of the areal extent of the Selous Game Reserve through its evolution over a 70-year period out of several small and previously individual game reserves is given by Matzke (1976), so I will not repeat it here.

9.1.1. Early years of Selous Game Reserve

Germany declared a Protectorate on the East African coast in 1885 where slave trade and ivory hunting had already been taking place for a long time before the arrival of German colonial government. Commercial hunters from different countries had hunted there for ivory and other valuable wildlife products and sold meat to the local villages. They had also contracted local hunters to shoot wild animals on their behalf (Baldus 2000: 1). Following the arrival of the European colonial administration and nature conservation ideologies, modern wildlife legislation was brought to German East-Africa just before the end of the 19th century. The first legislative regulations to control hunting were introduced there by the German colonial administration in 1891. The Imperial Crown Land Ordinance *Kronlandverordnung* of 1895 granted exclusive rights to the colonial government to occupy so called *ownerless lands* in German East-Africa. The goal of the Wildlife Preservation Ordinance *Wildschutzverordnung* of 1896 was to control the hunting of certain wildlife species and preserve endangered wildlife for scientific purposes, and to support the developing European-lead hunting industry. This Ordinance also allowed the exclusive creation of Game Reserves in German East-Africa. Most of the German legislative provisions to control hunting were generally segmented and uncoordinated. The Wildlife Preservation Ordinance was the only statutory instrument which was established to govern the wildlife sector during their 35-year rule (Wanitzek and Sippel 1998: 114; Baldus 2000: 2; Severre 2000: 4; Baldus 2001: 1; Majamba 2001: 5).

The British and the Germans adopted different approaches to deal with the ivory hunting problem. The British wanted to combat the cruelty and over-exploitation of ivory hunting through game laws which would introduce scheduled licence-based hunting across all colonies. The Germans favoured the establishment of game reserves in certain parts of the colony, where hunting was prohibited or limited year round (Jepson and Whittaker 2002: 138). According to Kjekshus (1978), the notorious caravan routes which run through the Selous area during the 1860's had driven most wildlife out of there. The pressure of the caravans on wildlife decreased when Kilwa lost its importance in Arab–Zanzibar trade (Kjekshus 1978: 72–73 cit. Baldus 1990: 14).

The Game Preservation Ordinance *Jagdschutzverordnung* of 1903 made the establishment of hunting reserves possible in German East-Africa. This Ordinance prohibited all hunting in these closed hunting areas, which had preservation of wildlife as their main goal. In 1908, the Hunting Ordinance *Jagdverordnung* replaced the Game Preservation Ordinance. This new Ordinance regulated hunting of game inside and outside of the protected areas. At the same time, the name of the areas with hunting restrictions changed from Hunting Reserves to Game Reserves (Wanitzek and Sippel 1998: 114–115). The German Colonial Governor, von Wissmann, felt that the biggest threat to African wildlife came from the European hunters. The most famous hunters of that time, such as Selous and Schillings among others, did not agree with his view and said that the colonial government restricted traditional hunting carried out

by locals only when it was considered as commercial. The Colonial Government stopped all commercial culling by issuing the *Hunting Act of 1911*. This Act regulated all hunting in the German East-Africa. Landowners had legal rights to shoot wildlife on their land to protect life and property but they had to submit all trophies, horns and skins of hunted problem animals to the government. Harmful species like lions, leopards, wild dogs and crocodiles could be hunted freely or for a reward. However, this categorisation of useful and harmful animals was criticized by some people. One of the critics was Carl Georg Schillings, who was a hunter and naturalist working on the development of the wildlife legislation for the Protectorate. His ideas were quite revolutionary in the early 1900's. Schillings understood the value of wildlife as a natural heritage for future generations and as an economic resource which could be utilised in a sustainable way for the benefit of the colony. He also developed an idea to channel and re-invest hunting revenues back into wildlife conservation. (Baldus 2000: 2–4). Colonial administrators understood quite well the importance of free access to natural resources for rural people. The administrators feared that rebellion might take place if the laws threatened livelihoods. German military officers, for example, speculated that the *Maji Maji Rebellion* of 1905 was partly triggered by opposition to the game laws in the colony (Koponen 1995, cit. Neumann 1998: 105).

The enormous Selous Game Reserve, which in 1922 was named after the British hunter and explorer Frederick Courteney Selous (1851–1917), was

originally established by the German colonial administration in 1905. The Reserve itself evolved over a 70-year period out of several small and previously individual game reserves. At first, the area only presented a small nucleus of today's Selous Game Reserve. The German Emperor Wilhelm II gave that area to his wife as a wedding anniversary gift in 1907. The south-eastern parts of the German East-Africa had four individual game reserves in 1912. These were among the earliest wildlife sanctuaries in Africa. The Mtetesi Game Reserve was the southernmost reserve located in the present day Tunduru district. The Matandu Game Reserve was located along the Matandu river, northeast of Liwale. The Mahenge and Mohoro Game Reserves were situated inside the modern SGR along the rivers Rufiji and Ulanga. The Mahenge Game Reserve formed the nucleus of the modern Selous and was later combined with the Mohoro Game Reserve (Matzke 1976: 37–43; Baldus et al. 1988: 5–6). The German colonial administration had established 15 game reserves, which covered about five percent of German East-Africa before the World War I (Baldus 2001: 1).

The Germans realized the value of the natural beauty and large wildlife populations of the Rufiji River drainage area and this view was inherited by the British Colonial Administration after the First World War. The British Government's Game Preservation Department expanded and combined the Mahenge and Mohoro Game Reserves in 1922 and named the reserve after F.C. Selous. The size of the reserve was then 2,590 km² (Matzke 1976: 37; Baldus et al. 1988: 5). As a result of the hunting restrictions set by the German

Colonial Government, the elephant populations recovered. The records from 1914 and the 1920's show that conflicts between wildlife and people were already present in south-eastern Tanganyika. There were deserted villages between Kisaki and Mahenge, which now form a part of the Selous Game Reserve, from which the inhabitants had moved away because elephants had destroyed their farms (Baldus 2000: 3). Elephants entered the scattered small holding cultivations and destroyed crops. The Mahenge-Ulanga district bordered the early Selous Game Reserve and it was recorded as an area of severe crop destruction by elephants. In year 1920, vermin, such as elephants, hippos and buffalos, caused much damage to native crops there. At that time, Liwale was a part of the Southern Province of Tanganyika where the heaviest activity in elephant damage and control took place. According to the records of the early 1920's, the ivory exploitations had driven the elephants far away from their original settlement areas. Elephants were only found in remote areas within the province. The movement of people towards agriculturally fertile areas from Songea and Njombe to Liwale, Kilwa and Rufiji together with intensified agricultural development caused the elephants to move again and created new conflicts with humans. In year 1923, it was recorded that elephants, pigs, baboons and hippos caused much damage to crops in Lindi (Rodgers and Lobo 1978: 38–40).

In the early 1920's, the degrading effects of the sport and trade hunting industry in Africa started to raise international concern. The people responsible for the merciless slaughtering

of thousands of animals were mostly German and British colonial settlers and foreign sport hunters. The international community put pressure on colonial governments to stop this massacre of Africa's wildlife. Partly due to this pressure, the colonial government of Tanganyika enacted the *Game Preservation Ordinance* and established the *Game Department* in 1921. The Game Department had three mandates directing its activities in Tanganyika. It was established as an authority to 1) enforce hunting regulations and 2) preserve wildlife values through administering the Game Reserves. Its third mandate was to protect people and crops from wild animals (Severre 2000: 5; Majamba 2001: 5). New laws to prevent the depletion of wildlife through poaching and habitat loss were established in the early part of the 1920's in Tanganyika. The *Collective Punishment Ordinance* of 1921 provided tools for the British colonial government to punish entire communities with fines if any of their members were involved in helping poachers. The 1923 *Land Ordinance* allowed the colonial government to claim all of the natural resources in the territory as the property of the Crown. This Ordinance also gave the government the power to designate game reserves and forest reserves on the lands occupied by African population (Neumann 2000: 120–122). In the early 1920's, the opposition of pro-African officials to the game laws were noticed by the colonial governor, who then emphasized the interests of local communities in conservation. Also agricultural and veterinary officers of the colonial government had started to raise concerns about the impoverishing

effect of game laws on rural areas (Neumann 1998: 102). The European Nature Conservation Committees and the Boone & Crockett Club worked together to establish the first national park in Africa in the 1920's. King Albert of Belgium who had toured the national parks in the United States of America received information from the Belgian Ambassador in America on the need to establish a gorilla sanctuary in the Belgian Congo. The King was inspired by the national park concept and commissioned the establishment of the King Albert Park in the Belgian Congo in 1925. The second national park to be established in Africa was Kruger national park in 1926 (Jepson and Whittaker 2002: 140).

9.1.2. Selous Game Reserve as a battleground of human-wildlife conflicts

Between 1928 and 1931 the British extended the area of the Selous Game Reserve to 6,500 km² doubling its previous size. The reserve was extended toward the north and it contained some local settlements and a few fishing villages. This extension was carried out because the game staff reported that there was heavy hunting pressure on the elephant population along the northern and eastern borders of the reserve and that elephants had been found only inside the reserve. The new areas included in the reserve were regarded unsuitable for cultivation and uninhabited and a proposal to extend the game reserve boundaries became law in 1931 (Matzke 1976: 37).

The colonial government tried to carry out game control schemes in

order to reduce the human-wildlife conflicts in the area. In 1928, a hippo eradication scheme was carried out to protect cultivation on the south side of the Rufiji River. The conflict of wildlife and agricultural values was unavoidable and it continued to plague the Selous Game Reserve for many years to come. The main purpose of the SGR was to protect the endangered elephant population, which was then considered to be disappearing fast. The Selous Game Reserve was included in a proposal to establish National Parks in Tanganyika in 1931 but this proposal was never accepted. The conflict between the elephant conservation and agricultural development increased each year and the number of elephants shot for cultivation protection in the Southern Province increased simultaneously from 350 in 1931 to 1,796 in 1935. The elephant problem also resulted in the elimination of the Mtetesi Game Reserve in 1935 and a policy of selective protection of priority villages. This meant that the villages inside the game reserves received no assistance from the colonial government to protect their fields from crop-raiding elephants. In the following year, the Matandu Game Reserve was expanded and a new Liwale Game Reserve was established between Selous and the previously eliminated Mtetesi Game Reserve (Matzke 1976: 38–39).

The British administration realised in the 1930's that the existing game reserves were not large enough for the country's extensive elephant populations and therefore these reserves had to be enlarged and new game reserves established. Many of the game reserves were not only created for the sake of wildlife conservation but also because

of social necessity. The reserves created a legal barrier that prevented people from moving out of their large settlements to return to their scattered homesteads in the thickets (Rodgers and Lobo 1978: 27). The British colonial conservation ideology was not univocal but had opposition to its preservationist ideas within the administration. For example, forest and wildlife conservation proposals which ignored the customary rights of local communities were criticized. Many of the arguments were based on conflicting and contradictory ideas about locals' relationship to nature. One ideological current established a romanticized image of the pre-colonial African society which included a respect for local survival skills in difficult environments and a notion of the *noble savage*. The other ideological current was based on a modernising mission where African people would be freed from their savage way of life and become efficient producers in the colonial economy (Neumann 2000: 119).

The power struggle between wildlife conservation and agricultural development was imminent in Tanganyika during the British colonial period. The early colonial conservationists, who were mostly hunters, wanted to set aside land for hunting and wildlife preservation. This conservation policy had to be carried out under the circumstances where the colonial administration also wanted to promote the export of agricultural products, the basis of Tanganyika's colonial economy. The colonial conservationists received considerable support from the international agreements to establish new protected areas. The establishment of national parks in Tanganyika, for

example, was supported by the 1933 *Convention for the Protection of the Flora and Fauna of Africa* in London. This convention resulted in an international agreement to investigate the possibilities of creating a system of national parks in the country, which was the primary interest of the *Society for the Preservation of the Fauna of the Empire* and other European preservationists (Neumann 2000: 121; Levine 2002: 1045). In the same year, Constantine J. Philip Ionides, who is considered to be the father of the Selous Game Reserve, joined the Tanganyika Game Department as a game ranger and started to protect the area from colonial cultivation schemes. Ionides worked as a game ranger in Liwale from 1933 to 1957. He was responsible for reducing the excessive elephant population and organizing anti-poaching activities in Selous and in the Southern Province of Tanganyika. Evictions of tribal settlements from Selous were also completed during his era in the Game Department of Tanganyika (Rodgers and Lobo 1978: 39; Baldus et al. 1988: 6–7).

9.1.3. Wildlife conservation, the settlement program and removal of people from the reserve

Since the 1935, wildlife values started to prevail more than before in the game reserve administration. The outcome was a policy to remove people from the most troubled areas. However, up to three thousand crop-raiding elephants were shot every year outside the game reserve. The conservation policy aimed at protecting wildlife within the reserve but to shoot problem animals outside it (Baldus and Siege 2002: 42). *The Society*

for the Preservation of the Fauna of the Empire was leading the conservation movement in the British colonies. The society believed that it was England's duty to protect the *natural* Africa. The Serengeti National Park (est. 1937) was the first national park established in British Colonial Africa. In the beginning, human use of the national park was not prohibited, but the Society for the Preservation of the Fauna of the Empire advocated that human activity within the park should be strongly limited (Levine 2002: 1045). The presence of African people within the parks was only tolerated if these societies lived in a state of harmony with nature and according to the European images of a noble savage placed upon them. Their activities were controlled by park authorities and any behaviour which did not fit into the concept of primitive man resulted in eviction from the park (Neumann 2000: 121).

The *Game Ordinance of 1940* replaced the old Game Preservation Ordinance, which was enacted in Tanganyika in the early 1920's. These colonial hunting laws mainly reflected the colonial government's compliance with the obligations of the international wildlife conservation community, not with the interests of the local population. However, the laws permitted local community members to hunt animals with traditional weapons for the provision of food but they needed special permits to hunt certain wildlife species. The laws did not acknowledge the needs of some local hunting communities to hunt specific species for cultural and traditional rituals. Only the tribes of Tindiga, Bahi and Wanderobo received legal rights to hunt any animals without the licences. This inequality and

selectivity in the legal provisions reflected the application of the divide and rule concept in Tanganyika (Majamba 2001: 5–7). The Game Ordinance of 1940 did not totally prohibit human settlements in the National Parks. Persons whose place of birth or ordinary residence was inside the park were allowed to enter and live in the National Parks. Also people who had any rights over immovable property in the National Parks as well as their children and servants had the same rights to reside there (Wanitzek and Sippel 1998: 116).

At the end of the 1930's, the Wangindo were the last ethnic group who still lived in the Selous Game Reserve area (Baldus et al. 1988: 6). In the 1940's, as a result of the selective protection policy, most local communities voluntarily abandoned their villages, which were left inside the Selous Game Reserve and the consolidated Liwale Game Reserve. The reason for this was that their crops were repeatedly and severely damaged by elephants. People were also forced to constantly evacuate the reserve in the mid-1930's and in the 1940's. The evacuations were partly incorporated in the sleeping sickness eradication programme where people were evacuated from infected areas. Tsetse flies, which spread the sleeping sickness, are found in most parts of Tanzania, especially in miombo woodland habitats. The British colonial government adopted a concentration policy to move people away from woodland areas and resettle them in villages without habitats suitable for the tsetse fly. This resettlement took place in Liwale in 1936 and it left large areas of miombo woodland unoccupied, which thus were made available for wildlife conservation. The evacuated

areas were incorporated in the Selous Game Reserve and the evacuated people were not allowed to return. It was easier to administer them in the closer villages and the areas evacuated were now shifted to the administration of the Game Department. The provincial administration requested the Game Department to ensure that the evacuated areas did not become no man's lands (Open-Access regimes) and that there was no infiltration of people back into these areas. This duty was not backed up by any clear legal authority which caused severe misunderstandings between the game staff, colonial administration and local communities (Matzke 1976: 39–40; Baldus et al 1988: 6; Swai 1996: 51). The settlement policy carried out during the sleeping sickness eradication programme in the game reserves and neighbouring areas was more about increasing the administrative power of the colonial government over the remote and sparsely settled areas.

The next important stage in the regional policy in southeastern Tanganyika took place in 1945 when the Matandu Game Reserve was opened up to human settlement and its game reserve status was cancelled. People were allowed to move there from the evacuated areas inside the new borders of Selous Game Reserve and they were thus located closer to the administrative centres of Kilwa and Lindi. There were also plans to extend the southeastern border of Selous Game Reserve towards Liwale town, which was to be abandoned. However, the large-scale groundnut scheme of the Overseas Food Corporation near Nachingwea proved that these soils previously regarded as unproductive could be put under cultivation. This

scheme included the clearing of thousands of acres of woodland and the eradication of elephants in the nearby areas (Rodgers and Lobo 1978: 34). There were also other more successful plans to extend the area of the reserve ever more. Large areas of miombo woodlands were incorporated into the reserve west of Mbarangandu River as were huge areas to the east, including the land between Matandu, Lung'onya and Ulanga Rivers. These additions almost extended the area of the reserve to its modern size (Matzke 1976: 40–46). The expansion of protected areas and establishment of new national parks did not take place unanimously in Tanganyika. Colonial officers resisted the establishment of additional parks because they feared that the policy of the Society for the Preservation of the Fauna of the Empire would exclude people from the protected areas and create conflictive instabilities in the colony. The *Tanganyika National Union* leaders used the anti-conservationist ideas in rural areas to get support in opposing the colonial rule (Levine 2002: 1045). Tanganyika's policy of allowing the subsistence hunting of rural Africans was attacked in a regional conference on the protection of wildlife in Nairobi in 1947. Conference participants judged the unsportsmanlike African hunting methods in moralistic terms and blamed them for the extermination of game animals in the colony. African hunting methods involved cultural values and practices which were incompatible with European values and myths concerning wildlife (Neumann 1998: 107–108).

The *National Park Ordinance of 1948* brought no changes to the residential rights of local communities which had

traditionally lived inside the National Parks but it prohibited hunting and other disruptions of nature there (Wanitzek and Sippel 1998: 116–117). Hunting, which had been an important way for local communities in rural areas to substitute bad harvests with animal protein, was permitted in the areas outside protected areas until 1954. The *Fauna Conservation Ordinance* then restricted subsistence hunting to a few traditional communities in Tanganyika and permitted only controlled and licensed hunting outside the game reserves in so called *Controlled Areas* (Majamba 2001: 7; Siege 2001b: 38). According to this ordinance, there were only five tribes, namely the Hadzabe, Wabahi, Wandorobo, Wasianzu and Wakimbu, which were allowed to hunt wild animals for food without hunting licences (The United Republic of Tanzania 1994: 130). This legislative change prevented most rural communities from hunting legally and alienated them from wildlife use and management. However, at the end of the 1950's, there was one exceptional protected area in northern Tanzania, where the interests of local residents were taken into consideration. This exception was the Ngorongoro Conservation Area, which was established in 1959. This new area had the dual mandate of protecting the livelihoods of resident Maasai pastoralists and conserving the natural heritage (Leader-Williams and Kayera 1996: vii). The *National Park Ordinance* of 1959 ended the residential rights of local communities inside the National Parks in Tanganyika. Entry to these protected areas was now restricted mainly to game-viewing tourists (Wanitzek and Sippel 1998: 117).

9.1.4. Selous Game Reserve after independence

After independence, the rights of communities to access natural resources were partially regulated by the land laws shaped by the two former colonial powers. The Land Law in Tanzania adopted the English common law tradition and was strongly influenced by English concepts of land law (Wanitzek and Sippel 1998: 113). This law was designed to facilitate land alienation and created a policy environment where customary tenure, such as pastoral land tenure, was considered insignificant in comparison to statutory land tenure (Igoe and Brockington 1999: 10). The independent government of Tanzania also inherited the colonial wildlife laws and institutional structures. In adopting the colonial wildlife policies, the independent government continued a policy which aimed at alienating and marginalizing local communities from the hunting industry. This meant that the hunting industry continued to run for the benefit and interests of the international trophy market. It also revived the hostility between the governmental wildlife authorities and local communities (Majamba 2001: 7).

The *Arusha Manifesto* speech given by the Tanganyika's first Prime Minister Julius Nyerere in 1961 encouraged international conservation organisations to participate in establishing, planning and managing the country's protected areas. A lot of emphasis in the speech was also given to awakening the African public opinion to the economic and cultural value of wildlife. Nyerere called for specialist knowledge, trained manpower and money for carrying out

these tasks of wildlife conservation. His speech is often cited in the documents of international conservation organisations as a positive example of African governmental interest in protecting wildlife. However, it was the members of a Western conservation organisation who actually wrote these parts of Nyerere's speech (Bonner 1993: 65 cit. Neumann 1998: 140). Fear of rising tribalism was one of the reasons why centralized policies were encouraged and traditional local structures discouraged in the young independent state of Tanzania. The power of traditional chiefs and local governments were purposefully decreased and the central government posted its representatives in the villages to handle administration and services (Siege 2001a: 17). The Game Reserve status in Selous did not mean that wildlife was not hunted inside the reserve. Tourist-hunters and colonial administrators had practiced hunting continuously inside the reserve since its establishment. Hunting-tourism as a source of foreign exchange earnings motivated the development-oriented government of Tanzania to expand the game reserve into the surrounding areas. By 1961, the tsetse flies and sleeping sickness were largely eliminated in the southern parts of the country so there was no more need to evacuate villages from disease-prone areas. However, the elimination of isolated and scattered villages suited the Ujamaa villagisation programme of the Tanzanian government. The villagisation programme contributed to the absence of people in some areas surrounding the game reserve. Several new areas were added to the reserve during 1960 and 1974 (Matzke 1976: 41). The last addition was the southern bank of Rufiji

River. The population was resettled along the main road and was repelled from fertile farms and well-stocked fishing waters. As a result, poaching has ever since posed a challenge to the game administrators (Baldus and Siege 2002: 43). According to Matzke (1976: 41), the game reserve was seen as a very effective method of preventing human settlements extending into undesirable parts of the governed territory. The colonial administration had banned all human settlements inside Serengeti National Park and all future park boundaries in 1959. The Tanganyika National Union leaders who had previously opposed the conservation efforts and the excluding of people from the reserves rapidly reversed their views after independence. They now enthusiastically supported the establishment of new parks and protected areas (Levine 2002: 1045).

The Tanganyika Game Department lacked administrative power and resources to effectively control illegal activities inside the Selous Game Reserve during the two decades before independence. It was not until 1961 when the idea of a carefully controlled Game Reserve was adopted by the politicians. The evolution of tourism during the 1960's shifted the focus on to the value of natural resources in the protected areas in Tanganyika. However, there was still not much financial support to the game reserves from the government of Tanzania because these protected areas were regarded as natural zoos or paradises which were sacrificed at the expense of industrialisation and agricultural development (Baldus et al. 1988: 8). At the time of independence, the protected area network consisted of four National Parks, six Game Reserves

and 56 Game Controlled Areas. Since 1964, many Game Controlled Areas have been upgraded to National Parks or Game Reserves (Table 4.). This upgrading followed the various policies of re-settlement in Tanzania and the categories of protected areas which allowed human settlements were upgraded to categories which prohibited human settlements (Swai 1996: 52). Currently, the Game Controlled Areas have a low conservation status because in addition to wildlife utilisation many other forms of land use are practiced there. The District Authorities are responsible for controlling land use in Game Controlled Areas. Many of these areas do not have wildlife anymore due to the expansion of settlements and agriculture (Severre 2000: 10).

The Tanzanian game administrators also inherited the problem animal control policy from the British Colonial government. Large numbers of elephants and other animals were killed outside the protected areas. The scheme of 1962–1963 in Kilombero aimed at eradicating the elephants from the areas designated for intensive agricultural development. Another, but unsuccessful scheme in the early 1960's attempted to drive elephants out from the coastal areas of Lindi towards the unsettled areas of the Selous Game Reserve. The average number of elephants killed outside the protected areas in Liwale between 1971 and 1975 was 473 per year, while between 1930 and 1940 this figure was 350 per year (Rodgers and Lobo 1978: 32–52). The national economy was worsening from the early 1970's onwards, which enticed people to poach rhinoceroses and elephants as highly valued trophies on the black market. Villagers in the buffer

Table 4. The number of protected areas in Tanzania from 1964 to 1994. Adapted from (Swai 1996: 52).

Protected area status	Year 1964	Year 1974	Year 1994
Game Controlled Area	56	50	36
Game Reserve	6	8	20
National Park	4	8	12
Total number of protected areas	66	66	68

zones of Selous Game Reserve poached wildlife for meat and even assisted poachers from outside their villages (Baldus 1992: 1).

From 1967 onwards, the Tanzanian government regarded wildlife as an important national resource, which could be used to bring foreign currency through tourism to support and fund the social programmes within the Ujamaa policy of socialism and self-reliance. International conservation NGOs were eager to provide help to the impoverished country to protect its wildlife. The role of national parks and game reserves, in addition to wildlife conservation, was to earn foreign exchange and the expansion of these protected areas was regarded as an additional means to encourage economic growth. Tourist operations and infrastructure within the protected areas were mostly established by foreign companies, and as a result, very little tourist revenue was left for the country. International conservation NGOs were funding and providing technical and management expertise for the protected areas of Tanzania. The major conservation NGOs in Tanzania received funding mainly from upper-middle class Europeans and North Americans, who wanted to educate African countries about the importance of conservation and save African wildlife from poaching and encroachment caused by rapidly

increasing human populations (Levine 2002: 1045–1053).

The *villagisation* programme partially reversed the trend of isolating game reserves from human inhabitants. New settlements were established within the borders of the Selous Game Reserve. The villagisation programme reduced the agricultural land area of the villages and by resettling people within the catchment area of the Matandu River (Fig 7.) it actually encouraged the poaching and encroachment of agricultural activities in the reserve (Baldus et al. 1988: x). At the beginning of the 1970's, the establishment of new Ujamaa settlements into areas where elephants were still widely present, increased problem animal control activities. Some villages, such as Ndapata in the Liwale district, were established in areas previously abandoned by people and now inhabited by elephants. The elephants were especially attracted by the large cashew nut plantations, which could be destroyed within a year after the resettlement of people. These new or upgraded villages located close to elephant habitats continued to suffer crop damages in the future too. Spatial rearrangements of village concentrations or changes in village location offer one solution to the elephant problem. Another solution would be the adoption of large and excessive scale elephant

control schemes similar to the ones carried out in the 1930's and extermination of elephant populations in the inhabited areas of south-east Tanzania. Elephants could be pushed back to the Selous Game Reserve boundary with these control operations (Rodgers and Lobo 1978: 41–42).

The villagisation programme based on forced resettlement and exclusion of rural communities from their natural resources resulted in a breakdown of previously existing natural resources management systems. The property right regimes, such as communal property and state property were turned into Open-Access in the turmoil of these structural changes. The Tanzanian government lacked staff and funds to enforce game laws in the protected areas and commercial poaching was rampant. One of the main international legal instruments focusing on wildlife conservation which most African governments have ratified, is *the African Convention on the Conservation of Nature and Natural Resources* approved in 1968. This African Convention was ratified in Tanzania in 1974, which is the same year when the Wildlife Conservation Act was promulgated. This Act inherited many of its contents from the African Convention. It is interesting to note that article XI of the African Convention prompts the governments to reconcile the hunting laws with customary rights of local communities living in the vicinity of the protected areas (Majamba 2001: 10).

According to Siegel (2001b: 38), the *Wildlife Conservation Act of 1974* prevented even more legal hunting carried out by the villagers than the 1954 Fauna Conservation Act. This new

law introduced new preconditions for subsistence hunting, a hunting license fee and a licensed gun, and cancelled the last elements of traditional wildlife use in the legislation. The Wildlife Conservation Act of 1974 did not extinguish customary hunting tenures. The government aimed at improving the life styles of the hunter-gatherer tribes and started to settle them into permanent locations with better agricultural facilities and services. Denying their customary hunting rights was part of this process. There was also a need to take precautions against the misuse of customary hunting privileges which could result in increased poaching if certain groups were allowed to hunt without a licence (The United Republic of Tanzania 1994: 130–131). The concept *community* is not found in the vocabulary of the Wildlife Conservation Act of 1974. This legislation also denied the villagers' rights to benefit from wildlife resources. The emphasis of the Wildlife Conservation Act of 1974 was on excluding rather than integrating local villagers around the SGR with conservation (Balducci 1992: 4).

However, the wildlife conservation system did not function in the way that the government of Tanzania had hoped. Economic recession in the early 1970's had major influences on the tourism industry, which also trickled down to hunting as most of the hunting safaris moved out to Kenya where hunting bans had not yet been set up by the government. At the same time, poaching along the Kenyan–Tanzanian border increased and caused a huge decline in wildlife populations, especially elephant. Wildlife inside the protected areas also declined due to poaching and as a result of that foreign concessionaires exploited

the hunting license system there. The state therefore took control of the tourism industry and introduced a hunting ban in 1973 for a five-year period. Income from safari tourism ceased and professional hunters moved away from the Selous Game Reserve (Majamba 2001: 8; Levine 2002: 1047; Baldus and Siege 2002: 43). Wildlife populations, especially elephant and rhinoceros, declined rapidly in the Selous ecosystem during 1976–1986. Poaching was the main cause of this decline along with the problem animal control and habitat destruction. The rhinoceros population fell by 98%, down to a level of near extinction and the elephant population was halved in ten years between 1976 and 1986. The populations of many other mammals, such as zebra, eland, hartebeest, warthog, wild dog and waterbuck were also reduced by more than 50% during the same period. Only the number of buffalos and giraffes increased substantially during this period (Baldus et al. 1988: 3, 9; Ndunguru 1989: 19). Woodroffe et al. (2005: 7–10) also show that problem animal control may be as serious a cause in wildlife mortality as poaching. They mention that in Kenya 467 elephants were killed in problem animal control activities compared to 355 killed by the poachers during 1993–1998. Some species, such as savanna elephants and lions, seem to have behavioural responses to lethal control as they avoid areas with high mortality risks. The savanna elephants also have a tendency to quickly recolonize the formerly dangerous areas when they become safe again. This recolonization takes place especially in areas where the habitat connectivity has been preserved. Up to

the 1980's between 1,000 and 3,000 elephants were killed for crop protection purposes annually in southern Tanzania (Siege and Baldus 1998b: 3). The controlling of crop-raiding animals was the only form of wildlife use which has provided rural villagers with any legal benefits during the centralized control of wildlife in Tanzania (Leader-Williams and Kayera 1996: vii).

There were also some disastrous development programmes inside the Selous Game Reserve in the 1970's and 1980s, in a dam and hydroelectric scheme at Stiegler's Gorge, which had huge declining effects on the rhinoceros population. An oil search programme also opened up vast tracts of previously impenetrable land to poachers in the game reserve (Baldus and Siege 2002: 43). The hunting ban led to a huge increase in poaching since 1973 and the government was forced to permit legal hunting again. The Tanzanian government re-established tourist hunting and lifted the hunting ban in 1978 and it also opened up the tourist industry to foreign investment in 1980. *Tanzania Wildlife Corporation* (TAWICO) now took responsibility of the overall management of the hunting industry (Nshala 1999: 4; Majamba 2001: 8; Levine 2002: 1048). Selous Game Reserve was designated a *World Heritage Site* by the United Nations in 1982. This nomination was based on the unique ecological importance of the reserve (Baldus and Siege 2002: 2). This did not solve the poaching problem and new ways were needed to conserve the wildlife both inside and outside the protected areas.

According to Igoe and Brockington (1999: 11), there was increasing pressure

to alienate land since the mid-1980's when the liberalisation of the economy started to encourage foreign investors to apply for land in Tanzania. They noticed two important similarities between conservation laws and land laws in Tanzania. Both laws were motivated by the economical interests of the government and its total control over land titles and natural resource licences. The *Wildlife Census* of 1989 in Selous revealed considerable changes in the elephant distribution between 1986 and 1989. In 1986 the elephant population was widespread across the whole reserve. The census results of 1989 show reduction in the overall range and a concentration within the remaining range. The areas with low densities of elephant skeletons in 1986 had the highest densities in 1989. Most poaching of elephants occurred in the southeast and southwest of Selous between 1986 and 1989 (TWCM 1989: 24). The last big anti-poaching operation based on the fortress conservation approach was carried out in the Selous Game Reserve in 1989. At that time, the government of Tanzania carried out *Operation Uhai*, a nationwide anti-poaching programme, in conjunction with the Wildlife Department, the Army and the Police Force. Many people were arrested inside the protected areas and sentenced to prison as poachers. The tension between the wildlife personnel and rural villagers increased to the highest levels and every villager found inside the game reserve was considered to be a potential poacher (Hahn and Kaggi 2001: 44). One of the aims of the Operation Uhai was to neutralise the middlemen and facilitators, who were the leading forces behind commercial poaching. Some of

these middlemen had effectively utilized the *local administration* machinery (Baldus 1992: 16). Operation Uhai also disrupted the beekeeping business in the neighbouring villages. The collection of honey was prohibited inside the game reserve and was only possible in areas close to the settlements (Mwamfupe 1990: 21). Operation Uhai aimed at reducing wildlife poaching but it also had an indirect adverse effect on human-wildlife relations. The removal of the warn-off effect of ivory poaching has tended to encourage elephants to move freely into the settled areas and lose their fear of humans (Siege and Baldus 1998b: 53). Elephants no longer consider humans as a threat and do not flee so easily when sighted as they did earlier when hunted intensively in Tanzania.

At the same year when Operation Uhai was enforced in the protected areas of Tanzania, new strategies to cope with poaching and encroachment were developed within the central government. A draft on *Policy on Wildlife Conservation and Utilisation* was prepared in 1989. Community-based conservation was one of the main aims of this policy, which in the end, never progressed beyond a final draft. The next step was to implement the *Planning and Assessment for Wildlife Management* project in 1990. The main goal of this project was to conserve wildlife by promoting the sustainable economic development of the wildlife sector (Leader-Williams and Kayera 1996: viii).

In 1946 the British colonial regime introduced tourist hunting on a formal basis in Tanganyika and established the first Game Controlled Areas divided into hunting blocks. Tourist hunting

has developed over a long period and remains an important source of foreign exchange to Tanzania. According to the Department of Wildlife, tourist hunting has some advantages over other forms of wildlife utilisation. Tourist hunting is a relatively stable and evenly growing market while the game viewing market is more unstable and sensitive to recessions and civil disturbances. Tourist hunting is also better in contributing to the economies of areas not suitable for game viewing tourism (Ndolanga 1996: 14).

In the early 1950's there were 90 Game Controlled Areas in Tanganyika. After independence in 1961, the Game Department opened these important wildlife areas to regular hunting to increase the income from wildlife. Tourist hunting was permitted inside the game reserves in 1965. This activity was also started in the Selous Game Reserve, which was divided into 47 hunting blocks. The political changes in Tanzania resulted in a complete ban on sport hunting in 1973 (Baldus and Cauldwell 2004: 3–4). After the lifting of the 1978 hunting ban, a government parastatal TAWICO managed the hunting industry in Tanzania until the 1988. At that time, TAWICO's representative role in the hunting industry was removed due to the revised economic policies of the government. The new economic development plans aimed at encouraging private investments into Tanzania through the liberalisation of trade. The private sector then became very important to the development of tourism and the hunting industry in the country. The Tanzania Hunters Association (TAHOA) was registered as a body to represent private sector interests in Tanzania's hunting industry (Majamba 2001: 7, 9, 12).

The Selous Game Reserve is characterized by a high degree of seasonal movement of wildlife, especially of some large mammal species, such as elephants and buffaloes. The wildlife in Selous ecosystem is not confined to the Game Reserve area but is abundant also in the areas outside the reserve boundaries. Crop raiding elephants sometimes also kill people and are thus one source of human-wildlife conflicts in the villages around the SGR. It has been stated that about 25% of food crops produced in the buffer zones of the Selous Game Reserve are annually destroyed by wild animals. Also an average of ten people is killed by these animals in this same area each year. The confrontations of people and wildlife have mainly increased due to the human population growth and the expansion of agricultural activities into wildlife habitats. Crop damage was among the problems the community members identified in village meetings organized by the SCP (International Resources Group Ltd. 2000: 24, 29). In a project planning workshop, organized by the GTZ in November 1989, the participants from different key stakeholder groups identified the following key issues, which were facing the Selous ecosystem:

- natural resources in protected areas were not managed effectively
- natural resources were exploited illegally in the ecosystem
- there was uncontrolled burning of vegetation
- encroachment of people and livestock into the ecosystem
- introduction of diseases to wildlife by livestock
- threat of the negative environmental impacts on the ecosystem through the proposed

stock- route; and

- poorly managed natural resources in unprotected areas (International Resources Group Ltd. 2000: 29–30).

These key issues were clearly conservation-oriented and one may wonder if local communities living outside the Selous Game Reserve had a say in this list of key issues.

Tourism in the Selous Game Reserve has never been a large-scale industry. In 1986 the game reserve received 1,580 tourists, including residents and non-residents of Tanzania. There were 1,435 tourists in the following year and 109 out of these registered tourists were hunters who killed 1,061 animals in 1987. This was less than one third of the available quota for tourist hunters. The number of hunters in the buffer zones was annually much higher, namely about 1,500. The trophy fees for tourist hunters in the Selous Game Reserve varied for each mammal species and were lowest for the African hare (35 USD) and highest for the African elephant (2,500 USD), followed by the licence fees for lion and leopard (1,400 USD) during the 1988 season (Baldus et al. 1988: 12, 17–18). By 1995 the development of the tourism industry in the Selous Game Reserve was still in its infancy. Tourism was concentrated in the northern sector of the reserve so much of its potential remained intact. The game reserve earned approximately 72,000 USD in conservation fees and 124,000 USD in entry fees from tourism. With a variety of other smaller fees, the total income of the Selous Game Reserve in 1995 from tourism was 205,000 USD (Siege 1996: 5). The tourist hunting industry experienced a tremendous growth during

the 1990's in Tanzania. In 1988 the gross income from the industry was 4.6 million USD and during the next four years this gross income had grown to 13.9 million USD. In 1996 the gross income from the tourist hunting industry was already 19.4 million USD in Tanzania and it increased to an enormous 27.6 million USD in 2001. In the same year, approximately 20,500 hunting days were sold to tourist hunters to generate this gross income. The tourist hunters pay significantly higher hunting fees than resident hunters. The tourist hunters have a much wider range of trophy animals available than the resident hunters. They can hunt 70 different animals while the resident hunters can only have a licence for 22 different species. Average income to the Wildlife Division per tourist hunting client is about 7,000 USD. In the Selous Game Reserve, the income generation from hunting tourism has grown on average by 13.7% per annum during 1988 to 2001. The number of tourist hunters visiting the Selous Game Reserve has grown by almost 400% during the same period. Income per unit area for the game reserve is about 70 USD per km². If this hunting income per unit area is compared with the income from photographic tourism, which is approximately 130 USD km² in the Selous Game Reserve, one can easily notice that the latter is almost twice as profitable. However, the costs of photographic tourism are over fifty times higher per unit area. The ecological impacts of photographic tourism are also much higher for the game reserve and its wildlife than those of hunting tourism (Department of Wildlife 1996: 177–178; Baldus and Cauldwell 2004: 10–12). Game viewing tourism is

operating in at least 13 protected areas in Tanzania and has a potential economic value of 20 million USD per year. About 36% of this income will accrue to the wildlife authorities and 64% is earned by the lodge owners who accommodate the tourists in game viewing areas. Thus the private sector gets greater economic benefits from the wildlife tourism industry than the wildlife authorities do. Game viewing tourism is concentrated to the north of Tanzania, in the Ngorongoro Conservation Area and with the most famous national parks. The national parks in the southern parts of the country and the Selous Game Reserve received about 10% of the total visitor nights and earnings from game viewing tourism in 1991–1992. There were over 5,100 visitor nights out of which about 2,800 were foreign visitors. Game viewing tourism currently gives little economic benefits for the communities around the protected areas in southern Tanzania. Income from tourist hunting is more evenly spread across the country (Department of Wildlife 1996: 173–178). The importance of photographic wildlife tourism in the Selous Game Reserve is small for the local communities even though it is practiced in parts of the northern sector along the Rufiji river. According to the study carried out by Price Waterhouse during 1995–1998, the long term economic potential of the Selous Game Reserve buffer zone is high once the villages are allowed to be partners in safari hunting through the community wildlife management programmes. The Department of Wildlife also suggested that there is potential for community-based conservation, which involves tourist hunting on the Liwale Open Area.

The estimated potential total revenue earnings for Liwale Open Area were over 558,000 USD from 1988 and 1992–1993 hunting seasons (Department of Wildlife 1996: 184–185; International Resources Group Ltd. 2000: 24–25).

9.2. Selous Conservation Programme in the Liwale district

Selous Game Reserve is an important protected area, not only because it is one of the largest protected areas in Africa but also because it provides a refuge to some of the largest and most important elephant populations on the continent. With approximately 70% of Tanzania's elephants the Selous Game Reserve is home to large populations of black rhino, buffaloes, crocodile and wild dog. Selous is also one of the largest forest areas under protection in Africa (International Resources Group Ltd. 2000: 13; GTZ Wildlife Programme in Tanzania 2007).

The Government of Tanzania did not have enough resources to safeguard these globally valuable wildlife resources, which were rapidly declining due to the heavy and disastrous levels of poaching for ivory and rhino horns in the 1980's. The Government then approached the international community for assistance and got a response from the Government of the Federal Republic of Germany to write and implement a bilateral cooperation agreement on the *Selous Conservation Programme (SCP)* (GTZ Wildlife Programme in Tanzania 2007). Poaching was not the only reason for the decline of wildlife populations in the Selous Game Reserve and its buffer zones. There were several incompatible land use practices which increased human-

wildlife conflicts in the area. Wildlife competed with livestock for water and grazing land and spread diseases to the cattle. Wildlife also caused crop damage on the farms, which made agriculture an incompatible form of land use in the buffer zones (Krischke et al. 1996: 75; International Resources Group Ltd. 2000: 14). The programme started in 1988 and ended in 2003. SCP was a community-based resource management programme, which involved the villagers in buffer zones to conserve, manage and use wildlife resources outside the Selous Game Reserve in a sustainable way. It was understood by the SCP that all conservation efforts inside the Selous Game Reserve would be useless without the cooperation of communities living along the boundaries of the reserve. Instead of short-term answers and tangible benefits, there was a need to provide pragmatic and long-term solutions to the problems of poaching and habitat loss. It was the first pilot initiative in Tanzania to involve rural people as participants in wildlife conservation. SCP was initiated in the Liwale district in 1995. The SCP aimed to reduce conflicts between the reserve and the local population by developing mechanisms of wildlife conservation which would simultaneously sustain rural development in the surrounding areas. The main strategy of SCP was to give more responsibility and rights to the villages to protect *their* wildlife. The villages were requested to appoint village game scouts to halt poaching in their area. The SCP also tried to help the villages to earn income through the marketing of wildlife tourism and by selling wildlife meat for local consumption from the quota (Baldus 1992: 1; Krischke et

al. 1996: 75; International Resources Group Ltd. 2000: 14, 20; GTZ Wildlife Programme in Tanzania 2007). In 1996 the *Program Progress Review* carried out in Songea shows that locals consider game meat as the most valued benefit for the households from the SCP. However, on average, there were very small amounts of game meat delivered to the households through the programme. Some interviewed villagers want to hunt more animals for meat and said that the communities are interested in and expect increased access to game even if the hunting quota is deemed to be unsustainable (Songorwa 1999: 2069).

It is essential to understand the social, economic, culture, religion and traditional values and attitudes of the people towards wildlife in order to facilitate the integration of rural communities in wildlife conservation and management. In the SCP, regular visits were made to the villages to sell the idea of community-based resource management and to win the confidence and trust of the people. In some places meetings had to be postponed because villagers ran away when they heard that Regional Game Officer was coming for a visit (Baldus 1992: 22). Community-based conservation challenges the culture and institutions of traditional nature conservation because these initiatives bring complex indigenous knowledge systems and unbounded ecological processes into the setting. The imagined landscape of conservation is challenged and partially replaced during the emergence of community-based conservation (Goldman 2003: 835).

The SCP was managed and implemented by the Wildlife Division in the Ministry of Natural Resources and

Tourism of the Government of Tanzania. It was in charge of the activities together with some of the staff of District and Regional Administration. The activities had two main components, namely assistance to the Selous Game Reserve, and the introduction of mechanisms of community-based conservation in the villages around the reserve. The SCP supported the administration of the game reserve by providing equipment, advisory services and training, improved communication for stations and patrols, and rehabilitation of the basic road system in the reserve. The establishment of the mechanisms for community-based conservation included equipping and training of village game scouts, supporting the formation of village natural resources management committees and wildlife management associations and assisting the communities in the administration of their wildlife areas. The German GTZ (*Deutsche Gesellschaft für Technische Zusammenarbeit GmbH*) advised and monitored the programme. The SCP also cooperated with several non-governmental organisations, such as the Frankfurt Zoological Society, the African Wildlife Foundation and World Wide Fund for Nature (GTZ Wildlife Programme in Tanzania 2007). After a decade since its establishment, the SCP covered 46 villages in five different districts surrounding the Selous Game Reserve. The total number of population involved into the programme was about 75,500 people. In addition to the Liwale district, the SCP was implemented in the Morogoro, Songea, Tunduru and Rufiji districts. The nine villages which participated in the SCP from the Liwale district were Mpigamiti, Barikiwa, Chimbuko, Mlembwe, Kikulyungu,

Kimambi, Mirui, Naujombo and Ndapata. In total, there were over 2,000 households and 10,700 people participating in the SCP in the Liwale district in 1998 (International Resources Group Ltd. 2000: 15, 20). There has been some fluctuation in the number of participating villages in the Selous Conservation Programme as the cooperation with nine villages in the Liwale district was suspended and their bank accounts were frozen by the District authorities between 1998 and 2000 (Hahn and Kaggi 2001: 50, 52) due to management problems. The Selous Conservation Programme was internationally regarded as a success because poaching in the village lands had decreased significantly due to improved anti-poaching activities. Wildlife has now returned to areas where it has been absent for many years. However, it is difficult to assess how much the changed attitudes of local communities towards poaching have contributed to this development (Siege 2001a: 19).

The decentralization of natural resources management in the Selous Conservation Programme was partially implemented through new administrative and executive units, which were established at the village and district levels (Fig. 19.). A new post of Community Wildlife Management Officer (CWMO) was established under the supervision of the District Game Officer. It reflected a change in conservation philosophy away from the job contents of traditional game officers. This new post aimed at creating links between the village committees, District Game officer and Selous Conservation Programme. The CWMO provided advice and training for community

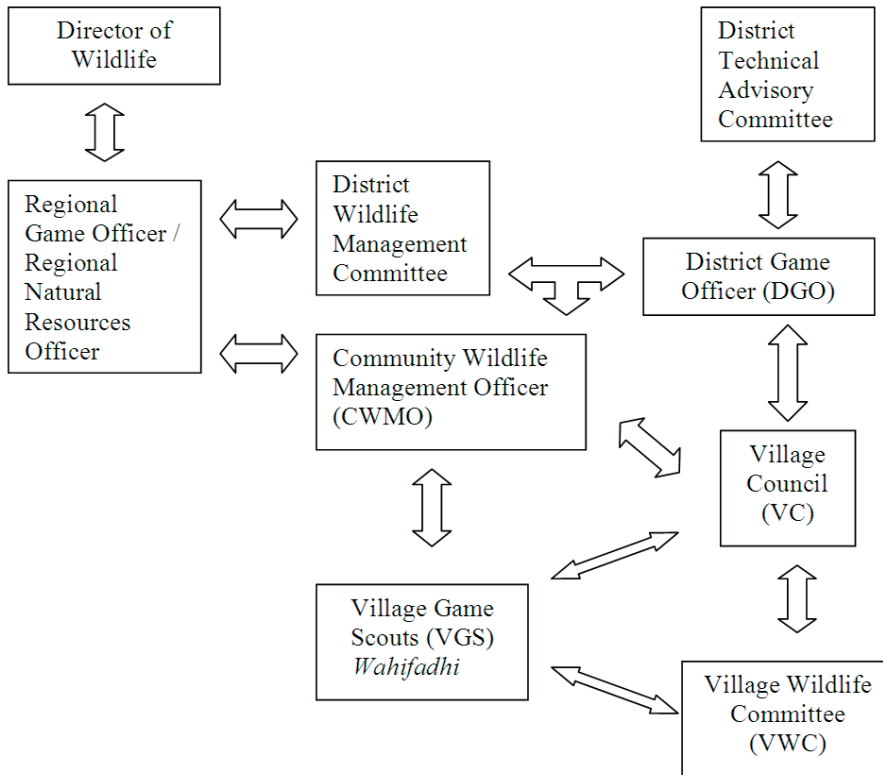


Figure 19. The organisational structure of community-based wildlife management in the Selous Conservation Programme. Adapted from (Krishke et al. 1996: 77).

development, presented the Village Land Use Plan for approval, prepared plans for training of Village Game Scouts (VGS), and helped in border demarcation, realization of income shares, self-help promotion and range management. The CWMO worked with Village Natural Resource Committees (VNRC) and VGS to prevent poaching, limit agricultural expansion into the Game Reserve and prosecute poachers. The VNRC were also new units facilitated by the Programme in each participating village. In smaller villages, this committee can consist of elected members from two or more villages, which combine forces to form one mutual committee. The VNRC is formed by 10 to 12 members elected by the Village Assembly. There

must be two elected members from each of the following groups of people in the committee, namely elders, women, youth, the governmental sector in the village and experienced local hunters. Gender often defines the access to and control over natural resources. Wildlife utilization may enhance economic differentiation and widen the gender gap in access to resources if gender issues are not taken into consideration. The Selous Conservation Programme tried to enforce that one-fourth of the members of VNRC be women. Although this rule was not followed by the Village Assemblies, there are at least two women in more than half of the VNRC in the programme. VNRC is the responsible unit, which prepares Village Land Use

Plans and delivers the finalized plans to the CWMO. They supervise and coordinate the anti-poaching patrols in the buffer zone and crop protection in the farms. The VNRC also supervises communal hunting and distribution of meat from the culled wildlife within the village. Their tasks also include community education on sustainable use of natural resources, formulation of by-laws and keeping records of the profits earned from wildlife-related enterprises. Female members usually take responsibility of managing the finances and meat sales (Krischke et al. 1996: 76; International Resources Group Ltd. 2000: 45, 64–65).

The Village Assembly selects six village game scouts (VGS) to carry out anti-poaching activities, wildlife inventories and game counts. The VGS work voluntarily and receive small allowances from the village. They often collaborate with the District Game Scouts and the SGR staff in these tasks. The VGS patrol at least 10 days a month, when they monitor game populations, report on conservation activities and arrest and apprehend poachers. The scouts also supervise resident and tourism hunting, conduct problem animal control, hunt meat for the villages and carry out fire management. A new advisory unit at the district level is the District Technical Advisory Committee. This unit operates as a Natural Resources Management Advisory Body and serves the villages which have established Wildlife Management Areas in the district. The Committee is formed by the District Game Officer, Fisheries Officer, Forestry officer, Agriculture and Livestock Officer, the District Councillor, elected counselors and representatives of the

Protected Areas within the district. The District Natural Resource Committee is a unit responsible for settling disputes and conflicts in the natural resource management, developing guidelines for wildlife management and proposing quotas for hunting (International Resources Group Ltd. 2000: 46; Hahn and Kaggi 2001: 45). In the *New Wildlife Conservation Regulations of 2002*, the name of this unit was revised as District Natural Resources Advisory Body. It will not only provide a forum for conflict resolution but also technical and legal advice to the Wildlife Management Areas and facilitate the setting of wildlife quotas (The United Republic of Tanzania 2002c: 17).

9.2.1. Establishment of Selous Game Reserve buffer zones

The establishment of buffer zones between the Selous Game Reserve and the neighbouring villages in Liwale, is regarded as an important step towards the objectives of the Selous Conservation Programme. The recommendations of shifting the boundary of the game reserve closer to the proposed headquarters of the South-Eastern sector in Barikiwa, reflects the need to secure that area for wildlife conservation. The south-eastern boundary of the SGR follows the Matandu river which bends around Liwale town in the west and forms an arch around it. There were so called *empty lands*, namely areas free of human inhabitants, in Liwale, which provided an opportunity for the extension of the protected area towards southeast. If the buffer zones were established there, they would help to curb unchecked settlements, poaching and unlicensed

logging. The buffer zones could also open up opportunities for the neighbouring villages to participate in wildlife management and in other sustainable activities within the area. Procedures to convert 3,630 km² of land into a buffer zone in Liwale were set out in 1989. The area is subdivided into three blocks. The largest block covers about 1,500 km² and provides a buffer zone to Kikulyungu. The second block covers no less than 1,130 km² and provides a buffer zone to Barikiwa and other nearby villages. The third block is about 1,000 km² and can be used as a buffer zone for Mpigamiti and Ndapata villages (Baldus 1990: 6–7, 93). Buffer zones may have the potential to prevent land use and boundary disputes between local villagers and Selous Game Reserve.

Kikulyungu, Barikiwa and Mpigamiti villages were among the villages which negotiated and allowed the buffer zone to be established on the land designated as *open area*. The land within the proposed buffer zone is administered by the District Council. Available livelihood opportunities for each participating village in the buffer zone vary according to the ecological conditions of the area. The *open area* in Kikulyungu is mainly closed forest and has an excessive drainage system with many permanent rivers. In Barikiwa village the vegetation of the open area is less dense. Open forests and wooded grasslands dominate and gradually change into bushed grasslands towards the Selous Game Reserve. The dense thickets and forests to the north of Barikiwa contain large numbers of elephants. There are only few permanent rivers, mainly tributaries of the Matandu. The *open land* of Mpigamiti is characterized by open forest which

gradually changes into a closed forest towards the west (Baldus 1990: 8, 13). It is believed that proper management of natural resources in the buffer zone area recreates the link between people and wildlife in such a way which restores the cultural values and attitudes of local communities towards wildlife (Baldus 1990: 97).

The key principle in community-based conservation projects in the SCP has been the devolution of use-rights of wildlife to communities accompanied by a responsibility to manage the resource in sustainable ways. Legally wildlife remains as a property of the State, and this natural resource is administered by the Ministry of Natural Resources and Tourism. The decentralization process of natural resource management in Tanzania has only focused on the right to manage and exploit wildlife, not on ownership. The Minister of Natural Resources and Tourism can withdraw the user rights from any community, which was not following the objectives and conditions of the SCP. The programme tried to establish linkages between private sector, government and non-governmental organizations to foster the development of business enterprises and community development in the wildlife management areas. Tourist operators have had an important role in creating markets for wildlife-based tourism with the local communities. Hunting is ideally suited to the remote locations, where a mass-tourism market cannot be introduced. There should be a wide variety of wildlife products available for the market if wildlife is expected to contribute substantially to community development (International Resources Group Ltd. 2000: 31–32).

These products may be material but also non-material, in aesthetic beauty and the experience of wildlife-viewing tourism or skins and trophies from the hunting-tourism, or meat for local markets and consumption. Rodgers and Lobo (1978: 42) question the effects of hunting in the buffer zones to reduce the amount of crop raiding animals in the neighbouring farms. They do not believe that hunting in the edges of a conservation area could create a distinct boundary effect, which will keep the elephants out. Past experience has shown that when humans move to live in an area favoured by elephants, these animals do not easily move out despite the intensity of past control operations there (Rodgers and Lobo 1978: 42–43).

The markets for wildlife products were insufficient and inaccessible in the SCP as a result of existing wildlife legislation. Villagers cannot practice legal hunting because they cannot afford to buy firearms in accordance with the law. The full value of wildlife products, such as game meat has not been realized and utilized outside the producer communities. As the meat sales only take place within the villages, there is no revenue flow into the community from the outside. The price of the poached meat is much higher than the legally hunted quota meat. The price structure of the game meat is not competitive because external markets have not been allowed to form legally (International Resources Group Ltd. 2000: 34–35). In Tanzania, all funds which are generated by trophy hunting are transferred to the Central Government Treasury. The Government will mainly use these funds to finance the costs of the Wildlife Division. Of the game fees, 25% are directed to the

District Councils of the districts which have part of their areas designated as protected areas. If a protected area falls within many districts, the 25% is divided equally among the represented district councils. In the end, the district councils allocate a certain percentage of this revenue to communities neighbouring the protected areas. During the Selous Conservation programme, the actual share of safari hunting revenues channelled back to the communities was less than 10% because different retention schemes deducted their share in advance. In Liwale, the available 30,000 USD revenue was shared among some 20 villages. Revenues from resident hunting are directly administered by the District Councils. There is no data on the average benefit per household from these revenues, but wildlife utilization can at best only supplement other forms of agricultural and non-agricultural income in some project areas of the Selous Conservation Programme. However, in some villages the revenues from wildlife utilization constitute the largest source of income (International Resources Group Ltd. 2000: 56–57, 60; Siege 2001a: 22). The community-based wildlife management schemes have been able to improve the protective status in buffer zones, especially south of the Selous Game Reserve. However, poaching still occurs in some areas. It was also noticed that village game scouts were reluctant to arrest relatives and friends who were poaching wildlife in their patrol area (International Resources Group Ltd. 2000: 61). The Community Participation and Conservation Officer of the Selous Game Reserve, Mr. Saidi Kabanda mentioned that before the SCP all households carried out illegal hunting

in Liwale, but in 2001 only about 30 to 40% of households were involved in poaching (Veltheim et al. 2001: 9).

9.2.2. Wildlife utilization in the Selous Conservation programme

Wildlife utilization through the Selous Conservation Programme started in 1996. The participating villages in Liwale hunted 18 buffaloes, 5 eland and 4 hartebeest in 1996. Next year the number of hunted animals increased to 27 buffaloes, 15 eland and 3 hartebeest hunted in Liwale (International Resources Group Ltd. 2000: 78). From 1996–1997 the annual quota of ten game animals was not fulfilled in Mpigamiti, Barikiwa or Kikulyungu. During that period, 5 animals were hunted in Mpigamiti, which represented one half of the annual quota and provided 562 kg of dried meat for the village. In Barikiwa, only three animals were hunted and provided 422 kg of dried game meat. Kikulyungu performed a little better and was able to hunt 7 animals with 531 kg of dried game meat for sale. In the 1997–1998 hunting season, Mpigamiti village was able to hunt the full quota of ten animals and produce 385 kg of dried and 442 kg of fresh meat for the market. In Barikiwa, seven animals were hunted. They provided about 490 kg of dried and 100 kg of fresh meat for the village. In Kikulyungu, the six hunted animals resulted in 240 kg of dried meat for sale (International Resources Group Ltd. 2000: 84, 86). The income generated from wildlife management in these three villages in 1996–1998 is shown on Table 5.

According to the above figures, the income generated from wildlife

management was not very significant from 1996–1998. The importance of such revenue at the village level is difficult to analyse. However, these figures can be compared for example, with the cross national product per capita, which was 210 USD in Tanzania in 1997 (UNCTAD 1999). There is no data available on the exact usage of the revenues by households in the villages. Four percent of the total income was used for wildlife management and protection in Mpigamiti from 1996–1997. In Barikiwa, contribution to wildlife management and protection was 21% and in Kikulyungu this was 12% of the total income from wildlife management during the same period. No funds were devoted to village development in Mpigamiti and Kikulyungu from 1996–1997, while in Barikiwa 19% of these wildlife management revenues were used for village development. From 1997–1998, none of the villages invested the generated revenues for wildlife management and protection and only in Mpigamiti some money, namely eight percent of the total revenues, was used for village development (International Resources Group Ltd. 2000: 97-99). The revenues from the SCP increased gradually towards the end of the 1990's and the Liwale District Council received 29,279 USD from the Central Government in both 1999 and 2000. In 1999 each of the participating nine villages in Liwale district received 1,126 USD. The remaining 19,144 USD was used by the District Council mainly for paying allowances to the Ward Councillors. In 2001, the Barikiwa village received a 1,576 USD fund from the District Council (Veltheim et al. 2001: 8).

Table 5. Income generated from wildlife management in selected villages in Liwale district in US dollars in 1996-1998. The exchange rates used for Tanzanian shillings were 579,98 TSH = 1 USD in 1996 and 597.27 TSH = 1 USD in 1997 (University of Missouri- St. Louis 2007). Adapted from (International Resources Group Ltd. 2000: 90).

Village	Year 1996-1997			Year 1997-1998		
	Meat sale	Other sources	Total value	Meat sale	Other sources	Total value
Mpigamiti	79,05	431,05	510,10	897,91	418,57	1316,48
Barikiwa	632,63	431,05	1063,68	656,61	439,78	1096,39
Kikulyungu	417,26	431,05	848,31	200,91	691,48	892,39

9.3. Human-wildlife conflicts in the Selous Game Reserve bufferzones

9.3.1. A brief history of the human-wildlife conflicts in the Lindi region

Human-wildlife conflict is a serious issue in Tanzania. These conflicts include death and injury to humans and livestock, and crop losses. Lindi, Arusha, Mbeya, Mtwara, Morogoro, Rukwa, Tabora and Dodoma are the most affected regions of human-wildlife conflict in Tanzania. Between 1988 and 1996 a total of 11,655 problem animals were culled across Tanzania. Most common problem animal species were baboons, monkeys, bush pigs, hippopotami, Cape buffalos and elephants (Milledge and Barnett 2002: 18). By damaging people's farms and cultivations, domestic livestock or injuring and killing people themselves, wildlife creates a powerful social and economic justification for its elimination from an area.

The competition for resources between human populations and wildlife has a long history in the Selous ecosystem,

especially in areas outside the reserve. In south-eastern Tanganyika, human-wildlife conflicts have taken place long before the start of colonial rule. Local communities developed several ways, such as using fire and noise, to protect their households and crops from raiding elephants, monkeys and hippos before the era of any government administered wildlife department. The number of people was low and they lived in small settlements scattered along small valleys in dense bush. This settlement pattern had not evolved due to the ecological conditions but because of pressures created by the slave trade, Ngoni warfare and German repression, which followed the Maji maji uprising. The noises and effects of warfare and free hunting of elephants for ivory, meat and fat made many elephant herds split up and leave their natural feeding grounds during the turn and the first two decades of the 20th century. As a result, many herds were forced to move to inhabited areas and got used to invading plantations preferring crops instead of grass and leaves for forage. The ecological setting

in the south-eastern Tanganyika provided adequate water and forage for the elephant population which was again increasing after the introduction of hunting restrictions in 1900.

Conflicts between people and elephants further increased after the end of warfare and German rule in 1918 as people were able to leave their isolated dwellings in the bush and move to the more fertile larger river valleys. In late 1919, the British colonial administration introduced a permanent Game Department in Tanganyika. The main task of this new special force was to protect native crops and life from dangerous animals (Rodgers and Lobo 1978: 26, 29). In the early 1920's, the intensification of agriculture in Lindi region, resulted in increased conflicts between man and elephants. With a licence, it was legal to kill and hunt elephants in Tanganyika from 1920 to the late 1973. In September 1973, all hunting was forbidden until 1978 (Rodgers and Lobo 1978: 31). The removal of human settlements from Selous Game Reserve in the 1940's due to the sleeping sickness eradication programme, allowed many wildlife species, such as elephant and buffalo, to dominate and increase in the ecosystem.

The recent study by Stoner et al. (2006) on the wildlife population trends in Tanzania shows that the number of elephants has increased there. They carried out a nation-wide study in Tanzania, where they compared different large herbivore census data collected in approximately 10-year time spans from the late 1980's and early 1990's to the late 1990's and early 2000's from eight different census zone across the country. They studied the temporal changes in

different species populations and tested if these changes were more prominent in large-bodied wildlife species, which were considered to be the targets of bush meat hunters. In addition, they wanted to find out if these temporal changes were more visible in species which require large home ranges or habitats, as they are more prone to the effects of human encroachment around the reserves than those species, which live in small home ranges. They examined aerial census data for 25 species and noticed that there was a decline in most of the ungulate population densities studied. These declines were occurring in particular census zones and species. Only very few populations increased significantly in the eight selected census zones. The elephant, the giraffe and the hippopotamus were species, which did not experience declines in over half of the census zones. Actually, the elephant population increased in six of the eight study zones across the country. Stoner et al. detected that in several census zones, increasing body size correlated with positive changes in population, which was surprising because the bush meat hunters were assumed to prefer larger wildlife species for meat. They mentioned that competition for resources inside the reserves and food availability might play an important role in species population declines in the studied census zones. There were more species with generalized diets compared to species with more selective food preferences. In the Selous-Mikumi census zone the comparisons were made from dry season populations censuses. They show that the elephant was the only species which increased between the start and finish of the 10 year-time span between 1990 and 2000.

There was no change in buffalo, giraffe, greater kudu, hippopotamus, impala, puku, sable antelope and waterbuck populations. The species which declined in the Selous-Mikumi census zone during the same period were bush buck, bush pig, common duiker, eland, hartebeest, reedbuck, warthog, wildebeest and zebra (Stoner et al. 2006: 202–214).

9.3.2. Crop damage and killings of domestic animals by wildlife in the Liwale district

The Wangindo agricultural system is characterized by shifting cultivation methods, which have led to poor utilization of land in the ecosystem. In shifting cultivation, patches of forest and bush are first burned during the dry season, then chopped down and cleared for agricultural land for typically three to five years. When the fertility of the cleared patch decreases, the farmer moves into a new forest patch and clears a new field for the crops. Shifting cultivation has created isolated human settlements and isolated fields in the areas bordering the Selous Game Reserve in the east, southeast and south. This has influenced the intensity and frequency of crop raiding by the wildlife there. Crop damage has discouraged farmers to expand their fields and has had a significant negative impact on rural people's standard of living (Siege and Baldus 1998b: 2–3, 51). In 2000, Mvungi et al. (2002: 38) carried out a socio-economic survey of the northern Selous Game Reserve buffer zones. They found out that over 60% of the respondents considered wild animals and birds to be the most serious problem in farming. Many big mammals and

large predators, which the European tourists admire, are a burden to the small farmers in Tanzania. The farmers call these animals as Wadudu, which is a term used also for bugs and mosquitoes that bite (Baldus 2001: 1).

The reports of the Selous Conservation Programme staff members and Village Game Scouts clearly reveal the worsening situation in the buffer zones of the Selous Game Reserve between 1994 and 1995. Extensive destruction of crops was reported from the Liwale buffer zone in September 1995. In the Morogoro buffer zone north of the Game Reserve, reports highlighted growing opposition to the programme due to increasing crop damage by wildlife. Buffalos, hippopotami and elephants were mainly responsible for these damages. Wildlife had even started to invade bedrooms in the Morogoro buffer zone! In the Tunduru buffer zone, south of the Game Reserve, reports stated that pests had destroyed food crops and caused a dramatic drop in harvest. All villages experienced a shortage of food. The elephants were already used to flares which were used to scare them off so they no longer ran away from the farms. When the farmers complained to the relevant authorities about the elephants, they were told to stop cultivating in river beds and move to uplands. This movement to new areas only changed the types of wildlife confronted by farms as the elephants were replaced by monkeys and baboons. Ordinary villagers perceived that the outsiders valued wildlife more than they valued the communities (Songorwa 1999: 2069–2070, 2075).

In Kikulyungu, which is the poorest village in the Liwale district used for this study, villagers experienced

frequent encroachments of warthogs and hippos into their farms in the mid-1980's. Towards the end of the decade, elephants and monkeys started to destroy cassava and millet farms in the village area. The villagers used nets and snares to scare away the wild animals but after Operation Uhai in 1988, such equipment was no longer available and they had no means with which to cope with the crop-raiding wildlife. It takes at least five days to visit the district game officer from Kikulyungu and he often lacks resources to help the villagers. The damages caused by hippopotami were frequently observed in Kikulyungu during the field study in 2002 (Fig. 20.). In Mpigamiti, wildlife has caused severe crop destruction and killed livestock and people. Monkeys, baboons, warthogs, elephants and hippopotami cause most crop damage on farms there. Lions, leopards and hyenas usually kill domestic animals and are also feared by the villagers. They complain that the wildlife no longer fear people and come ever closer to homesteads where hunting has been prohibited. The villagers are no longer able to get hartebeest skins for producing strings for their hunting bows and without the bows they cannot protect their fields (Baldus 1990: 67–68, 72). The District Agriculture and Livestock Officer estimated that about five percent of all crops produced are damaged by wildlife in the Liwale District. The volume of crops lost because of wildlife damage has fluctuated between 427 tons to 845 tons between 1991 and 2000. However, there was a huge increase in the volume of destroyed crops from 2000/2001 season onwards in Liwale (Table 6.).

The Head of the Kingupira Wildlife Institute, Mr. Charles Masunzu, carried out a field research on crop damage caused by wildlife. In 1996, he selected four villages, Ngarambe and Tapika in the Rufiji district and Lihenga and Namatewa in the Kilwa district. These study areas are located approximately 120 to 150 km northeast of Liwale town. Both areas are part of the Selous ecosystem and share the same fauna with the Liwale district. Therefore many of Masunzu's findings can also be applied to the Liwale district. Masunzu studied the crop damages in the four villages from January to December 1996. He categorized the wildlife species responsible for crop damages into three categories according to the time of the day when the damages took place. Wildlife species, which caused major damage to crops during the day, were monkeys, namely yellow baboons, Vervet monkeys and Rufiji blue monkeys. Wildlife species, which caused major damage to crops during the night, were African elephant, bush pig, hippopotamus and buffalo. Wildlife species, which caused minor damage to crops during the night, were warthog, eland, greater kudu, bushbuck, impala, black-backed jackal, Reed buck, porcupine and cane rat. Masunzu found that the species which damage crops to a greater extent were elephant, buffalo, bush pig, baboons and monkeys. The crop damage varied from one village to another and from one field plot to another within the study area. There was also some seasonal variation in crop damage between different wildlife species. Elephants, bush pigs and baboons caused greater damage both in the wet and dry season. Buffalo caused greater damage to



Figure 20. A group of hippopotami from the nearby river have caused damage to a rice field in Kikulyungu village in 2002.

crops in the early dry season. Baboons started to destroy maize seedlings right after germination and continued to damage the crops until harvesting. Elephants and buffaloes started to feed

on maize seedlings about three to four weeks after germination and continued to damage the crops until harvesting. There were two spatial indicators, which had an influence on the crop damages

Table 6. Agricultural crops lost by wildlife damage in the Liwale District between 1991 and 2002. (District Agriculture and Livestock Development Officer, Mr. Bonaventure Munlea in Liwale District Council, 25.7.2002, personal communication).

season	crops lost by wild animal damage (tons)
1991/1992	845
1992/1993	478
1993/1994	654
1994/1995	758
1995/1996	691
1996/1997	717
1997/1998	792
1998/1999	427
1999/2000	687
2000/2001	1023
2001/2002	1053

caused by the elephants in both dry and wet season. The first was the location of the fields in relation to the feeding routes of the elephants. The second indicator was the location of the fields in relation to the distance from the game reserve. The study indicates that maize and sorghum are heavily affected by wildlife damage. At least 15% of maize damage and 20% of sorghum damage was caused by wildlife in the study area (Siege and Baldus 1998b: 11–12). In a study carried out in Kenya, there was a positive correlation between rainfall and attacks of large carnivores on livestock in the villages. Seasonal variation in depredation can be affected by local availability of natural prey, although (Kolowski and Holekamp 2006) failed to prove this.

Masunzu's study shows that there is less wildlife damages in fields which are regularly guarded or visited by the farmers. They have to guard the fields every night and day during the growing season to prevent wildlife damage. The whole family has to participate in guarding and working in the field. The children are unable to go to school during the day because they have to stay on guard. Farmer families often live in temporary huts instead of permanent houses, because they have to shift from one field to another and most fields are far away from their permanent residential area. A small hut or platform, called *dungu* (Fig. 21.) is a common sight in the Liwale district and elsewhere in the villages bordering the Selous Game Reserve. This hut is often built of wooden poles and has grass walls and roof. The *dungu* is used for guarding the fields especially during night time. Mazunsu estimates that the opportunity

cost of crop protection is very high for shifting cultivators in the study area. He assumed that if each farmer spends an average of ten hours per night guarding their fields against wildlife during the 150 nights of the growing season, this would amount to 1,500 man hours, which are lost from other productive work, education, business etc. If the payment or salary per hour would be 50 TSH (about 8 cents in USD), the opportunity cost for the labour is 75,000 TSH, which equals to 129 US dollars. In addition to this opportunity cost, the farmers must also keep guard during day time and scare away the monkeys and baboons from their fields. This doubles the opportunity cost and as a result the costs of guarding can be over 250 USD in a six month period (Siege and Baldus 1998b: 52). A study carried out in Uganda shows that primates avoid farms which are intensively guarded. There are also studies which report that men are more successful guards than women and children. Baboons, for example, escape more readily when they were approached by men as compared to women and children. Guarding is a dangerous task which has social implications for the rural families across Africa. The guards may loose sleep, get injured by wildlife or infected by malaria when they sit out in the fields (Osborn and Hill 2005: 79). In accordance with the agricultural calendar, cultivation and guarding of crops in the vicinity of the Selous Game Reserve usually begins in March and ends in June. This day and night activity withdraws household members' labour from other economic and more productive activities (Baldus et al. 1988: 127). For cash-crops, such as cashew nuts, the main fruiting season is from



Figure 21. A dungu or a guard hut on the side of a field in Mpigamiti village.

September to November, which extends crop protection to an almost year round activity (Rodgers and Lobo 1978: 35).

Crop damage has an interesting spatial dimension which explains the vulnerability of crop fields located very close to the forest boundary. Several studies (Naughton-Treves 1998; Tania et al. 2001) show that crop damage by medium and large-sized wild animals correlates with the distance of the field from the forest edge. Farms located within 300 m of a forested boundary have the greatest risk of crop-raiding by wildlife. The study by Tania et al. (2001) reveals that vervet monkeys damage more crops on farms which are located 200 m from the forest edge compared with significantly less crop-raiding on farms which are only 100 or 50 m away from the forest edge. The closer the crop fields are to the forest edge the higher the risk of crop damage caused by wildlife. In the framework of critical nature-

culture borderlines, this means that the closer the crop fields of the village are to the forest edge the more they fall within the grey area between culture and nature where the nature-culture borderline is constantly tested and crossed by wild animals.

Some researchers have taken a critical stand towards the system of scattered farms and shifting-cultivation. They point out that coexistence of wildlife and people would be more positive with proper land use planning and more compact and permanent settlement patterns avoiding randomly arranged, isolated fields and huts along the game reserve. Masunzu recommends that villages, which do not have permanent infrastructure and which are located close to the game reserve or along the main feeding routes of animals, should be removed. The expansion of human population and agricultural activities has limited wildlife habitats and brought

easily digested and high nutrient content crops into the feeding routes and pathways of wild animals, making it irresistible for wildlife to supplement their insufficient food supply with these human-cultivated products (Siege and Baldus 1998b: 51).

Wildlife species have different habitat requirements and these must be taken into consideration in the land use plans. There are species, which require a large wilderness refuge or conservation areas for survival, such as the elephants, the buffalos and the lions. These species often cause damage on brief visits to settled areas. Bush pigs, baboons, monkeys, leopards, crocodiles, hippopotamuses, most small mammals, birds, reptiles and insects can all survive in small wilderness patches within settled areas without a large refuge or conservation area (Bell 1984 cit. Siege and Baldus 1998b: 52).

9.3.3. Problem animal control in the Liwale district

The statistics of elephant control in south-east Tanzania between 1971 and 1975 show that the highest number of elephants killed annually has been in the Liwale district, the annual mean was 473. This shows a considerable increase in control activities in the mid-1970's when compared to the annual mean in the period from 1930 to 1940, when 350 elephants were killed. The highest death toll was in 1975, when 579 elephants were killed in control activities. The lowest number of elephants killed in Liwale during the same period was 304 in 1973 (Rodgers and Lobo 1978: 52). Masunzu studied the problem animals killed by the villagers or relevant authorities in three districts between 1975 and 1995.

The studied districts were Rufiji, Kilwa and Liwale. He divides wildlife species into two main groups. The first group consists of species, which are killed or injured during crop protection. This category includes the African elephant, buffalo, hippopotamus, bush pig, yellow baboon, vervet monkey, warthog and rats. The second group consists of species, which are killed or injured during the protection of domestic animals or human life. This category includes lion, leopard, crocodile and spotted hyena. Some wildlife species can be found in both categories as they cause both crop damage and loss of domestic animals and human life. Of the three studied districts, Rufiji had the highest number of animals killed or injured between 1975 and 1995 because there was a severe cropping project for crocodiles and hippopotami between 1987 and 1991. During the 20-year period, they also killed 1,685 elephants, 3,100 hippopotami, 659 crocodiles and 261 lions in the Rufiji district.

The Liwale district had the highest number of killed elephants during crop protection between 1975 and 1995. Over 3,000 elephants were killed in Liwale within a period of 21 years, which equals an average of almost 145 elephants killed each year. In Liwale, also 238 hippopotami, 174 buffalos, 45 lions, 49 leopards and 47 hyenas were killed during the same period. The problem animal species killed in Liwale between 1975 and 1995, were 1,284 bush pig, 3,408 baboons, 2,269 Vervet monkeys, 686 other monkeys and 86 warthogs. In Kilwa district, over 2,000 elephants and 910 hippopotami were killed during the same period. These figures do not include the number of poached wildlife,

but only contain information on the number of wildlife killed during crop protection and problem animal control activities in the three districts (Siege and Baldus 1998b: 14, 68). Elephants and hippopotami are species which are most often killed in problem animal control activities in the Liwale District (Table 7). The number of problematic elephants killed was lowest in 1994, when only 19 were killed and highest in 1990, when 80 elephants lost their lives. Large predators, such as leopards, lions and hyenas have also been killed in these activities. The total number of killed predators in problem animal control started to increase slowly towards the end of the same decade.

The above figures of killed animals may seem quite dramatic. The statistics on hunted and culled wildlife are often updated and easily available to anyone interested in the effects of man on wildlife. These statistics are usually quoted in scientific articles and documentaries on African wildlife. However, there is

also another side of the coin, which is not so widely declared and published by the media outside Kenya and Tanzania. Some wildlife species can be very dangerous to humans and cause several deaths within a relatively short amount of time. The book *The man-eaters of Tsavo* by J. H. Patterson (1907/1979: 106) is among the first non-fiction tales, which tell a cruel true story to the public about the attacks of man-eating lions on the Uganda-Kenya railway builders between 1898 and 1899. Patterson wrote that two man-eating lions had killed 28 Indian workers, in addition to “scores of unfortunate African natives of whom no official record was kept”. One of the worst cases of man-eating lions occurred in the Njombe District in South-Western Tanzania, where 1,500 people were killed by lions between 1932 and 1946. Most of these people were killed by lions when they were trying to protect their grazing cattle. In the same district, lions had killed some 3,000 head of cattle between 1944 and 1952.

Table 7. Problem animals controlled by hunting in Liwale District in 1990–2000. (District Assistant Game Officer in Liwale District Council, 22.7.2002, personal communication).

year	elephant	hippopotamus	lion	leopard	hyena
1990	80	10	3	3	0
1991	34	6	3	2	5
1992	53	0	2	2	5
1993	30	3	3	2	4
1994	19	6	5	5	3
1995	n.a.	n.a.	n.a.	n.a.	n.a.
1996	25	9	2	6	0
1997	44	7	2	5	6
1998	n.a.	n.a.	n.a.	n.a.	n.a.
1999	40	10	6	4	2
2000	66	9	1	10	5
Total	391	60	27	39	30

9.3.4. Human casualties of human-wildlife conflicts

Even today, the presence of freely roaming large predators takes its toll in East Africa. In Tanzania, approximately 200 people are killed by wildlife every year. About one third of these victims are killed by lions. Skuja (2002) documents 14 separate lion attacks where 13 people lost their lives in seven rural villages in northern Tanzania over a period of 26 months (Skuja 2002 cit. Quigley and Herrero 2005: 35). Injuries and deaths caused by lion attacks have been and remain even more acute in Southern Tanzania. There the main reason for the man-eating behaviour of lions is hunger caused by the fact that in the settled areas there is very little game apart from elephants and scarce livestock due to the tsetse fly. Man-eating takes place mainly during the wet season (Baldus 2004: 6, 23–24). Wild animals killed 365 people and injured 274 people in the Rufiji, Kilwa and Liwale districts between 1975 and 1995. All of the incidents of people killed by wildlife are not reported and the numbers presented here are probably under-estimations. The systematic under-reporting of victims reflects the avoidance of too much publicity for this politically sensitive issue. In Tanzania, there is no compensation for wildlife damage even if this includes loss of life. Sometimes the Government may deliver a symbolic sum of money, such as 30 to 50 USD to the relatives of a victim (Baldus 2004: 25, 28).

Most of the victims are adult men, who are killed in the vicinity of wildlife habitats, cultivated fields or in residential areas. About 90% of the 51 victims killed by elephants in 1996 were

adult men. People who are killed by wildlife were carrying out various tasks at the time of the attack. These tasks include farming, fishing, fetching water, collecting firewood, basket material and building materials, and bathing or washing clothes in rivers. According to Siege and Baldus (1998b), Masunzu (1996) assumes that some of the victims were actually poaching wildlife. He estimates that about 70% of the human-wildlife encounters took place in wildlife habitats and 30% within settlements. The respondents of the survey state that people who walked along paths and roads in the wildlife habitats in order to go to fields, shops, dispensary or school were at risk of wildlife attacks. The encounters within the settlements occurred mostly at night. Elephants often killed people by attacking and demolishing the dungu in the fields. These raiding elephants are mostly bulls, which respond more aggressively to the chasing attempts of the guards (Siege and Baldus 1998b: 14, 68; Baldus and Cauldwell 2004: 29). In Liwale, the elephants killed eight people and injured seven between 1975 and 1995. Most of the human casualties in Liwale were caused by leopards, killing 24 with lions, killing 22 during the same period. Between them, these two predator species injured 24 people in Liwale. Hippopotami killed five and injured 14 people, while buffalo killed one and injured 11 people in Liwale between 1975 and 1995. Hyenas did not kill any people but injured seven during the same period (Siege and Baldus 1998b: 68).

According to the District Assistant Game Officer, lions and leopards killed 14 people in the season of 1996/1997 and in 2001/2002 these

species killed five people in the Liwale District (Mohamedi Mtila, personal communication, 22.7.2002). Dangerous wild animals do not only pose a threat to humans in rural villages but can also attack people in the outskirts of urban areas like Lindi and Dar es Salaam. In 2000, lions killed 23 people in five months near the Lindi airport. One lion killed 35 people by taking many of them from their huts close to the city of Dar es Salaam between August 2002 and April 2004 (Baldus 2001: 1; Baldus 2004: 4). Large predators also attacked people during the time when I was carrying out field research for this study. Two female lions killed nine people and injured two in Liwale district from 24th of February to 14th of March 2003. In the first incident, four people of the same family were killed in one night. The lion entered their house through a window and killed the people inside the hut one by one. The lioness responsible for these killings was shot on the 6th of March 2003 in Liwale (Fig. 22.). The second lioness, which was responsible for the killings of five more people was hunted down and killed on the 16th of March 2003. After those horrifying incidences, life returned to normal again and farmers went back to work on their farms (Clement Kitandala, personal communication). Man-eating lions are a serious problem, especially in the south-east of Tanzania. It has been estimated by Baldus (2004) that approximately 30% of all human casualties caused by wildlife there are due to the active predation of lions. Elimination of man-eating lions is very difficult and it may take even two years of effort to locate and cull these animals in the village areas. Most man-eating lion casualties occur during the rainy

season when the natural prey animals are dispersed over vast areas and the tall grass gives the lions better confidence to approach the villages (Baldus and Cauldwell 2004: 29–30).

Fencing of protected areas and eliminating all lions outside these areas is the only way to reduce man-eating by lions to near zero. Houses should also be improved to make them lion proof. Local communities tend to connect man-eating by lions with superstition and witchcraft. The lion responsible for man-eating is believed to be a human lion *simba-mtu*, which is considered as a metamorphosis from a person into a lion. People also believe that this kind of human lion can become invisible. In some cases people believe that a local chief who has lost his position seeks revenge by using his supernatural power



Figure 22. The Liwale District Assistant Game Officer, Mr. Mtila with the hunted lioness which was responsible for killing four persons in Liwale in 2003. Photo by Clement Kitandala, 6 March 2003.

and sends his lions to kill people in the villages (Baldus 2004: 22, 32, 39). Witchcraft has a long history in southern Tanzania and it remains part of the daily life in most communities. Although witchcraft practices have changed over time, they still continue to retain their meanings established during the colonial period. The belief that bad outcomes are the result of witchcraft or the activity of witches has turned the locals' attention away from the real causes of misfortune. Witchcraft can be viewed as an institution complementing the politics which deny responsibility for social outcomes and accuse local communities for their own misfortune (Green 2005: 7–17). The superstitious elements in the relationship between humans and wildlife make the study of nature-culture borderlines very challenging. Taboos and belief in witchcraft are part of persons' basic belief patterns (Fig. 13) which affect their attitudes and values and are finally reflected in their behaviour. The superstitious elements attached to some particular wild animals, such as lions, affect people's behaviour so strongly that they may even prevent them from taking actions to restore order and biosecurity in spaces invaded by these animals. The district game guards are called for help in the cases of man-eating lions because they usually are the only ones who are able to take actions and kill the lions. According to the Liwale District Assistant Game Officer, the guards sometimes have difficulties in tracking down the man-eating lions because the locals give them incorrect information and remove the paw tracks due to their beliefs (Mohamedi Mtila, personal communication, 22.7.2002). In these types of human-wildlife

conflicts particular wild animals do not only physically move across the borderline between nature and culture as animals but also change their form and temporarily get human shapes while being in the culture side of the border.

9.3.5. Some explanations of crop raiding behaviour – a case of the African elephant

Chiyo and Cochrane studied the population structure and behaviour of crop-raiding elephants in Kibale National Park in Uganda between January 1999 and June 2001. Their findings confirm that the elephants raiding crops were mostly males. They point out that crop raiding behaviour normally starts at the age of 6–8 years, when male elephants leave their maternal family units. Most of the raiding elephants in Uganda were post pubertal males and 20–24 years old. This is the stage when the bulls are approaching reproductive age and show sexual activity. For the male elephants, crop raiding is an optimal foraging strategy, which provides improved nutrition and results in increased body size enhancing their competitive ability during mating periods. Crop raiding maximises the efficiency of foraging due to the reduced time spent and distance travelled for that activity. Crop raiding elephants derived 38% of their daily food intake from the short time spent on the cultivated fields. Crop raiding is a learned behaviour and the bulls learn it easier than the female elephants because they are more socially independent and mating intensive. In addition, the risks of crop raiding are higher for the females because they live in groups with their offspring and the juveniles are at risk

of being trampled on or lost when the herd is chased away or frightened during raids. The study in Uganda shows that the incidence of repeated crop raiding will increase as elephants grow older. Sole male groups raid fields repeatedly for two or four nights. The number of elephants in the raiding groups varied from one to eight individuals and the mean was four individuals. The raiding group of elephants stayed near the cultivated areas during the day and raided the area at night (Chiyo and Cochrane 2005: 233–240).

The conflicts between humans and elephants are increasing because more and more elephant habitats are converted into agricultural areas. Crop-raiding by elephants is a major conservation concern in Africa (Osborn 2004: 322; Chiyo and Cochrane 2005: 233). A study of the seasonal variation of feeding patterns and food selection by crop-raiding elephants in Zimbabwe indicates that there is a tendency for elephants to move out of the protected areas and raid into cultivated fields when the quality of wild grasses declines to a certain point. Thus the seasonal changes in forage quality have an influence on the crop-raiding behaviour of elephants. Elephants have a generalist diet and they mainly feed on grass and woody browse, of which they consume between 100 kg and 300 kg per day. Elephants spend from 70 to 90% of their time foraging and tend to choose the food that offers the highest nutrient intake at each given time and place. The study also pointed out that when grass moisture was high the elephants remain inside the protected area. When grass matures towards the end of the wet season, its moisture level drops and it then becomes less

palatable for elephants. The crossings of elephants from the protected areas to the cultivated areas increased when grass moisture was low. Elephants also consume more browse as the quality of grasses and forbs decline (Osborn 2004: 322–326). So in dietary terms elephants compete for the same food plants with people and indirectly with people's livestock (Osborn and Hill 2005: 74).

10. Results of the field study in the Liwale district

This chapter presents the results of my field study in the Liwale district. The research methods that were chosen to best reveal the spatial characteristics of human-wildlife conflicts in the area limit the scope of my analysis. However, it is possible to conclude that the use of geoinformatics and remote sensing could have helped me to study the spatiality and location of nature-culture borderlines in a more accurate way and also to visualize them cartographically. On the one hand, nature-culture borderlines are dynamic between different spaces of the hierarchy and change through time in the context of modernization. The cartographic visualisation of the temporal change of the location of nature-culture borderlines in the Liwale district would have been an immense task. On the other hand, nature-culture borderlines are personally and socially constructed so there are also subjective differences in the perception of these borderlines. The nature-culture borderlines also contain superstitious elements, such as the metamorphosis described in the previous chapter, so they are not easy to map.

10.1. Human-wildlife conflicts in the studied villages

The first two research questions which I had for this dissertation were related to the characteristics of human-wildlife conflicts in the six studied villages (Chapter 1.3.). I also wanted to find out which animal species locals considered responsible for these conflicts. Open discussions, group interviews and participatory mapping methods were used during the visits to these villages for collecting empirical data which could be analyzed and studied in order to find answers to the research questions. When we walked across the village areas and visited places of human-wildlife conflict in crop fields, farms and homes, I also carried out participant observation.

In the open discussions and group interviews my main aim was to find out which wildlife species existed in the vicinity of the villages and how locals perceive the presence of these species. I also asked what kind of damage these animals caused and where these damages mostly took place. Participatory mapping was used to get a visual presentation of the location of these incidents and also to indirectly locate the places where the locals' perceived nature-culture borderlines. I was also interested to learn of their opinions on the trends of animal populations around their village. I asked them if the number of wild animals was increasing or decreasing in their village area. In the beginning of the open discussions, the villagers provided a list of species found in their village area. I asked the village members of Barikiwa/Chimbuko, Mihumo, Liwale B, Likombora, Mpigamiti and Kikulyungu to mention all animal species present in

their village area or in areas around their village. *Ni wanyama gani wanaopatikana katika maeneo ya kijiji? (Ramani ya kijiji).* The villagers mentioned 51 different animal species, including 37 mammals, nine bird species, and five reptiles and amphibians during the group discussion in the villages (Table 8.).

In a questionnaire survey, carried out by Maganga et al. (2003: 84–86) in seven villages in the Liwale Pilot Wildlife Management Area from February–May 2003, the villagers mentioned a total of 44 animal species, mainly large mammals and three reptile species. There were also two endangered species, namely the black rhinoceros and the wild dog, included in the list of Maganga et al. However, the black rhinoceros was mentioned only in Kimambi village, which was not part of the village sample for my study. The wild dog was mentioned in the lists of Kikulyungu and Mpigamiti villages but not in Barikiwa / Chimbuko. In the results of Maganga et al. (2003), there were no significant differences in the number and species composition among these three villages except for the black rhinoceros and the wild dog. As a result of the open discussions which I carried out with the villagers, they listed 29 wild animal species in Kikulyungu while in Mpigamiti villages they listed 30 and in Barikiwa/Chimbuko 35 species. A comparison of the lists shows that the findings are almost similar, although some small differences in species composition for each village can be found. For example, in my list of Mpigamiti village, people mention the buffalo and the impala which are absent from the list of Maganga et al. However, their list for Mpigamiti included the southern reedbuck, the otter, the spring

hare, the civet and the serval which were not mentioned to me by the villagers. These lists of wild animals may not be complete because they are based on the villagers' memories, but these lists do reveal something of the wide diversity of wildlife conceived to be present in the vicinity of the villages. It also reflects local knowledge on the distribution of wildlife.

Furthermore, I asked the villagers if the number of wild animals had increased or decreased during the past five years. Then I also wanted to know why this was happening. The question in Kiswahili was *Je, idadi ya wanyama katika kipindi cha miaka mitano iliyopita, inapungua au inaongezeka? Kwa nini?* According to the participating villagers, the number of wild animals had increased in Barikiwa/Chimbuko, Mpigamiti, Mihumo, Likombora and Kikulyungu villages due to conservation activities and hunting limitations. However, the villagers of Liwale B told me that the number of wild animals had decreased during the past five years because the farms have expanded and wild animals have been hunted for meat. Hunting has chased the animals away from the village area. There were no reliable official records of animal population sizes in the district so the villagers' estimates could not be verified. Our findings are almost similar with those of Maganga et al. (2003: 86). They also found out that the village members of Mpigamiti considered that while the overall wild animal numbers were increasing, bushbuck and sable antelope populations were decreasing due to predation by lions and wild dogs.

I wanted to know which wild animal species were important to the villagers

and why: *Ni wanyama gani mnaowaona kuwa muhimu? Kwa nini?* In addition I wanted to know which species they did not want to see around their village and why: *Ni wanyama gani hampendi kuwaona? Kwa nini?* The results are also depicted in Table 8. An empty cell means that the species was not mentioned by the villagers and thus does not exist around the village area. The [x] mark means that the species was mentioned by the village members and found in the village area and considered as a neutral species by the people there. The [+] mark means that the species is found in the village area and considered important by the villagers and the [-] mark means that the species is found in the village area but considered as a nuisance by the village members. The [*] mark means that in addition to the importance of the species, the villagers also mentioned some negative effects of this wild animal on their livelihoods.

The table above shows that the jackal, the African wild cat, the vervet monkey, the yellow baboon, the bush pig, the python and the spotted hyena are the most disliked wild animal species in the villages. The zebra, the wildebeest, the hartebeest and some other antelopes are regarded as positive species which cause little damage in the villages. It was surprising to find out that local communities also had a very positive attitude towards the buffalo. They mostly considered it as a valuable species which does not cause much damage to crops but provides meat for the villages when hunted. It was also interesting that people consider the elephant and the lion as important species, although they pointed out that these animals cause a lot of damage and sometimes

Table 8. Wild animal species present around the village areas in the studied six villages in Liwale district according to the information provided by the villagers during the group discussions 1–11 July 2002.

Village Animal species	Barikiwa /Chimbuko	Mpigamiti	Mihumo	Likombora	Kikulyungu	Liwale B
Elephant	+	+	+	+	+	+
Buffalo	+	+	+	X*	+	+
Lion	+	+	+	+	+	-
Leopard	-	-	+	+	+	+
Greater kudu	+		+	X	+	+
Zebra	+	+	+	X	+	+
Blue bearded wildebeest	+	+		X*	+	+
Lichtenstein's hartebeest	+	X	+	X	+	+
Eland	+	+	X	+	+	+
Wild dog		X*	+	+	-	X
Hippopotamus	X	+	+	X*	-	-
Impala	+	X		X	X	+
Spotted hyena	-	-	+		-	+
Sable antelope	+	X*	+	X*		
Common waterbuck		X		X	X*	
Southern reedbuck					X	
Bushbuck	X	X*	+	X*	+	X
Warthog	X*	X*	-	X*		X
Aardwark		X		X		
Porcupine		X*	+	X*	X*	X
Cape hare		X*	+	X*	X*	
Bush pig	-	-	-	X*	-	X
Red duiker	X					
Common duiker	X	X	+	X	X*	X
Klipspringer		X				
Yellow baboon	-	-	-	X*	-	-
Vervet monkey	-	-	-	X*	-	-
Blue monkey	X		-			-
Civet			-		X*	
African wild cat	-	X*	-	X*		-
Jackal	-	X*	-	X*	-	-
Ground pangolin	X			+	+	+
Nile crocodile		+		X*	-	

Leopard tortoise				x	x	x
Python	-	-	+*	+	-	-
Suni	x	x	x			x
Honey badger	x *					
Chameleon		x		+*		
Helmeted guinea fowl	x					
Vulturine guinea fowl	x					
Feral pigeon	x			+		
Lesser Galago						x
Nile monitor						x
Antbear						x
Blank and Red Bush Squirrel						x
Francolin	x					
Honey guide	x					
African goshawk	x					
Hornbill	x					
Owl	x		x	x *	-	
Sacred Ibis				+		

kill people in the villages. These species are, of course, very important for the community-based conservation projects, such as the SCP and through tourist incomes, but I was still surprised by the positive response. I expected a stronger opposition to the presence of elephants in the village meetings because I had seen the crop damages these animals cause in the study area. I believe that there is a bias in the table caused by courtesy or expectation which is explained below.

The open discussions about the importance and dislike of certain wild animal species were far from unambiguous because people quite often disagreed with the spokesmen of the meetings who usually were village chairmen or ward councillors. This was especially the case for elephants which were regarded as pests by many villagers but they also acknowledged

the economic potential of this species through tourism and community-based conservation. I will describe the situation in the open discussions with a case study from Barikiwa/Chimbuko where the villagers and the spokesman suddenly changed their language from Kiswahili to a local language in the middle of an argument because they did not want us to understand the content of their discussion. Luckily, our driver spoke that language and he translated the discussion to me from an audio recording. The discussion started from a question about the importance of the animals found in the village area. All comments are by the ordinary members of the Barikiwa/Chimbuko village, except those by the village chairman and ward councillor, which are marked in parentheses:

- *Elephant is a very important animal because we use it for meat and it also provides income for our village and for the whole nation.*
- *[lively discussion]. So we should not kill the elephant?*
- *No, we should not. [a few people]*
- *Even if the elephant is going to eat our plants, we should not kill it?*
- *If the number of elephants is increasing in such a way that they are destroying our crops and we fail to chase them away from our area and fields, then we had better kill them so as to get meat. [people are still discussing]*
- *They should not be killed but there should be protection against the animals which destroy our fields and crops. Also when the goats are eating your plants you are allowed to chase them away so why not do the same for the elephants.*
- *[people are laughing] Oh, the elephants are very important for us!*
- *(village chairman): Do not make jokes in this meeting! This man came here from very far. Just like he GTZ he came here with the questions before they started the programme. The same way as the RIPS did. So do not make any jokes. This may help you in the future!*
- *(ward counsellor): If you are saying that the elephant is very important to the people of Barikiwa, it then means that you should not kill them because they are important for you. If you say that the elephant is not important for you, it means that they should be killed. So which now is which?*
- *You said that if we are going to say that the elephant is very important for us so it means that we should not kill it. So what about the buffalo? If we say that the buffalo is very important for us, would it also mean that we should not be allowed to kill it for meat.*
- *(ward counsellor): [Changes from Kiswahili to a local language]. There is a licence which is obtained from the district office. It allows us to hunt the buffalo, but there is no licence for local people to hunt the elephant. They are only available for the tourists. Have you ever been given a licence to hunt an elephant? For the case of the tourist, when he will be asked the same question, we will say that the elephant is a very important animal because he has the licence to kill it.*
- *We are afraid that when we say that the elephants are important and they are destroying our crops. When we then ask help from the government for protection, we could be asked that why are you complaining for while you on the other hand say that this animal is very important for your village?*
- *Do not be afraid of it. Mr. Tino has travelled from Finland to Tanzania. We do not have to be afraid of it. He has heard the name of Barikiwa when he was in Finland and he travelled here. So when you will say that you want to protect the elephants, the message will also reach to Finland because Mr. Tino came here. [Language returns to Kiswahili].*
- *So in the end, the elephant is important to us because it provides us meat and income.*
- *Kudu*

- *Hartebeest*
- *We have to know which way these animals are important to us. The animals we are mentioning here, are they important because of we get meat or income?*
- (research assistant): *It is for both reasons.*
- *If that is the case, we should not exclude the elephant from our list although the government is not providing hunting licences for the local people.*
- *Out of all the animals mentioned, the elephant is perhaps contributing a lot for the village government as income and meat.*
- *But we are still worried! [All of them did not agree that elephant is important to them]*
- (village chairman): *Where did we reach in our discussion about the elephants?*
- *We are getting confused. This village is under the GTZ wildlife conservation programme so what is going to happen to us if we are going to say that the elephants are not important to our village and that they destroy our crops and we do not like them. Then the tourists are not coming to our village anymore. We should agree that the elephants are important if we want to earn something from the GTZ.*
- *I think that the elephant is important although it is destructive.*
- *Therefore the elephant is important although it is destructive.*
- *We have built a school with the money we got from the district through the tourism income.*
- *Elephant is important. Also the buffalo has the same habits of*

destroying the crops and killing people. Importance of the buffalo to us comes up when it is killed and its meat is sold to people and we get the cash from it.

- *Green monkey and baboon.*
- *Aa,aa,aa! [some people do not agree with this]*

This example reveals that the previous work and projects on wildlife conservation have left a mark on people's behaviour and on their responses to the visitors. It became evident that the spokesman tried to adjust the comments of the villagers into an answer which they expected the researcher or the visitor wanted to hear in order to provide some projects or assistance for their village in the future. This courtesy and expectation bias was discovered with the help of an extra interpreter, our driver, who luckily was with us during the meeting. In a situation where I would only have had an interpreter who was not familiar with any other local language than Kiswahili and English, I would have remained ignorant of this important empirical observation. From the research ethics perspective, it is not fair that I left the participants of the village meeting unaware of my aims to ask the help of our driver to translate their discussion. It was not a premeditated act at all but I briefly assessed the situation and decided to ask his help to understand the content of the discussion. The driver was all the time present in the meeting so we did not try to conceal in any way that we have a local person in our group who understands the local language. I have made an unethical choice of publishing their discussion here because, in my opinion, it provides a truthful

evidence of the contested realities in wildlife conservation which the locals have to deal with. Methodologically, it is important to reveal the pitfalls which one may face when repeating the study or using similar ways to collect information on such a highly sensitive topic in the future. The open discussions and group interviews show quite clearly that locals do not have a very positive attitude towards large mammals and predators but they mainly kept their real opinions to themselves and reluctantly and silently agreed with the viewpoints of the village chairmen or ward councillors. In the end, it became clear that people were afraid to admit, while I was present, that the elephants caused more trouble than benefit to their community and most of them wanted to get rid of elephants. Overall, I observed that locals did not have so positive attitude towards lions and elephants as the table above indicates.

The people who participated in the meetings in the studied six villages mainly all agreed that the number of wildlife in and around their villages was increasing because of conservation efforts and because the wild animals were not hunted. They pointed out that most wild animals came to their villages from the Selous Game Reserve in search for food from their fields and to prey on domestic animals or drink water from the nearby rivers. Some animals were migrating towards the southeast and passing through the villages, while other animals were returning to the Game Reserve. The village members interviewed list the following species as crop raiding wild animals: elephants, buffalos, yellow baboons, vervet monkeys, bush pigs, greater kudus, warthogs (especially to

cassava), hartebeests, bush bucks, blue monkeys, jackals, hippopotami, sable antelopes, porcupines (cassava), cape hares (groundnuts), helmeted guinea fowls (sorghum and maize), pigeons, francolins, elands (tobacco) and mice. They mention that species which prey on domestic animals include lions (on cattle, goats and chicken), leopards (goats and chicken), hyenas (goats), jackals (chicken), snakes (goats and chicken), honey badgers (chickens and destroys beehives for honey), wild dogs (goats and chicken), African wild cats (chicken), baboons (chicken) and vervet monkeys (chicken). Wild animals that kill people include lions, leopards, hyenas, buffalos, hippopotami and crocodiles.

Some of the villagers of Barikiwa told me that they sometimes catch baboons, blue monkeys and vervet monkeys and sell them for meat to buyers from Masasi. I also learned that the fat of a lion is used as a local medicine for muscular ache in Barikiwa. In Mpigamiti, the village members pointed out that although wild dogs occasionally kill their goats, they are mostly considered helpful by the people because the wild dogs tend to chase away other wild animals which may cause crop damage in their fields. Elephants attack 10 persons per year in Barikiwa/Chimbuko while in the other villages studied by Maganga et al. there were only one or no elephant attacks on humans. In Kikulyungu a person was killed by a crocodile in 2001 (Maganga et al. 2003: 93). According to the report of the District Game Officer in Liwale, the rate of wildlife encroachment into the villages increased in 1989. This increase was due to more disturbances, including hunting and tourist activities, within the game reserve scaring the animals into the

open areas to seek shelter. The District Game Officer mentioned that a 25-mile bufferzone from the Matandu river to the settlements would be wide enough to keep the animals away (Balduis 1990: 50).

10.2. Nature-culture boundaries in the Liwale district

Participatory mapping, observation and visits to the sites of human-wildlife conflict were used to establish if the members of the six study villages perceived any clear nature-culture boundaries in their environments. The villagers drew the maps together and at the same time explained where they had seen wild animals, where they moved in the area and why. The location of permanent water sources causes some seasonal animal migration in the Liwale district. The village chairman of the Barikiwa village, explained to me that there are some wild animal species which are found in the perennial rivers near the village but those rivers turn into ponds and swamps during the dry period. Some of the rivers have water even then so the wild animals are coming from the forests to drink in these rivers but they are not permanently there. There are some swamps in the village where you can find animals, such as hippopotami (Ally Mohamedi Kamuna, personal communication 1.7.2002). The role of the perennial rivers seems to be important in the distribution of certain animal species around the studied villages. The vegetation of the river banks consists mainly of bushed and wooded grasslands and closed woodlands so in addition to water they also provide shelter, refuge, and nutrition and migration

corridors for wild animals. During the participatory village mapping exercise, I asked the village members of the six study villages to tell us in which areas around their villages they have seen animals. *Ni maeneo gani ya kijiji wanyama hao huonekana?* It became evident that the villagers clearly perceived that wild animals were coming into the village and farms from the forested areas. In Barikiwa/Chimbuko, the villagers told us that most wild animals come to their villages from the Selous Game Reserve. They added that once the animals have eaten in the village area, many of them continue to move southwards and cross through their village. Some animals do return back to Selous Game Reserve after their visit to the village and farms. The villagers told me that the nearby rivers are water sources for some wildlife species, although hippopotami can often be found in river Mtatamanga and river Mlembo. In Barikiwa village the interviewed village members did not notice any seasonal differences in wildlife distribution. They said that elephants, jackals and monkeys are seen there throughout the year. In Kikulyungu and Mpigamiti villages the participants also perceive that animals moved to the village area from the forests of the Selous Game Reserve. In Mihumo and Likombora the most often mentioned source of wild animals was the Angai forest. This empirical data provides me with enough information to conclude that the villagers perceive a clear nature-culture border located between the cultivated fields and the forest border. Selous Game Reserve and Angai Forest Reserve are considered as places where wildlife belongs to and comes from to the fields and farms to do its damage. There were also some smaller



Figure 23. The map of Mihumo shows the location of forests and rivers where wildlife is mostly seen and from where the animals move into the village area.

forest where the wild animals were often seen and from where they approached the villages, like in the village map of Mihumo (Fig. 23.).

During the walks in certain parts of the studied villages, it was easy to identify and see where the cultivated field ended and where the forest started.



Figure 24. A clear borderline between the cultivated area and the forest of the Selous Game Reserve in Kikulyungu.

In some villages, such as Kikulyungu, the cultivated land reached very close to the border of the Selous Game Reserve (Fig. 24.)

However, this was not the case in all cultivated areas like the recently cleared areas for shifting-cultivation in Mpigamiti (Fig. 25.) which has a borderline between the forest and the field that is not so easily observed. These areas have just recently been shifted from natural to human spaces through felling the trees so they were in a phase of transition. The nature-culture borderline had just moved a few hundred meters towards the border of the uncleared forest in the figure below.

A study carried out by Maganga et al. (2003: 112) pointed out that villagers in the Liwale Wildlife Management Area (WMA) ranked the available natural resources based on the benefits or perceived values that people derive from these resources. According to their study, the highest ranked natural resource was

the forest followed by wild animals then by agricultural land. People in Liwale WMA value natural resources not only because of their direct use value but also for their existence value that is linked to the conservation of those resources. In my field study, I tried to get a more holistic view on the values of wildlife for people in Liwale WMA. During the village meetings and interviews a variety of species specific meanings and values were explained to me and that the importance of some wild animal species to the local communities can only be understood on the basis of beliefs and folktales. The spiritual importance of wildlife to locals is difficult to verify empirically because according to the stories from my interviewees some have had supernatural experiences with wild animals. The only way how I could assess the truth value of the information provided to me on the spiritual importance of wildlife to people was to observe the reactions and gestures from



Figure 25. A recently cleared shifting cultivation area in Mpigamiti.

other participants in the meetings. Many people considered an owl as a bird of ill omen and certain snake species seen on the road allegedly predicts a death or illness in the destination village. The villagers predicted the future for the next year by using the ground pangolin as their prognosticator and they therefore highly value this species. There were also many taboos regulating the use of certain antelope species in the villages. These cultural dimensions of wildlife to local communities are seldom considered in community-based conservation projects.

A low level of subsistence poaching was carried out in Kikulyungu village where people illegally hunt buffalo, hartebeest and wildebeest (Maganga et al. 2003: 94). Poached wild animal meat was also occasionally sold in the market of Liwale town during my visit there. Zebra and hartebeest meat could be found most often in the market even outside the official hunting period.

10.3. The perceived image of rural African landscape

The research and observation of the perceived nature-culture boundaries opened up some new questions which I wanted to also explore. I wanted to map out the elements and objects as well as animals which belonged to the images of the rural African landscape of the local communities. I wanted to find out which elements are integral parts of their perceived image and which elements are more exterior and not a strong part of their landscape image. I used a preformulated questionnaire (Appendix 1.) to study the associated meanings and contents of the rural

African landscape. This questionnaire was also delivered to district and region level officials who worked for the government and international NGOs. The aim was to study whether the human-wildlife conflicts in Liwale could partly be explained on the basis of differences in the perceived images of landscape between the ordinary villagers and those people who make decisions on wildlife management and nature conservation at the district and regional levels. The associated meanings and values as well as perceived contents of a place have an effect on behaviour and choices of acceptable actions among the stakeholders in rural development and wildlife conservation. If the perceived images of the rural landscape were uniform between the ordinary villagers and district or regional level authorities, the people-people conflicts related to wildlife conservation at the local level could not be explained on the basis of different values and associated meanings of places.

I analysed 183 questionnaires from the ordinary village members and 16 questionnaires filled out by district level and regional level civil servants. I calculated the average rank of each listed object and animal in the questionnaire for each village. There was big variation in the number of respondents between the villages which has to be taken into consideration when pondering the results. Each diagram shows the average rank of the selected objects ranked by the village members according to their perceived image of the rural African landscape. The closer the average rank is to number one, the more an integral part this object is of the person's perceived image of the rural African landscape.

The larger the rank is, for example 12, the more exterior is the object in the perceived image of the landscape. Thus those objects which have an average rank visualized close to the x-axis are the most integral to the locals' perceived image of rural landscape. Each village has its own average rank line visualized with an individual colour.

Fig. 26 shows a slight variation between the villages. Liwale B stands out clearly, but one has to keep in mind that their averages represent only three persons, so it cannot be considered very representative. Farm house and school building seem to be integral to the perceived images of rural landscapes. The lake object was a control object as there are no lakes in the Liwale district so it was assumed that the lake would not belong to people's perceived images of the rural landscape either. With this questionnaire I also wanted to see if the divide between the forest and

cultivated fields would be similarly obvious as in the open discussions and field walks but the result does not seem to be so clear here. Sorghum field ranks better than tree savanna, bush savanna and closed forest but the difference is not as high as I expected. This can be interpreted that shifting-cultivators do not perceive a huge difference between these objects in their image of the rural landscape. It was also interesting to see that vegetable gardens ranked quite low in the preferences of the respondents in Liwale. The civil servants' average ranks of objects show more variation between the district level authorities and the regional level authorities in Fig. 27. Tree and bush savanna and closed forest were ranked better by the regional level civil servants than the district level civil servants. However, the district level personnel ranked the farm house and the goat shelter as a more integral part of their perceived image of the

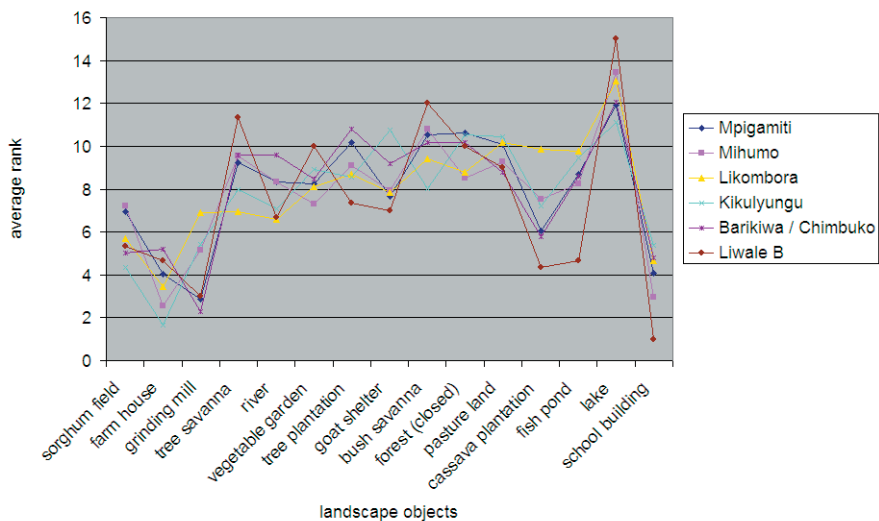


Figure 26. Objects ranked by their importance in the perceived image of the rural African landscape for the members of six studied villages in the Liwale district, Tanzania. The landscape object other is not depicted here because the respondents did not give any rank for the objects mentioned in this category.

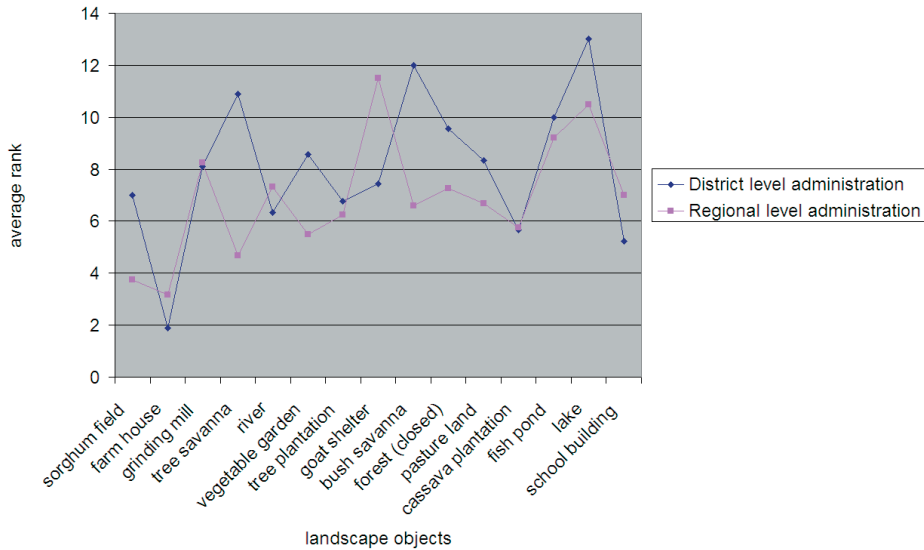


Figure 27. Objects ranked by their importance in the perceived image of the rural African landscape for the district and region level civil servants in the Liwale district, Tanzania.

rural landscape than did the regional personnel. The sample was small but it still indicates some differences in the associated meanings and content of places between these two groups of respondents.

Fig. 28. shows a combination of the average rank of all villages and those of the district and regional level civil servants. Here the big differences in the ranking of the tree savanna, the bush savanna and the closed forest are clearly evident. The district level civil servants rankings are much closer to those of the village averages in comparison to the rankings of the regional level civil servants. This may indicate that the perceived images of the rural landscape are quite different already at the regional level from those of local communities. This may lead to different land use preferences at regional level decision-making processes in comparison to those land use preferences that would be decided at the local level by the villagers.

10.4. Animals in the perceived image of African countryside

Similarly to the previously mentioned part of the questionnaire, the respondents were also asked to select certain animals from the list of preselected animals which would belong to their perceived image of the African countryside. They could also add their own choices of animals not found on the list. The villagers added a few animals in the category *other* into their lists, such as blue wildebeest, hippopotamus, horse and helmeted guineafowl in Mpigamiti, bees and rabbit in Mihumo, blue wildebeest, hartebeest, rhino, helmeted guineafowl, greater kudu, donkey, bush pig, eland and hyena in Kikulyungu, and hyena, wild cat, leopard and blue wildebeest in Barikiwa/Chimbuko.

The diagram of Fig. 29 shows that the overall ranking of animals according to their importance in the perceived image of the African landscape has been

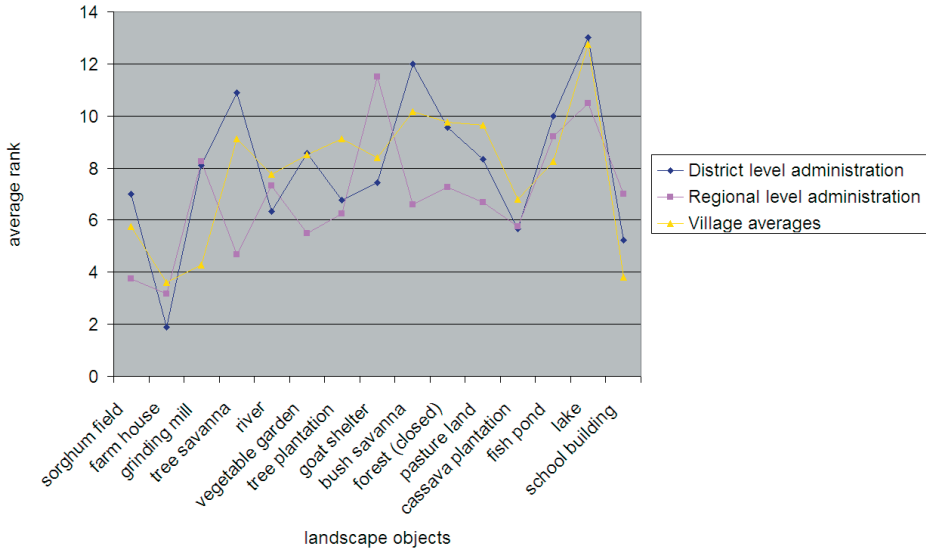


Figure 28. A combined diagram of the average ranks of the landscape objects.

quite similar in all villages. There are a few animals, such as the elephant, which have a wide variation in the average ranking between different villages. Goats, chicken and cattle have been ranked as an integral part of the perceived image of the countryside in all villages while baboons, warthogs and snakes are considered as exterior in the same setting. This supports the results of the open discussions where people mentioned species which they do not even want to see near their village areas. The average ranking of buffalo is almost identical to that of the sheep, so the people consider them both as animals belonging to their image of the countryside. Therefore it can be concluded that buffalos are seldom involved in human-wildlife conflicts in the Liwale district. The average ranking of the buffalo which is parallel to that of a domestic animal shows that the tolerance level of people to its presence in the rural African landscape is higher than for some other wild animal, such as warthog.

The comparison of the average rankings of animals between the civil servants of the two different levels, district and region, gives an interesting result (Fig. 30). Three animals stand out from the generally parallel results. These are the lion, the warthog and the baboon, which are given a higher rank in the perceived image of the African countryside by the regional level civil servants than by the district level civil servants. If these subjective preferences of animals belong to the perceived image of the countryside were directly transmitted to the wildlife management decisions made on the regional level, there would certainly be disagreements between the district and regional levels on the role of these animals in rural areas. Let's compare these average rankings with the combined average ranking of all studied villages next to see how big a difference exists between the stakeholder groups.

Here we can see that the villagers do not consider the elephant as such

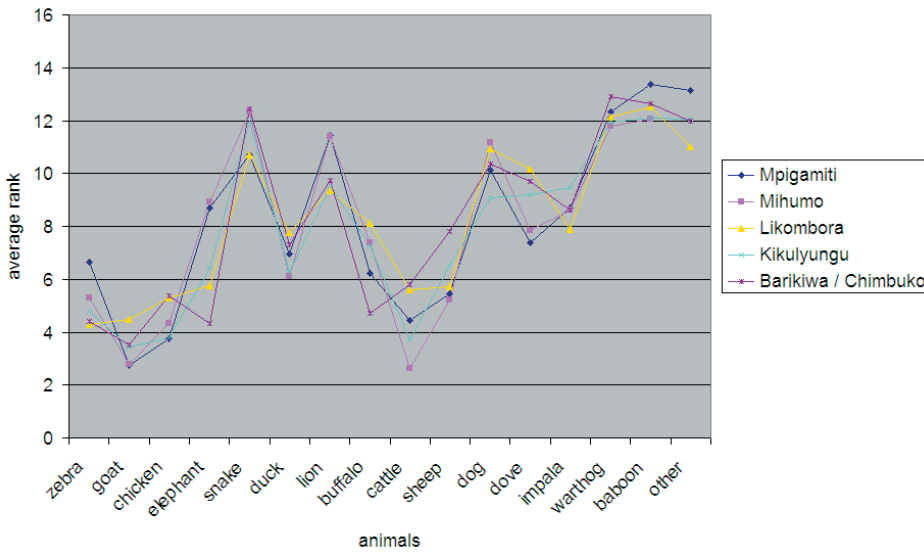


Figure 29. The important animals of the perceived image of the African countryside for the members of six studied villages in the Liwale district, Tanzania.

an integral part of the perceived image as the civil servants do, especially at the regional level. The villagers exclude snakes from their countryside image but not as strongly as the civil servants do. There is little variation in the cases of the zebra, the goat, the buffalo, the sheep, the dove and the impala. These can be considered as neutral species in the different countryside images among the compared groups of respondents. Fig. 31 shows that the regional level civil servants ranked the elephant, the lion, the dog, the warthog and the baboon with lower average ranks, meaning that these animals were more integral to their perceived image of countryside than for the other group of respondents. Persons who work at the regional level seem to position elephants and lions closer to their perceived image of the African countryside than the villagers and, if the regional level administrators make decisions on the basis of this image it may indicate conflicts in the management

and conservation of these two wild animal species in the rural areas.

10.5. Results of the Q-sorts of the civil servants

The final step in my field research was to use the Q- methodology to elicit a profile of deep attitudes of the district level civil servants and regional level civil servants in wildlife related issues. The selected key informants represented in the Q-sorts were persons who participated in decision-making of wildlife conservation and management at the district level and at the regional level. My objective of using the Q-methodology was to reveal any clear differences in the deep attitudes between the representatives of these two groups towards wildlife conservation and management. Their attitudes may serve as a mediator between the value orientation and behavioral intentions to perform certain activities in community-based conservation programmes in the

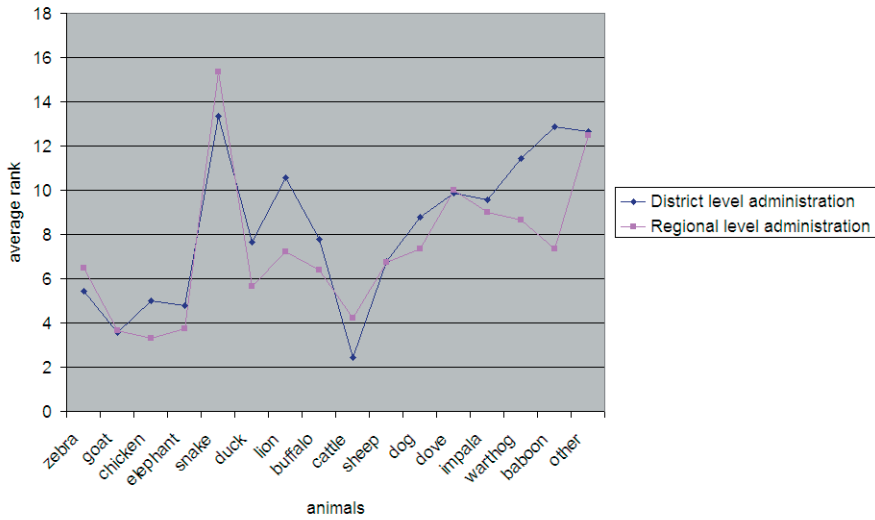


Figure 30. Animals ranked by their importance in the perceived image of the African countryside for the civil servants at the district and regional level.

Liwale district (Chapter 2.3.). Any clear difference between their deep attitudes could be used to explain some human-wildlife conflicts, especially those originating from struggles over different

ways of seeing wildlife in human and animal spheres in the study area. The 25 statements in the Q-methodology sorts were the following:

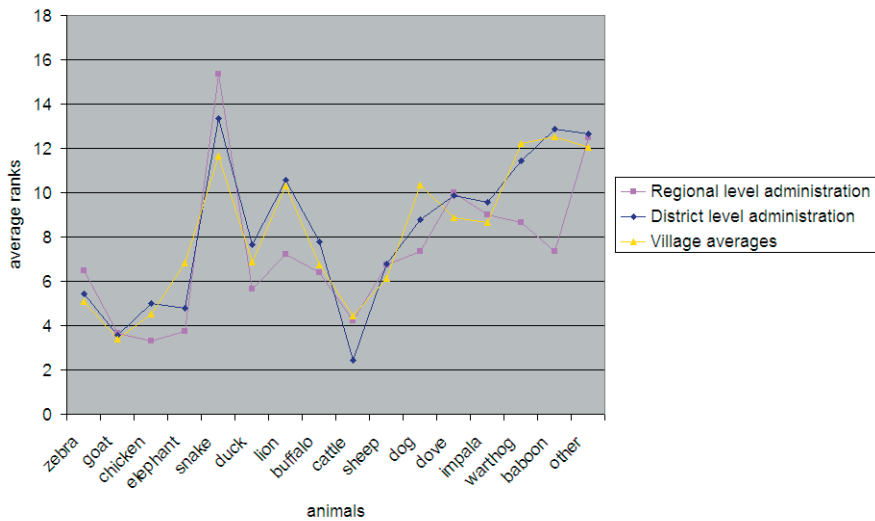


Figure 31. A combined diagram of the average ranks of the animals in the perceived images of African countryside among the villagers and civil servants at the district and region levels.

1. The size of wildlife population should be controlled through hunting.
2. Local people do not conserve wildlife if they do not have rights to use it.
3. Wildlife has only an instrumental value for rural people.
4. Wild animals are valuable because they are used by the people.
5. There should be more wildlife in rural areas so that local people would get meat.
6. Wildlife conservation is not successful without the involvement of local people and their needs.
7. Wild animals in rural areas are pests which should be hunted.
8. Wild animals are not important to rural people.
9. Wildlife should live in the forests, not in rural areas.
10. Human welfare is more important than wildlife conservation.
11. Rural villages need schools and extension services, not wildlife conservation programmes.
12. Tourism income should be used for rural development, not for wildlife conservation.
13. Wildlife populations are decreasing because of hunting.
14. Wildlife-viewing is an important source of tourism income for local people in rural areas.
15. Wildlife is disappearing because it is poached by the local people in rural areas.
16. The people should not disturb the order of nature but to let it function on its own way.
17. Rural people are backward and do not understand the ethical values of wildlife.
18. Rural people emphasize more the productive values of nature than its aesthetic values.
19. More wildlife should live in rural areas so that the tourists can come and watch them there.
20. Wildlife conservation is a valuable tool for rural development.
21. Large predators attract tourists to visit the rural area and bring income there.
22. Local people should have legal rights to use wildlife in community conservation programmes.
23. Wildlife conservation should be prioritized in rural areas – outside the protected areas.
24. Wildlife produces more income for rural people than domestic animals and crops.
25. Wildlife is the most valuable natural resource found in many rural areas.

I used a freely downloadable software *PQMethod* 2.11. version available from the web site <<http://www.lrz-muenchen.de/~schmolck/qmethod/>> to analyze the collected Q-sorts. The original FORTRAN program was created by John Atkinson at the Kent State University. This statistical programme is tailored for Q-methodology studies. With the help of this programme, I analyzed intercorrelations among the Q-sorts, factor analyzed the sorts with Principal Component Analysis and carried out a Varimax rotation of the resulting factors.

The aim of the factor analysis is to indicate certain types of attitudes towards wildlife conservation, and towards the role of wildlife in community-based

conservation and rural development. The emphasis is on the persons participating in decision-making of wildlife conservation and management at the district level and at the regional level. As a one part of the research hypothesis, human-wildlife conflicts are expected to partially originate from struggles over different ways of seeing wildlife in human and animal spheres. I assume that there are differences in the attitudes of decision-makers at these two regional levels. The management actions based on these attitudes produce confrontations in the role of wildlife in rural development in Liwale. The different types of attitudes indicated by the factor analysis would either confirm or reject this part of the hypothesis. Certain statements, such as 15–18 are strongly conservationist in character and aimed at revealing attitudes which support the non-consumptive use of wildlife. Statements 7–11 are strongly against the presence of wild animals in rural areas and aimed at revealing attitudes that oppose the existence of wildlife in the human sphere. In contrast, statements 1 and 3–5 are strongly anthropocentric in character and aim to reveal attitudes

that support the consumptive use of wild animals. Statements 19–21 and 23–25 strongly support the presence of wild animals in rural areas and are aimed at revealing attitudes that support the existence of wildlife in the human sphere. These six statements also highlight the role of wild animals in rural development. The hypothesis was thus tested by dividing the statements into categories of consumptive and non-consumptive use of wildlife and the categories of opposition and support of the presence of wild animals in rural areas (in the human sphere). In the end of the analysis, the PQMethod 2.11 programme produced tables on factor loadings, statement factor scores and listed the consensus statements as well as the discriminating statements. The factor analysis indicated also consensus statements, which did not distinguish between any pair of factors, were statements number 3, 4, 8, 14, 16, 20 and 23.

The factor analysis indicated four factors which were analyzed further. The highest positive standard scores of the four statements for each factor are shown below.

Normalized Factor Scores -- For Factor 1		
No.	Statement	Z-SCORES
6	Wildlife conservation is not successful without the involvem	2.090
22	Local people should have legal rights to use wildlife in com	1.891
20	Wildlife conservation is a valuable tool for rural developme	1.402
25	Wildlife is the most valuable natural resource found in many	1.219

Factor 1 represents an attitude which is parallel to the principles of the community-based conservation programmes. Participation of local communities in wildlife conservation, where they would have legal rights to utilize the wildlife resource, forms the cornerstone of such an attitude. Here wildlife conservation is seen as a valuable instrument for rural development and the presence of wildlife in rural areas is supported. This attitude has a strong anthropocentric dimension.

Normalized Factor Scores -- For Factor 2		
No .	Statement	Z-SCORES
21	Large predators attract tourists to visit the rural area and	1.960
12	Tourism income should be used for rural development, not for	1.470
22	Local people should have legal rights to use wildlife in com	1.470
5	There should be more wildlife in rural areas so that local p	0.980

Factor 2 represents a rather similar anthropocentric attitude towards nature and wildlife but places more emphasis on the wildlife related tourism income which would be used for rural development. This attitude has a stronger developmentalist dimension than factor 1. The legal rights of local people for using wildlife is a statement which also received positive standard scores in this factor which also supports the presence of wild animals in rural areas.

Normalized Factor Scores -- For Factor 3		
No.	Statement	Z-SCORES
17	Rural people are backward and do not understand the ethical	1.960
19	More wildlife should live in rural areas so that the tourist	1.470
23	Wildlife conservation should be prioritized in rural areas -	1.470
20	Wildlife conservation is a valuable tool for rural developme	0.980

Factor 3 represents an attitude which places more emphasis on the conservation of wildlife than on the rural development. The differences are small but reflect a slightly stronger conservationist attitude than the previous two factors. This attitude also contains a preference of the top-down management approach and places less emphasis on the participation of locals in wildlife management than the other factors do. The presence of wild animals in rural areas is strongly supported here.

Normalized Factor Scores -- For Factor 4		
No.	Statement	Z-SCORES
10	Human welfare is more important than wildlife conservation.	1.960
6	Wildlife conservation is not successful without the involvem	1.470
11	Rural villages need schools and extension services, not wild	1.470
14	Wildlife-viewing is an important source of tourism income fo	0.980

Factor 4 represents an attitude where rural development is considered more important than wildlife conservation. This factor has a strong developmentalist dimension. Such an attitude cannot be seen as a clearly anti-conservation type of an attitude because it acknowledges the importance of wildlife-tourism incomes to rural people. The attitude towards the presence of wild animals in rural areas is slightly opposing in this factor.

The four indicated factors do not confirm the original research hypothesis. The attitudes of the studied persons do not clearly fit into the distinctive categories set by the researcher. All the first three factors support the presence of wild animals in rural areas. The fourth factor is not strongly opposing the presence of wild animals in rural areas either. The factors do not clearly indicate any attitudes which would support the non-consumptive use of wildlife.

The analysis also provided distinguishing statements which indicated difference between any pair of the selected four factors. The distinguishing statements for each factor are shown on the next page.

The factor matrix (Table 9.) which indicated a defining Q-sort for each four factors shows that most of the regional level civil servants have high loadings for factor 1 while only three district level civil servants loadings indicate the same factor. Factor 1 is also clearly the most defining factor for the whole sample of respondents. All other factors get only one defining sort each while factor 1 gets eight defining sorts. As a result, I can say that the Q-sorts do not produce any revolutionary findings but confirm my assumptions about the acceptance of the principles of community-based conservation, especially among the regional level civil servants. Also the majority of the positive loadings of the district level civil servants highlight factor 1 which represents the attitude that supports the aims of these community-based conservation programmes. The Q-sorts do not show any big differences in the deep attitudes between the two studied groups. This means that there is not a strong difference in the attitudes

of the studied groups which might have been used to explain and indicate that human-wildlife conflicts in the Liwale district primarily originate from struggles over different ways of seeing wildlife in human and animal spheres. The results thus show that the people-people conflicts at the local, district and regional level in wildlife conservation are not an explaining factor for the human-wildlife conflicts in Liwale.

The Q-methodology may not be the best way to study stakeholders' attitudes towards wildlife in a relatively small geographical area. The variations in attitudes within a region and a district are not as distinctive and clear as one may assume at the beginning of a study. It would have been interesting to use the Q-methodology among the local villagers, and laymen who were not involved in decision-making related to wildlife conservation. Unfortunately, the language problems provided insurmountable difficulties for using the Q-methodology in the villages. The role of the interpreter would have been too big in explaining and organizing the statements so I decided to leave this method only for the district and region level administrative personnel.

10.6. Discussion

This study provides a holistic view of human-wildlife conflicts in Liwale. The theoretical part of the study describes the historical, geographical, economical, ecological, political, social, psychological and religious backgrounds of these conflicts. It is necessary to study human-wildlife conflicts from various angles using an interdisciplinary approach in order to get a broader picture of the

Distinguishing Statements for Factor 1									
(P < .05 ; Asterisk (*) Indicates Significance at P < .01)									
Both the Factor Q-Sort Value and the Normalized Score are Shown.									
		Factors							
No.	Statement	1		2		3		4	
		rank	score	rank	score	rank	score	rank	score
1	The size of wildlife population should be controlled through	1	0.60*	-4	-1.96	-2	-0.98	-2	-0.98
12	Tourism income should be used for rural development, not for	-3	-1.25*	3	1.47	1	0.49	0	0.00
11	Rural villages need schools and extension services, not wild	-3	-1.64	-1	-0.49	0	0.00	3	1.47

Distinguishing Statements for Factor 2									
		Factors							
No.	Statement	1		2		3		4	
		rank	score	rank	score	rank	score	rank	score
21	Large predators attract tourists to visit the rural area and	-1	-0.37	4	1.96	1	0.49	1	0.49

Distinguishing Statements for Factor 3									
		Factors							
No.	Statement	1		2		3		4	
		rank	score	rank	score	rank	score	rank	score
17	Rural people are backward and do not understand the ethical	-2	-0.79	-2	-0.98	4	1.96*	-1	-0.49
15	Wildlife is disappearing because it is poached by the local	0	-0.24	0	0.00	-3	-1.47	1	0.49

Distinguishing Statements for Factor 4									
		Factors							
No.	Statement	1		2		3		4	
		rank	score	rank	score	rank	score	rank	score
10	Human welfare is more important than wildlife conservation.	-1	-0.46	1	0.49	-1	-0.49	4	1.96
11	Rural villages need schools and extension services, not wild	-3	-1.64	-1	-0.49	0	0.00	3	1.47
19	More wildlife should live in rural areas so that the tourist	0	-0.12	1	0.49	3	1.47	-3	-1.47*

Table 9. A factor matrix indicating the loadings of the respondents for each four factors.

Factor Matrix with an X Indicating a Defining Sort					
	Loadings				
QSORT	1	2	3	4	Civil servant level (DL = district level, RL = regional level)
1 TZ1	0.3451	0.7522X	0.3719	0.1417	DL
2 TZ2	0.1124	0.3739	0.6461X	-0.1316	DL
3 TZ3	-0.0246	-0.5172	0.5723	0.2474	DL
4 TZ4	0.6625	-0.0079	-0.0956	-0.1539	DL
5 TZ5	0.3187	0.2196	0.0024	0.8806X	DL
6 TZ6	0.6292X	0.2477	0.1020	0.0502	DL
7 TZ7	0.5795	0.5507	-0.0816	-0.0948	DL
8 TZ8	0.5448	-0.1336	0.4309	-0.0875	DL
9 TZ9	0.3369	-0.3188	0.1761	0.2869	DL
10 TZ10	0.5821	-0.3507	-0.4973	0.0845	DL
11 TZ11	0.7482X	-0.2652	-0.3004	0.0213	DL
12 TZ12	0.6179X	-0.4488	-0.1301	0.1137	DL
13 TZ13	0.5839	0.2283	-0.4616	-0.0596	DL
14 TZ14	0.6706X	-0.2173	-0.1294	0.0093	RL
15 TZ15	0.5171	-0.2961	0.1272	-0.0203	DL
16 TZ16	0.8393X	0.0195	0.1120	-0.2587	RL
17 TZ17	0.7232X	0.4223	-0.1174	-0.0729	RL
18 TZ18	0.8270X	0.0133	0.0488	-0.0173	RL
19 TZ19	0.3185	-0.5404	0.4633	-0.2345	RL
20 TZ20	0.6588X	0.0165	0.3837	0.0459	RL
% expl.Var.	33	13	11	6	

current situation. It is obvious that there is no single cause for the human-wildlife conflicts in Liwale but several synergic causes influence these conflicts. In practice, the holistic examination and understanding of human-wildlife conflicts is often missing in community-based conservation projects because politicians, wildlife managers and international NGOs who administer and manage these initiatives tend to rely on expertise from single disciplines, such as economics, biology and sociology. Even though these experts work in groups

and interact with one another to ensure that all points of views are taken into consideration when implementing the initiative, there are still many important areas left uncovered. Anthropology, history and philosophy are seldom at the core of the planning processes of community-based conservation projects. New animal geography has raised interest in studying the exclusion and inclusion of certain animals from particular places. My study follows a similar trajectory and uses perceived images of rural landscapes to explain why conflicts are

so common in the integration of wildlife conservation and rural development. The perceived location of the nature-culture borderland is an important element for questions of the exclusion and inclusion of certain wild animals in particular rural landscapes. The aim of the farmers is to maintain order and biosecurity in the spaces designated for agricultural production. The presence of crop damaging wildlife or dangerous predators does not fit into their socially constructed agricultural spaces and as a result a human-wildlife conflict may come into existence. The spatial dimension of human-wildlife conflicts has not received much attention in community-based conservation and this study makes some new contributions to the discourse. This study hopefully demonstrates that there is a growing need for a more broad examination of the existing human-wildlife conflicts around the world. The spatial dimension of these conflicts is often overshadowed by the political, economical and ecological dimensions which are commonly dealt within the literature on nature conservation. All human encounters with wild animals take place in spaces which are socially constructed. In this study the spatial characteristics of human-wildlife conflicts were explored through perceptions, order and biosecurity in a hierarchy of spaces.

The empirical part of the study indicates that the Selous Conservation Programme has increased the knowledge of the local communities on the importance of wildlife conservation. This became clear during the village meetings. The members of the villages participating in the meetings mentioned that species, such as elephants, buffalos,

lions, hippopotami and leopards are important to them because they receive income through safari-tourism and meat from the culled animals. The most important wild animal for meat was the buffalo. The villagers often mentioned that lions, leopards, elephants, hippopotami, hyenas and buffalos are valued by the tourists and thus create indirect income for the communities participating in the Selous Conservation Programme. However, these same animals are on the list of animals that people do not want to see in their villages because these species cause crop damage, kill and injure domestic animals and people. This inconsistency, however, raises a question of the importance of the principles and aims of the community-based conservation project to the local communities. Reliance on foreign tourism income and the resulting incentives for the communities are the prerequisites for the community-based conservation projects in Liwale and elsewhere in Tanzania. The tourism industry is very sensitive to regional and national crises, such as political turmoil, armed conflicts or natural hazards. There are some doubts about the sustainability of community-based conservation projects which place too much reliance on tourism income only.

The rural communities in Liwale have a long history of co-existing with wildlife and they still have traditional knowledge of wildlife management and hunting. The controlled direct utilization of wildlife could be developed more in community-based conservation. Traditional beliefs and taboos have been one of the means to control local wildlife use but these beliefs have today lost some power among the younger generation.

Hunting quotas, regulations and laws have largely replaced the traditional wildlife management practices of the local communities. However, poaching has not disappeared despite the establishment of several educational campaigns and the community-based conservation project. Poaching may be explained as local actions for restoring order and biosecurity in the agricultural landscapes by individual people. In addition, poaching can be a consequence of power struggles around defining the critical nature-culture borderlines in the agricultural landscapes. Poaching can also be seen as a means of resistance towards existing wildlife laws. Meat is regarded as the most important direct output from wild animals by the local communities. It is difficult to substitute wild animal meat with any other types of incentives, except with money. Aesthetic and ethical values of wildlife are not totally absent in the villages but these do not play an important role in the daily survival of the rural inhabitants. The incentives for participating in wildlife conservation must be tangible and help the villagers to cope with crop loss and domestic animals deaths caused by wildlife.

The observed human-wildlife conflicts in Liwale occur when certain wild animal species, such as lions, leopards, elephants, hippopotami and hyenas, enter into the cultivated areas, farms and villages from the Selous Game Reserve and from the Angai Forest Reserve. Chapter 10.1. demonstrates that there are also wild animal species, such as zebras, wildebeests and hartebeests, which do not cause conflicts even when roaming in the cultivated areas and farms in Liwale. This finding does not,

however, challenge the framework model of critical nature-culture borderlines (Fig. 12) but requires some more explanation. Local villagers tolerate the presence of zebras and wildebeests in the cultivated areas more than the presence of elephants and lions because the former species do not cause as much damage to crops and domestic animals as the latter species. All these species are considered as wild animals living in forests and uncultivated areas but zebras and wildebeests are regarded as less out of place when roaming in the cultivated areas than elephants and lions found in the same areas. Thus, the nature-culture borderline is a dynamic one. The reactions of locals towards wild animals crossing the borderline and moving inside the human sphere varies according to the species, perceived outcomes (damages) and the spatial hierarchy. The closer to the human body the wild animal moves, the more out of place it is considered to be and as a result, the stronger the human-wildlife conflict will evolve. The members of villages who participated in the discussions usually mentioned a clear distinction between forests and cultivated land. They continuously explained how wild animals move out from the forests, encroach their crop fields and farms and cause damage there before returning back to the forests. According to the statements of the villagers, the nature-culture borderline often corresponds with the boundary between the forest and the field. This was not surprising because most villagers in Liwale are shifting cultivators and small-scale farmers whose livelihood is mainly based on transforming forests into cultivated lands. At certain stages of the transformation process, the

boundary between the forest and the slashed and burned field, were far from clear for the researcher. However, the villagers identified the area as a field once the trees and bushes were cut. After a few years of cultivation these fields are abandoned and the forest is allowed to return slowly to its former stage. Due to this kind of lifestyle, I expected that the nature-culture borderline would not be so distinctive for the locals but to have many more grey areas where both entities overlap. This may have been the case immediately after the beginning of the transition of the communities from hunter-gatherers to agriculturalists. Today, many rural inhabitants in Liwale are under the influence of ideas on the dualism of nature and culture with the process of modernization. Similarly, the perceived norms and structures of the inhabited space are being modified and renewed in this process. The old man described in the prologue, lived far away from the core village and tolerated the presence of a pack of elephants in the immediate surroundings of his poorly fenced farm house. For him it was not conflicting that the elephants roamed so close to the farm. They have always done so, according to the old man. His farm is located inside a forest, so the wooden fence creates the only nature-culture boundary that can be identified there. Locals who live in the core of the village usually perceive that it is the village boundary that separates them from nature. The human sphere does not end at the village boundary but extends further away from the village all the way to the distant farms and cultivated fields on the edge of the forest. There seems to be some differences in the associated meanings and contents of the perceived

images of rural landscapes between locals and those making decisions on wildlife conservation and rural development at the regional level. It would be interesting to also study these perceived images among the civil servants at the national level and among people who administer the international wildlife conservation programmes. The differences in these images might even be bigger as the level of inquiry moves higher up in the regional hierarchy.

This study shows that the human-wildlife conflicts in the Liwale district are manifold and cannot be explained simply on the basis of attitudes or perceived images of landscapes. Slight differences in the respondents' perceived images of the African countryside indicate that the villagers do not share completely similar views on the content of the human sphere with the respondents operating at the regional level. The villagers perceive some wild animals differently in their images of the African countryside than the district and regional level civil servants do. Small-scale subsistence farmers' livelihood depends on the annual crop harvest and in the Liwale district many people live in a constant risk of losing that harvest to crop raiding wild animals. Like the title of this study suggests, wild animals are considered as beasts when they are found in the fields. This negative term is often attached to wild animals that are out of place, meaning that they are found in human spaces where they should not be according to the observer's social constructions. Elephants and large predators also occasionally threaten the lives of locals in Liwale, so there are certain biosecurity risks caused by their presence in the village areas. The

biosecurity risk in the villages of the Liwale district is much higher than in the case of the sheep farmers in the French Alps described by Buller (2008). In the Liwale district, there are many more large predators and large mammals which continuously invade the fields and attack people and their livestock in the farms. As this study has shown, the wild animals do not confine themselves to the spaces designated for biodiversity, such as the Selous Game Reserve, in which the humans try to keep and secure them. On the contrary, wild animals continue to challenge the separation of the wild and the domestic spaces by moving across their perceived borders in search of food and shelter. As a result, the small-scale farmers may lose their crops, property, livestock or even their own lives in the confrontations with wild animals. These biosecurity risks are, however, much lower in the district capital and in the regional capital where the interviewed civil servants work and mainly live. The perception of biosecurity risk in the lived space may explain the reasons for human-wildlife conflict in the Liwale district. Buller (2008: 1595) writes that the biological and evolutionary aims of people at self-preservation and self-security are no less human than the culturally and emotionally enhanced objectives of preserving biodiversity.

Naughton-Treves and Treves (2005: 253) reported that people's perception of risk is as important as actual losses. People's perceptions usually focus on rare and extreme damages, such as those caused by elephants and other large wild animals, rather than on common small losses, such as damages caused by rodents and birds, which may be cumulatively greater. Frank et al. (2005: 293) write

that locals' tolerance for predators is not always in line with the true impact of those animals on their livelihoods. Gore et al. (2006: 37–39) studied stakeholder perceptions of risk associated with human-black bear conflicts in the U.S.A. and they defined nine constructs used in human-bear risk assessments. These constructs were:

- volition (intentional or deliberate exposure to the risks from these animals)
- certainty (individuals' certainty about the causes of the exposure to risks and their prevention)
- dread (feelings of anxiety, worry or fear regarding exposure to risks from black bears)
- frequency (individually felt frequency of the exposures to these risks)
- responsiveness of decision-makers (managers' reactions to individuals' exposure to risks)
- trust in decision-makers (degree of individuals' belief in managers' ability to manage risks)
- familiarity (familiarity of these risks to individuals; common, first timer)
- natural causes (environmental or human-induced factors causing the risks from black bears)
- control (individuals' abilities to prevent exposures to these risks)

These nine constructs may be helpful for this study if generalized to cover a wide range of different wildlife species and partially used to explain the risks that underlie human-wildlife conflicts in the Liwale District in Tanzania. Risk perception may influence people's beliefs, attitudes and support for

wildlife management goals as well as their behaviour towards wild animals and adoption of educational messages (Knuth et al 1992, cit. Gore et al. 2006: 37). Gore et al. (2006) created a scale from one to five for the evaluation of perceptions of risk associated with human-black bear conflicts in the Adirondack Park in the U.S.A. Number one represents a minimal and number five a maximal risk perception by the participants. Number three is the neutral value so numbers smaller than three represent a low risk perception while the numbers higher than three represented a high risk perception. I did not collect similar samples of data nor did I carry out principal component analysis as the researchers in Adirondack did but want to use their construct model to map out the situation in the Liwale district in relation to the existing information from written reports, articles and data collected during the participant observation in the area. In principle these nine constructs could be applied to any large mammal species found in the vicinity of villages in Liwale but I chose two wild animal species which are perceived as the two most dangerous by the village members I interviewed during my stay in the six villages in the Liwale district in 2002. These wild animals are the lion and the elephant. For the first construct *volition*, one might conclude that villagers' exposure to lions and elephants is mostly involuntary as they have to carry out their daily activities, such as farming, and collecting water and firewood, in an area which is also the habitat of these wild animal species. They share a high risk perception of being attacked by a lion when walking to school or to the well or by an elephant when chasing away these

crop raiding animals from their fields. For the second construct *certainty* there is also a high risk perception among the villagers as they seem to be unsure of how to prevent exposure to these dangerous animals. In the case of man-eating lions in 2003, local schools were closed for two weeks and people were afraid of walking outdoors until the game guards succeeded in hunting down the two female lions responsible for the killings of people in Liwale. Chasing away crop raiding elephants is essential for the protection of family subsistence so there are currently no alternatives to that kind of exposure to elephants. The three following constructs, dread, frequency and familiarity can be dealt with together as they all involve high risk perception by the locals. Although most people whom I interviewed and met in Liwale district shared at least some worry about being attacked by lions or elephants when working in the field or walking across the forested areas, they were not hysterical or paralyzed by this fear. There seemed to be nothing exceptional about it. Neither was there any clear period when exposures were greater or less frequent so the risk was perceived common and repeated at all times around the year. People were familiar with these risks and could name a neighbour or even point out a person in the meeting who has experienced or witnessed such an exposure to a lion or an elephant. Responsiveness and trust in wildlife managers were less clear than other constructs mentioned. Some villagers complained that the local authorities responsible for carrying out problem animal control and protecting locals from dangerous wild animals did not arrive in time to take care of the

situation. A few villagers told me that in some cases the wildlife officials did not respond at all because they do not have enough resources. In some villages I was told that it can take even two weeks before any game scouts arrive to kill problematic elephants or lions. People also have historical reasons for not trusting wildlife managers. However, many people appeared to have a neutral attitude towards wildlife management due to the collaboration with the Selous Conservation Programme. It was generally perceived by the villagers that natural causes, such as the increase of lion and elephant populations due to conservation activities, do not solely explain the conflicts. These causes were most often emphasized but in several discussions there were participants who acknowledged that humans also destroy the habitats of these animals and establish new fields in the remote parts of the villages where they are more easily encroached by the wild animals. Finally, some members of the villages I visited seem to have put a lot of faith into the success of the new natural resource management programmes in the Wildlife Management Areas to reduce the conflicts. Apart from the WMA, they do have very few other legal alternatives to cope with these wildlife conflicts in Liwale. As a conclusion, I can say that for most defined constructs there is a high risk perception among the locals that could be represented on a scale from one to five as a four. The established Wildlife Management Areas will actually constitute a new relational space where the domesticated and the wild overlap. In these spaces the nature-culture dualism becomes blurred and the spatial frontiers between wild spaces

and domestic spaces lose their clarity. The WMAs will become buffer zones or transition zones that will stretch the immediate contact surface of nature and culture and increase the capacity of this perceived borderline to enhance biosecurity and sustain encroachment from both sides.

The success of the Wildlife Management Areas in the Liwale district remains unclear at the moment. A further study on the community-based conservation projects in south-eastern Tanzania is required before more concrete conclusions can be drawn. This study has provided many insights into the human-wildlife conflicts in Liwale and elsewhere in the world. It has made me evermore curious about the spatial characteristics of these conflicts. I still feel now that I have only scratched the surface of the topic as so many elements still remain uncovered. Locating perceived nature-culture borderlands into georeferenced space with participatory GIS (Geographical Information Systems) and GPS (Global Positioning System) receivers would allow a more detailed analysis of the formation and limits of these borderlines. This technology would also enable an accurate location of the existing wildlife damages so that the results could be used for examining the movement of wild animals inside the human sphere. Such data could be used to model the conflict-prone areas in the villages and to assist in land use planning so that fields would not be established in the migration routes of wild animals. Further studies on the spatiality of human-animal conflicts would also help to make community-based conservation projects more sustainable.

Epilogue

The twenty-two players of the national soccer teams of Belgium and Finland stared towards the other end of the football field of the Helsinki Olympic Stadium where the scapegoat for the interruption of the European Qualifying Match sat quietly on the crossbar of the goal. One of the five Eurasian Eagle Owls *Bubo bubo*, which live in the center of the Finnish capital town had amazingly appeared in the middle of an international football match, flew over the field and made sudden dashes against some players. Once it landed again, it was turning its head around while looking at the cheering crowd of tens of thousands of spectators, who had invaded its privacy and made noise in its urban habitat. The referee had to blow his whistle and stop the game for some time before the huge bird of prey decided to leave the grounds of the Olympic Stadium and fly to a quieter place to rest. What made this human-animal encounter really exceptional was not only the space where it took place but also the time when it happened. Although, it is not so rare anymore to see Eurasian Eagle Owls in some of the European capital cities in year 2007, most of the people in the audience saw this majestic predatory bird in the wild for the first time in their lives. The players were not accustomed to watch out for the attacks of a wild animal while playing soccer in the largest stadium in the middle of a city. The Eurasian Eagle Owl is the largest of all owls in northern Europe and it usually lives in remote forest areas far away from the urban areas. This individual had found a habitat and enough prey species, such as pigeons,

rats, mice, rabbits and hare in the vicinity of city centre. The Finnish national team won the match and the wild predatory bird, which earlier interrupted the game, was considered almost as a national hero and was selected as a mascot for the Finnish soccer team. It was publicly believed that the owl made the Belgian players nervous by showing up during the middle of the game and helped the Finnish team to score their first goal right after it flew away from the football field. The Finnish national football team also received a new nickname according to the Finnish name of the Eurasian Eagle Owl, namely *Huuhkajat*. This individual owl was named as Bubi by the media and by the public. The name is derived on the one hand from the scientific name of the species and on the other hand from the nickname of one of the most well-known sport commentators in Finland, who is also often seen at the Olympic Stadium during different sport events. This Eurasian Eagle Owl is now occasionally seen in Helsinki and it was nominated as the Citizen of the Year in Helsinki by the board of 100 journalists this year (Helsingin Sanomat 18.12.2007).

This example describes one peaceful human-animal encounter in the nature-culture borderland. The Eurasian Eagle Owl had arrived into a place, the Olympic Stadium, which is defined and perceived as a man-made artificial environment. A wild animal had crossed the culturally constructed border between nature and culture. The owl was certainly *out of place*. It was now in a place which should not contain any other animals except those which are regarded as pets by humans. For the predatory bird, however, the Olympic Stadium was part

of its modern urban habitat. Thousands of people were able to witness the first outcomes of the process, which Jennifer Wolch (1988: 124–125) call the re-naturalization of the re-enchanted city *zoöpolis*. She writes that in urban nature, people are protected from all nature's dangers and are about to lose any sense of wonder of the non-human world. In the *zoöpolis*, animals are not killed or confined to zoos but are valued as neighbors and partners in survival. Now, the soccer fans were able to wonder in awe at one of the largest predatory birds in the country.

The predatory bird's sudden appearance in the middle of the match was beyond the control of humans. There were no game guards available to chase the bird away and not even the police knew how to solve the situation. This was the first situation of this kind in Finland so there were not any security plans available for wildlife problems. For a while, the football players or the referees were not able to practice their profession because it was not safe or comfortable due to the flying and dashing predatory bird overhead. What if the owl would have not left the stadium at all and the game would have been cancelled? How would the audience have felt if Finland would have lost the match? What kind of front page news would the newspapers have written if the owl had injured a player on the field or attacked a child in the audience? Luckily, the owl encounter did not even turn into a human-wildlife conflict where the owl itself may have been injured or killed. The Eurasian Eagle Owl received a protected species status in Finland in 1983. At the end of the 19th century and during the two first decades of the 20th century, Eurasian

Eagle Owls were intensively hunted and disliked across the country. The species was considered as a major threat to forest game birds and to some other game animals as well. The government even paid fees for the hunters for each killed Eurasian Eagle Owl. Now the Eurasian Eagle Owl has become a local celebrity and a legend, which attracts tourists to visit the Olympic Stadium in Helsinki.

I would like to end this epilogue with a what-if-scenario, which symbolically describes and relates the Eurasian Eagle Owl case with the reality of wildlife conservation in the eyes of rural Africans. Let me speculate with a vision where two influential international conservation organizations start to pressure the Finnish government with a couple of European countries to protect the urban habitat of the endangered Eurasian Eagle Owl. These organizations have already started a process in the High Court of European Union to sue the government of Finland for allowing its citizens to disrupt the habitat of the owl by organizing noisy concerts and sport events at the Olympic Stadium. The conservation organizations have also arranged international boycotts for Finnish products to support the preservation of the Olympic Stadium for the Eagle Owl. The government of Finland finally has to give up and demarcate the Olympic Stadium as a protected area where access is only granted for high-paying foreign tourist and national elite coming there to watch the owl. Local inhabitants cannot enter the area without a special permit from the Ministry of Culture. If locals trespass the protected Olympic Stadium area, they will be arrested as poachers. Local communities protest against the decision and say that their cultural

heritage and national symbol is taken over by foreigners and demand to have an access to the stadium. During the next few years, the Eurasian Eagle Owl population has not increased in Helsinki area as scientists and conservationists had hoped for. There is some proof that locals had killed two owls while protecting their pets from the attacking owls. The international conservation organizations launched a world-wide money-raising campaign to fund the establishment of additional protected areas for the owls in Helsinki. The government of Finland faces severe critique from the opposition parties for approving the establishment of one new protected area in Hietaniemi graveyard, and two buffer zones in Hesperia Park and Töölönlahti area. The location of these buffer zones were selected by a group of Brazilian scientists and ministers who considered that these two areas very well represented the Finnish natural landscape and by limiting human activities these areas could be kept in their natural state. All human activities are prohibited in the Hietaniemi graveyard and locals have no rights to access the area, even though some of the presidents, ministers, national poets and authors as well as priests and other important people are buried there. Only foreign tourists have the right to access the area. In the buffer zones, the new land use plans prohibit all sport activities, art performances, removal of trees and grasses and restrict the access of pets in the area.

References

- Adams, W. & D. Hulme (2001). Conservation & Community: Changing Narratives, Policies & Practices in African Conservation. In Hulme, D. & M. Murphree (eds.): *African Wildlife & Livelihoods. The Promise & Performance of Community Conservation*, 9–23. James Currey Ltd, Great Britain.
- Akama, J. S., C. L. Lant & W. G. Burnett (1995). Conflicting Attitudes Toward State Wildlife Conservation Programs in Kenya. *Society and Natural Resources* 8, 133–144.
- Alcorn, J., R. K. Asukile & B. Winterbottom (2002). Assessment of CBNRM Best Practices in Tanzania. Final Report. EPIQ / USAID Tanzania, Washington D.C., U.S.A.
- Allison, L. (1991). *Ecology and Utility. The Philosophical Dilemmas of Planetary Management*. 185 pp. Leicester University Press, London.
- Anderson, D. & R. Grove (1987; eds.). *Conservation in Africa: peoples, policies and practice*. 305 pp. Cambridge University Press, Cambridge.
- Anderson, K. (1995). Culture and nature at the Adelaide Zoo: at the frontiers of 'human' geography. *Transactions Institute of British Geographers* 20, 275–294.
- Anderson, K. (1997). A walk on the wild side: a critical geography of domestication. *Progress in Human Geography* 21: 4, 463–485.
- Andersson, B. (1983). *Imagined Communities: Reflections on the Origin and Spread of Nationalism*. Verso, London, U.K.
- Armstrong, P. (2002). The Postcolonial Animal. *Society & Animals* 10: 4, 413–419.
- Baland, J.-M. & J.-P. Platteau (1996). *Halting degradation of natural resources. Is there a role for local communities?* 423 pp. FAO. Clarendon Press, Oxford, U.K.
- Baldus, R. D. (1989). Village Participation in Wildlife Management. Introducing Communal Wildlife management in the Mgeta River Buffer Zone North of the Selous Game Reserve. SCP Discussion Paper No. 4. Selous Conservation Programme / GTZ, Dar es Salaam, Tanzania.
- Baldus, R.D. (1990; ed.). Sustainable Management of Natural Resources in the Liwale Bufferzone. SCP Discussion Paper No. 10. Selous Conservation Programme / GTZ, Dar es Salaam, Tanzania.
- Baldus, R. D. (1991; ed.). Community Wildlife Management Around the Selous Game Reserve. SCP Discussion Paper No. 12. Selous Conservation Programme / GTZ, Dar es Salaam, Tanzania.
- Baldus, R.D. (1992; ed.). Natural Resource Management by Self-help Promotion (RMSH). A Case Study for the Selous Conservation programme. SCP Discussion Paper No. 14. Selous Conservation Programme / GTZ, Dar es Salaam, Tanzania.
- Baldus, R. D. (2000). Wildlife Conservation in Tanganyika under German Colonial Rule. GTZ Wildlife Programme in Tanzania.
<<http://www.wildlife-programme.gtz.de/wildlife/download/colonial.pdf>>
Read 11.3.2002

- Baldus, R.D. (2001). Introduction: Conservation by the People. *In* Baldus, R. D. & L. Siege, (eds.): Experiences with Community-based Wildlife Conservation in Tanzania, 1–4. Tanzania Wildlife Discussion paper No. 29. Wildlife Division, GTZ Wildlife Programme in Tanzania. GTZ, Dar es Salaam.
- Baldus, R. D. (2002). Bushmeat: Some Experiences from Tanzania. *Kakakuona / Tanzania Wildlife* 25, 22–23.
- Baldus, R. D. (2004). Lion Conservation in Tanzania Leads to serious Human-Lion Conflicts with a Case Study of a Man-Eating Lion Killing 35 People. Tanzania Wildlife Discussion Paper No. 41. GTZ Wildlife Programme in Tanzania, Wildlife Division. Dar es Salaam, Tanzania.
- Baldus, R.D. & A. E. Cauldwell (2004). Tourist Hunting and Its Role in Development of Wildlife Management Areas in Tanzania. Paper presented at the Sixth International Game Ranching Symposium in Paris, France 6–9 July 2004.
- Baldus, R. D., F. Lierse & U. Schüler (1988). Conflicts between wildlife and people. Village Development Planning for Three Settlements bordering the Selous Game Reserve. Selous Conservation Programme Discussion Paper No. 3. GTZ, Dar es Salaam, Tanzania.
- Baldus, R. & L. Siege (2002). *Selous Game Reserve. The Travel Guide*. East African Movies, Dar es Salaam, Tanzania.
- Barnes, R. F. W., G. C. Craig, H. T. Dublin, G. Overton, W. Simons & C. R. Thouless (1999). *African Elephant Database 1998*. Occasional Paper Series of the IUCN Species Survival Commission No. 22. IUCN / SSC African Elephant Specialist Group. IUCN, Gland Switzerland and Cambridge, UK.
- Barrow, E. & M. Murphree (2001). Community Conservation – from Concept to Practice. *In* Hulme, D. & M. Murphree (eds.): *African Wildlife & Livelihoods. The Promise & Performance of Community Conservation*, 24–37. James Currey Ltd, Great Britain.
- Bassett, T. J. (2005). Card-carrying hunters, rural poverty, and wildlife decline in northern Côte d'Ivoire. *The Geographical Journal* 171: 1, 24–35.
- Beck, U. (1990). *Riski yhteiskunnan vastamykyt*. 274 pp. Vastapaino, Tampere.
- Belsky, J. M. (2000). The Meaning of the Manatee: An Examination of Community-Based Ecotourism Discourse and Practice in Gales Point, Belize. *In* Zerner, C. (ed.): *People, Plants & Justice. The Politics of Nature Conservation*, 285–308. Columbia University Press, New York, U.S.A.
- Bennett, C. F. Jr. (1960). Cultural Animal Geography: an Inviting Field of Research. *The Professional Geographer* 12: 5, 12–14.
- Bennett, E. L. & J. G. Robinson (2000). *Hunting of Wildlife in Tropical Forests. Implications for Biodiversity and Forest Peoples*. Impact studies paper no. 76. Biodiversity Series. The World Bank / The Wildlife Conservation Society, Washington D.C., U.S.A.
- Bergin, P. (2001). Accommodating New Narratives in a Conservation Bureaucracy. TANAPA & Community Conservation. *In* Hulme, D. & M. Murphree (eds.): *African Wildlife & Livelihoods. The Promise & Performance of Community Conservation*, 88–105. James Currey Ltd, Great Britain.

- Berkes, F. (2004). Rethinking Community-Based Conservation. *Conservation Biology* 18: 3, 621–630.
- Blanc, J. J., R. F. W. Barnes, G. C. Craig, H. T. Dublin, C. R. Thouless, I. Douglas-Hamilton & J. A. Hart (2007). *African Elephant Status Report 2007: an Update from the African Elephant Database*. Occasional Paper Series of the IUCN Species Survival Commission No. 33. IUCN / SSC African Elephant Specialist Group. IUCN, Gland Switzerland.
- Brandenburg, A. M. & M. S. Carroll (1995). Your Place or Mine? The Effect of Place Creation on Environmental Values and Landscape Meanings. *Society and Natural Resources* 8, 381–398.
- Brosius, P., A. Tsing & C. Zerner (1998). Representing Communities: Histories and Politics of Community-based Natural Resources Management. *Society and Natural Resources* 11, 169–178.
- Brown, J.E. (1992). *Animals of the Soul: Sacred Animals of the Oglala Sioux*. 145 pp. Element Books Limited, Longmead, U.K.
- Brown, N. (2001). Edward T. Hall: Proxemic Theory, 1966. Center for Spatially Integrated Social Science. University of California, Santa Barbara. <<http://www.csiss.org/classics/content/13>> Read 18.12.2007.
- Brown, S. R. (1996). Q-methodology and qualitative research. *Qualitative Health Research* 6: 4, 561–567.
- Buller, H. (2008). Safe from the wolf: biosecurity, biodiversity, and competing philosophies of nature. *Environment and Planning A* 40, 1583–1597.
- Bunce, M. (1994). *The Countryside Ideal. Anglo-American Images of Landscape*. 232 pp. Routledge, London.
- Butler, J. R. A. (2000). The economic costs of wildlife predation on livestock in Gokwe communal land Zimbabwe. *African Journal of Ecology* 38: 1, 23–30.
- Campbell, B. (2005). Changing Protection Policies and Ethnographies of Environmental Engagement. *Conservation and Society* 3: 2, 280–322.
- Campbell, L. M. (2000). Human need in rural development areas: perceptions of wildlife conservation experts. *The Canadian Geographer* 44: 2, 167–181.
- Carruthers, J. (2005). Changing Perspectives on Wildlife in Southern Africa, C. 1840 to C. 1914. *Society & Animals* 13: 3, 183–199.
- Cartmill, M. (1993). *A View to a Death in the Morning. Hunting and Nature through History*. 331 pp. Harvard University Press, U.S.A.
- Chavez, A. S., E. M. Gese & R. S. Krannich (2005). Attitudes of rural landowners toward wolves in northwestern Minnesota. *Wildlife Society Bulletin* 33: 2, 517–527.
- Child, B. (1988). *The Role of Wildlife Utilization in the Sustainable Economic Development of the Semi-Arid Rangelands of Zimbabwe*. PhD Thesis. University of Oxford, Great Britain.
- Chiwalo, Mr., Dr. Mleche, Mr. Mnali, Mr. Mpanda & Dr. Pima (1997). *Goat Project. Lindi and Mtwara Regions, Phase 2. May 1997–June 1999. Framework Project Document*. Ministry of Agriculture, The United Republic of Tanzania and Ministry for Foreign Affairs, The Republic of Finland.

- Chiyo, P. I. & E. P. Cochrane (2005). Population structure and behaviour of crop-raiding elephants in Kibale National Park, Uganda. *African Journal of Ecology* 43, 233–241.
- Christophersen, K., R. Hagen & G. Jambiya (2000). Economic Opportunities in Wildlife Management Areas. Report submitted to the Wildlife Division of the Ministry of Natural Resources and Tourism and USAID/Tanzania. EPIQ Tanzania, Dar es Salaam, Tanzania.
- Cresswell, T. (1996). *In Place/Out of Place: Geography, Ideology and Transgression*. University of Minnesota Press, U.S.A.
- Crowe, D. M. & J. Shryer (1995). Eco-colonialism. *Wildlife Society Bulletin* 23: 1, 26–30.
- Darlington, P. J. Jr. (1957). *Zoogeography: The Geographical Distribution of Animals*. 675 pp. John Wiley & Sons Inc., New York, U. S. A.
- Davies, J. L. (1961). Aim and Method in Zoogeography. *Geographical Review* 51, 412–417.
- Decker, D. J., C. A. Jacobson & T. L. Brown (2006). Situation-Specific “Impact Dependency” as a Determinant of Management Acceptability: Insights From Wolf and grizzly Bear Management in Alaska. *Wildlife Society Bulletin* 34: 2, 426–432.
- DeFries, R., A. Hansen, B. L. Turner, R. Reid & J. Liu (2007). Land use change around protected areas: Management to balance human needs and ecological function. *Ecological Applications* 17: 4, 1031–1038.
- Demeritt, D. (1994). The nature of metaphors in cultural geography and environmental history. *Progress in Human Geography* 18: 2, 163–185.
- Demeritt, D. (2002). What is the ‘social construction of nature?’ A typology and sympathetic critique. *Progress in Human Geography* 26: 6, 767–790.
- Department of Wildlife (1996). Options for Community-Based Conservation in Tanzania with Special Reference to Possible Benefits and Village Title. In Leader-Williams, N., J. A. Kayera & G. L. Overton (eds.): *Community-based Conservation in Tanzania. Proceedings of a Workshop held in February 1994*, 169–194. Occasional Paper of the IUCN Species Survival Commission (SSC) No.15. Planning and Assessment for Wildlife Management. Department of Wildlife, Dar es Salaam, Tanzania. IUCN- The World Conservation Union, Gland, Switzerland and Cambridge, UK.
- Descola, P. (1994). *In the Society of Nature: A Native Ecology in Amazonia*. 372 pp. Cambridge University Press, Great Britain.
- Dickman, A. J. (2005). An assessment of pastoralist attitudes and wildlife conflict in the Rungwa-Ruaha region, Tanzania, with particular reference to large predators. Dissertation submitted in partial fulfilment of requirements for the degree Master of Science in Biodiversity, Conservation and Management. University of Oxford, Great Britain.
- Distefano, E. (2005). Human-Wildlife Conflict Worldwide: A collection of case studies, analysis of management strategies and good practices. SARD Initiative Report, FAO Rome.

- Dondeyne, S., A. Wijffels, L. B. Emmanuel, J. Deckers & M. Hermy (2004). Soils and vegetation of Angai forest: ecological insights from a participatory survey in South Eastern Tanzania. *African Journal of Ecology* 42, 198–207.
- Douglas, M. (1966). *Purity and Danger: An Analysis of Concept of Pollution and Taboo*. Routledge, U.K.
- Duffy, R. (2000). *Killing for Conservation. Wildlife Policy in Zimbabwe*. The International African Institute. James Currey, Oxford, U.K.
- Dzingirai, V. (2003). ‘CAMPFIRE is not for Ndebele Migrants’: the Impact of Excluding Outsiders from CAMPFIRE in the Zambezi Valley, Zimbabwe. *Journal of Southern African Studies* 29: 2, 445–459.
- Eden, S. (2001). Environmental issues: nature versus the environment? *Progress in Human Geography* 25: 1, 79–85.
- Eden, S., A. Donaldson & G. Walker (2005). Structuring subjectivities? Using Q methodology in human geography. *Area* 37: 4, 413–422.
- Ellis, F. & N. Mdoe (2003). Livelihoods and Rural Poverty Reduction in Tanzania. *World Development* 31: 8, 1367–1384.
- Emel, J., C. Wilbert & J. Wolch (2002). Animal Geographies. *Society & Animals* 10: 4, 407–412.
- Emerton, L. (1999). The Nature of Benefits & the Benefits of Nature: Why Wildlife Conservation Has not Economically Benefited Communities in Africa. Paper No. 5. Community Conservation Research in Africa: Principles and Comparative Practice. Institute for Development Policy and Management, University of Manchester, U. K.
- Emerton, L. (2001). The Nature of Benefits & the Benefits of Nature. Why Wildlife Conservation has not Economically Benefited Communities in Africa. In Hulme, D. & M. Murphree (eds.): *African Wildlife & Livelihoods. The Promise & Performance of Community Conservation*, 208–226. James Currey Ltd, Great Britain.
- Enck, J. W., D. J. Decker, S. J. Riley, J. F. Organ, L. H. Carpenter & W. F. Siemer (2006). Integrating Ecological and Human Dimensions in Adaptive Management of Wildlife-Related Impacts. *Wildlife Society Bulletin* 34: 3, 698–705.
- Escobar, A. (1996). Constructing Nature. Elements for a poststructural political ecology. In Peet, R. & M. Watts (eds.): *Liberation ecologies. Environment, development, social movements*, 46–68. Routledge, London, Great Britain.
- Expressen (2007). Björn dödade älgjägare och hund. October 8, 2007. <<http://www.expressen.se/nyheter/1.872277/bjorn-dodade-algjagare-och-hund>> Read 4.1.2008
- Fjeldstad, O-H, E. Braathen & A. Chaligha (2006). Local Government Reform in Tanzania 2002–2005: Summary of research findings on governance, finance and service delivery. REPOA Brief 6, October 2006. Research on Poverty Alleviation. Dar es Salaam, Tanzania.
- Fourli, M. (1999): Compensation for damage caused by bears and wolves in the European Union. Experiences from LIFE-Nature projects.

<http://europa.eu.int/comm/environment/nature/damage_2.pdf>

Read 28.9.2001.

- Frank, L. G., R. Woodroffe & M. O. Ogada (2005). People and predators in Laikipia District, Kenya. In Woodroffe, R., S. Thirgood & A. Rabinowitz (eds.): *People and Wildlife. Conflict or Coexistence?*, 286–304. Conservation Biology 9. The Zoological Society of London. Cambridge University Press, U. K.
- Gadgil, M. & V. D. Vartak (1998). The Sacred Uses of Nature. In Guha, R. (ed.): *Social Ecology*, 82–89. Oxford in India readings in Sociology and Social Anthropology. Oxford University Press, Delhi, India.
- Gerber, J. (1997). Beyond dualism – the social construction of nature and the natural and social construction of human beings. *Progress in Human Geography* 21: 1, 1–17.
- Ghimire, K. B. (1994). Parks and people: Livelihood issues in national parks management in Thailand and Madagascar. *Development and Change* 25: 1, 195–229.
- Gillingham, S. (1998). Giving Wildlife Value. A Case Study of Community Wildlife Management Around the Selous Game Reserve, Tanzania. PhD Thesis. Department of Biological Anthropology, University of Cambridge, Great Britain.
- Glacken, C. (1967). *Traces on the Rhodian Shore. Nature and culture in western thought from ancient times to the end of the eighteenth century*. 763 pp. University of California Press, Berkeley, Los Angeles, U.S.A.
- Goldman, M. (2003). Partitioned Nature, Privileged Knowledge: Community-based Conservation in Tanzania. *Development and Change* 34: 5, 833–862.
- Gore, M. L., B. A. Knuth, P. D. Curtis & J. E. Shanahan (2006). Stakeholder Perceptions of Risk Associated with Human-Black Bear Conflicts in New York's Adirondack Park Campgrounds: Implications for Theory and Practice. *Wildlife Society Bulletin* 34: 1, 36–43.
- Graham, B, G. J. Ashworth & J. E. Tunbridge (2000). *A Geography of Heritage. Power, Culture & Economy*. 284 pp. Arnold Publishers, London, U.K.
- Graham, K., A. P. Beckerman & S. Thirgood (2005). Human-predator-prey conflicts: ecological correlates, prey losses and patterns of management. *Biological Conservation* 122, 159–171.
- Green, M. (1992). *Animals in Celtic Life and Myth*. 283 pp. Routledge, London, U.K.
- Green, M. (2005). Entrenching Witchcraft. Poverty and public bads in post adjustment Tanzania. *Suomen Antropologi* 30: 1, 6–21.
- Greider, T. & L. Garkovich (1994). Landscapes: The Social Construction of Nature and the Environment. *Rural Sociology* 59: 1, 1–24.
- GTZ Wildlife Programme in Tanzania (2002). Selous Conservation Programme (SCP).
<<http://www.wildlife-programme.gtz.de/wildlife/scp.htm>> Read 11.9.2007
- Guha, R. (1997). Autoritaaristen biologien ylimielinen antihumanismialkuperäisluonnon suojele kolmannessa maailmassa. In Salvi, L. (ed.):

- Taistelu paratiisista. Luonnon suojelu ja hyväksikäyttö kolmannessa maailmassa*, 83–101. Maailmankauppojen liitto ry, Tampere.
- Hahn, R. & D. Kaggi (2001). Selous Game Reserve. Development of CBC in the buffer zone –Facts and Figures. In Baldus, R. D. & L. Siege (eds.): *Experiences with Community-based Wildlife Conservation in Tanzania*, 44–59. Tanzania Wildlife Discussion paper No.29. Wildlife Division, GTZ Wildlife Programme in Tanzania. GTZ, Dar es Salaam.
- Hall, E. T. (1969). *The Hidden Dimension*. Doubleday, Garden City, New York.
- Hassler, R. (1996). *Agriculture, foraging and wildlife resource use in Africa. Cultural and political dynamics in the Zambesi Valley*. 208 pp. Kegan Paul International, London.
- Head, L., D. Trigger & J. Mulcock (2005). Culture as Concept and Influence in Environmental Research and Management. *Conservation and Society* 3: 2, 251–264.
- Helsingin Sanomat 18.12.2007. Palkittu Bubi kävi yllätien palkitsemistilaisuudessa. <<http://www.hs.fi/kaupunki/artikkeli/Bubista+vuoden+kaupunkilainen/1135232674034>> Read 5.8.2008
- Hesse, R. (1924/1937). Tiergeographie auf ökologischer Grundlage. In Allee, W. C. & K. P. Schmidt (1951): *Ecological Animal Geography*, 3–14. John Wiley & Sons, London, U. K.
- Hobson-West, P. (2007). Beasts and boundaries: An introduction to animals in sociology, science and society. *Qualitative Sociology Review* 3: 1, 23–41.
- Holling, C.S., F. Berkes & C. Folke (1998). Science, sustainability and resource management. In Berkes, Fikret & Folke Carl (eds.): *Linking Social and Ecological Systems. Management Practices and Social Mechanisms for Building Resilience*, 342–362. Cambridge University Press, United Kingdom.
- Howitt, R. & S. Suchet-Pearson (2006). Rethinking the building blocks: Ontological pluralism and the idea of “management”. *Geografiska Annaler* 88B: 3, 323–335.
- Hulme, D. & M. Murphree (2001a). Community Conservation as Policy: Promise & Performance. In Hulme, David & Murphree, Marshall (eds.): *African Wildlife & Livelihoods. The Promise & Performance of Community Conservation*, 280–297. James Currey Ltd, Great Britain.
- Hulme, D. & M. Murphree (2001b; eds.). *African Wildlife & Livelihoods. The Promise & Performance of Community Conservation*. James Currey Ltd, Great Britain. 336 pp.
- Igoe, J. & D. Brockington (1999). *Pastoral land tenure and community conservation: a case study from North-East Tanzania*. Pastoral Land tenure series No. 11. International Institute for Environment and Development, London, U. K.
- Igoe, J. (2006). Ecosystem Dynamics and Institutional Inertia: A Discussion of Landscape Conservation in Northern Tanzania. In Mistry, J. & A. Berardi (eds.): *Savannas and dry forests. Linking people with nature*, 77–103. Ashgate Publishing Ltd, England.
- IIED (International Institute for Environment and Development) (1994). *Whose*

- Eden? An overview of community approaches to wildlife management.* 124 pp. A report to the Overseas Development Administration of the British Government, July 1994. Russell Press, Nottingham.
- Inglehart, R. (1990). *Culture shift in advanced industrial society.* 484 pp. Princeton University Press, New Jersey, U.S.A.
- International Resources Group Ltd. (2000). Mbomipa Project Idodi and Pawaga Divisions Iringa Region, Tanzania and Selous Conservation Program Songea and Morogoro Districts Ruvuma and Morogoro Regions Tanzania. Appendix 1 of the EPIQ Assessment of Lessons Learned from Community Based Conservation in Tanzania. Prepared for USAID/Tanzania. August 2000.
- Jackson, J. B. (1994). *A Sense of Place, a Sence of Time.* 212 pp. Yale University Press, New Haven, U.S.A.
- Jepson, P. & R. J. Whittaker (2002). Histories of Protected Areas: Internationalisation of Conservationist Values and their Adoption in the Netherlands Indies (Indonesia). *Environment and History* 8, 129–172.
- Kangwana, K. & R. Ole Mako (2001). Conservation, Livelihoods & the Intrinsic Value of Wildlife: Tarangire National Park, Tanzania. In Hulme, D. & M. Murphree (eds.): *African Wildlife & Livelihoods. The Promise & Performance of Community Conservation*, 148–159. James Currey Ltd, Great Britain.
- Kideghesho, J. R. (1999). Habitat loss in Tanzania: A Need to Reverse the Trend. *Kakakuona/Tanzania Wildlife* 15, 11–15.
- Kideghesho, J. R. (2001). The Loss of Wildlife Habitats in Tanzania: What is the Way Forward? *Kakakuona/Tanzania Wildlife* 23, 7–15.
- Kinyero, O., P. Kituku, M. Kilua, J. Mgaya, J. Hallamga, O. Luhuwa, P. Lupogo, M. Shamte, S. Chautundu, S. Tilli & S. Kitenge (1995). Community-based forest management Liwale visit report. June 1995. RIPS-Rural Integrated Project Support, Lindi, Tanzania.
- Knappert, J. (1990). *African Mythology. An Encyclopedia of Myth and Legend.* 272 pp. Diamond Books, London.
- Knight, J. (2000; ed.). *Natural Enemies. People-Wildlife Conflicts in Anthropological Perspective.* 254 pp. Routledge. London, Great Britain.
- Kolkata Newsline (2007). 48 killed in elephants attack in 2006. July 28, 2007. <<http://cities.expressindia.com/fullstory.php?newsid=248069>> Read 5.12.2007
- Kolowski, J. M. & K. E. Holekamp (2006). Spatial, temporal, and physical characteristics of livestock depredations by large carnivores along a Kenyan reserve border. *Biological Conservation* 128, 529–541.
- Koponen, J. (1988). *People and Production in Late Precolonial Tanzania. History and Structures.* 434 pp. Monographs of the Finnish Society for Development Studies No. 2. Finnish Society for Development Studies in cooperation with Scandinavian Institute of African Studies. Gummerus, Jyväskylä.
- Krischke, H., V. Lyamuya & I. F. Ndunguru (1996). The Development of Community-Based Conservation around the Selous Game Reserve. In Leader-Williams, N., J. A. Kayera & G. L. Overton (eds.): *Community-based*

- Conservation in Tanzania. Proceedings of a Workshop held in February 1994*, 75–83. Occasional Paper of the IUCN Species Survival Commission (SSC) No. 15. Planning and Assessment for Wildlife Management. Department of Wildlife, Dar es Salaam, Tanzania. IUCN- The World Conservation Union, Gland, Switzerland and Cambridge, UK.
- Köhler, A. (2005). Of Apes and Men: Baka and Bantu Attitudes to Wildlife and the Making of Eco-Goodies and Baddies. *Conservation and Society* 3: 2, 407–435.
- Leader-Williams, N. & J. A. Kayera (1996). Preface. In Leader-Williams, N., J. A. Kayera & G. L. Overton (eds.): *Community-based Conservation in Tanzania. Proceedings of a Workshop held in February 1994*, vii–ix. Occasional Paper of the IUCN Species Survival Commission (SSC) No. 15. Planning and Assessment for Wildlife Management. Department of Wildlife, Dar es Salaam, Tanzania. IUCN- The World Conservation Union, Gland, Switzerland and Cambridge, UK.
- Lefebvre, H. (1974/1991). *The Production of Space*. Translated by Donald Nicholson-Smith. Blackwell Publishing, U.S.A.
- Lehtinen, A. A. (1991). The northern natures – a study of the forest question emerging within the timber-line conflict in Finland. *Fennia* 169: 1, 57–169.
- Lehtinen, A. A. (2006). *Postcolonialism, Multitude, and the Politics of Nature. On the Changing Geographies of the European North*. 299 pp. University Press of America, Lanham, U.S.A.
- Leimgruber, W. (1991). Boundary, values and identity: The Swiss-Italian transborder region. In Rumley, D. & J. V. Minghi (eds.): *The Geography of Border Landscapes*, 43–62. Routledge, London, U. K.
- Levine, A. (2002). Convergence or Convenience? International Conservation NGOs and Development Assistance in Tanzania. *World Development* 30: 6, 1043–1055.
- Ley, D. (1985). Cultural/humanistic geography. *Progress in Physical Geography* 9: 3, 415–423.
- Lingard, M., N. Raharison, E. Rabakonandrianina, J-A. Rakotoarisoa & T. Elmqvist (2003). The Role of Local Taboos in Conservation and Management of Species: The Radiated Tortoise in Southern Madagascar. *Conservation and Society* 1: 2, 223–246.
- Linnell, J. D. C., E. Birkeland Nilsen, U. Støbet Lande, I. Herfindal, J. Odden, K. Skogen, R. Andersen & U. Breitenmoser (2005). Zoning as a means of mitigating conflicts with large carnivores: principles and reality. In Woodroffe, R., S. Thirgood & A. Rabinowitz (eds.): *People and Wildlife. Conflict or Coexistence?*, 162–175. Conservation Biology 9. The Zoological Society of London. Cambridge University Press, U. K.
- Lipp, H-J. (1999). Policy Framework for Decentralisation in Tanzania. Paper presented at the Symposium on Decentralisation and Rural Development in Pretoria, South Africa 12–16 October 1999.

- Livingstone, D. N. (1992). *The Geographical Tradition. Episodes in the History of a Contested Enterprise*. Blackwell Publishing, U.S.A.
- Luhuva, O.J., P. Lupogo & S. Chautundu (1997). PRA reporting conducted in villages in Liwale district, January 1997. Unpublished report. Tanzania.
- Lyimo, M. M. & H. J. Ndozezi (1996). Wildlife Law in Relation to Community-Based Conservation. In Leader-Williams, N., J. A. Kayera & G. L. Overton (eds.): *Community-based Conservation in Tanzania. Proceedings of a Workshop held in February 1994*, 38–40. Occasional Paper of the IUCN Species Survival Commission (SSC) No. 15. Planning and Assessment for Wildlife Management. Department of Wildlife, Dar es Salaam, Tanzania. IUCN- The World Conservation Union, Gland, Switzerland and Cambridge, UK.
- Maganga, S. L. S. (2002). The Socio-Ecology of Natural Resources with References to Wildlife Conservation in Tanzania. *Kakakuona / Tanzania Wildlife* 25, 5–11.
- Maganga, S.L.S., F. T. Magayane & E. M. Senkondo (2003). A Report on Baseline Information of Pilot Wildlife Management Areas in Tanzania. First Draft, May 2003.
- Magige, F. & R. Senzota (2006). Abundance and diversity of rodents at the human-wildlife interface in Western Serengeti, Tanzania. *African Journal of Ecology* 44, 371–378.
- Majamba, H. I. (2000a). Legal Aspects of the Draft Guidelines for Wildlife Management Areas (WMAs). Wildlife Division, EPIQ / USAID and GTZ. Dar es Salaam, Tanzania.
- Majamba, H. I. (2000b). Legal Aspects of the Draft Guidelines for Wildlife Management Areas (WMA's). Consultancy Report. EPIQ (USAID) / Tanzania Natural Resources Management Project and The Ministry of Natural Resources and Tourism, Wildlife Division. Dar es Salaam, Tanzania.
- Majamba, H. I. (2001). Regulating the Hunting Industry in Tanzania. Reflections on the Legislative, Institutional and Policy-Making Frameworks. Lawyers' Environmental Action Team (LEAT). <<http://www.lead.or.tz/>> Read 17.9.2003
- Maskit, J. (1998). Something Wild? Deleuze and Guattari and the Impossibility of Wilderness. In Light, A. & J. M. Smith (eds.): *Philosophies of Place. Philosophy and Geography, volume III*, 265–283. Rowman & Littlefield Publishers Inc., U.S.A.
- Mason, M. (1999). *Environmental Democracy*. 266 pp. Earthscan Publications Ltd, London.
- Matless, D., P. Merchant & C. Watkins (2005). Animal landscapes: otters and wildfowl in England 1945–1970. *Transactions Institute of British Geographers* 30: 2, 191–205.
- Matzke, G. (1976). The Development of the Selous Game Reserve. *Tanzania Notes and Records* 79 and 80, 37–48.
- Mbano, A. S. & J. Nyanchuwa (1996). Traditional Hunting in Tanzania. In Leader-Williams, N., J. A. Kayera & G. L. Overton (eds.): *Community-based*

- Conservation in Tanzania. Proceedings of a Workshop held in February 1994*, 41–44. Occasional Paper of the IUCN Species Survival Commission (SSC) No. 15. Planning and Assessment for Wildlife Management. Department of Wildlife, Dar es Salaam, Tanzania. IUCN- The World Conservation Union, Gland, Switzerland and Cambridge, UK.
- McKeown, B. & D. Thomas (1988). *Q Methodology*. 83 pp. Quantitative Applications in the Social Sciences 66. Sage University Papers, Sage Publications, London.
- Meadow, R., R. P. Reading, M. Phillips, M. Mehringer & B. J. Miller (2005). The influence of persuasive arguments on public attitudes toward a proposed wolf restoration in the southern Rockies. *Wildlife Society Bulletin* 33: 1, 154–163.
- Melamari, L. (1996). The Need for a Community-Based Conservation Policy in Tanzania: TANAPA's Perspective. In Leader-Williams, N., J. A. Kayera & G. L. Overton (eds.): *Community-based Conservation in Tanzania. Proceedings of a Workshop held in February 1994*, 7–8. Occasional Paper of the IUCN Species Survival Commission (SSC) No. 15. Planning and Assessment for Wildlife Management. Department of Wildlife, Dar es Salaam, Tanzania. IUCN- The World Conservation Union, Gland, Switzerland and Cambridge, UK.
- Milbourne, P. (2003). Hunting ruralities: nature, society and culture in 'hunt countries' of England and Wales. *Journal of Rural Studies* 19, 157–171.
- Milledge, S. & R. Barnett (2000). The utilisation of wild meat in Tanzania: Part I – Illegal bush meat trade. *Miombo* 22, 4–13.
- Milledge, S. & R. Barnett (2002). The utilisation of wild meat in Tanzania: Part II – Legal game meat trade. *Miombo* 24, 14–18.
- Milton, K. (2000). Ducks out of water. Nature conservation as boundary maintenance. In Knight, J. (ed.): *Natural Enemies. People-Wildlife Conflicts in Anthropological Perspective*, 229–246. Routledge. London, Great Britain.
- Mistry, J. & A. Berardi (2006). Introduction. In Mistry, J. & A. Berardi (eds.): *Savannas and dry forests. Linking people with nature*, 1–18. Ashgate Publishing Ltd, England.
- Morris, B. (2000). Wildlife deprecations in Malawi. The historical dimension. In Knight, J. (ed.): *Natural Enemies. People-Wildlife Conflicts in Anthropological Perspective*, 36–49. Routledge. London, Great Britain.
- Msalya, N.K.B. (1997). Baseline survey of Kilwa and Liwale districts in Lindi region. Forum for Conservation of Nature (FOCONA) Environmental and Development NGO, Mtwara, Tanzania.
- Munasinghe, M. (1994). Economic and policy issues in natural habitats and protected areas. In Munasinghe, M. & J. McNeely, (eds.): *Protected Area Economics and Policy. Linking Conservation and Sustainable Development*, 15–35. World Bank/IUCN, Washington D.C., U.S.A.
- Munasinghe, M. & J. McNeely (1994; eds.). *Protected Area Economics and Policy. Linking Conservation and Sustainable Development*. World Bank/IUCN, Washington D.C., U.S.A. 364 pp.

- Murdoch, J. (1997). Inhuman/nonhuman/human: actor-network theory and the prospects for a nondualistic and symmetrical perspective on nature and society. *Environment and Planning D: Society and Space* 15, 731–756.
- Murombedzi, J. C. (1994). The Dynamics of Conflict in Environmental Management Policy in the Context of the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE). PhD Thesis. Center for Applied Social Sciences. University of Zimbabwe.
- Murphree, M. W. (1991). Communities as Resource Management Institutions. International Institute for Environment and Development. Sustainable Agriculture and Rural Livelihoods Programme. Gatekeeper Series No. 36. IIED.
- Murphree, M. W. (2001). Community Based Conservation: Old Ways, New Myths and Enduring Challenges. In Baldus, R. D. & L. Siege (eds.): Experiences with Community-based Wildlife Conservation in Tanzania, 5–16. Tanzania Wildlife Discussion paper No. 29. Wildlife Division, GTZ Wildlife Programme in Tanzania. GTZ, Dar es Salaam.
- Mustalahti, I. & O. Kinyero (2001). Angai Forest Reserve Process in Liwale District. Final Report 2001. RIPS, Mtwara, Tanzania.
- Mustalahti, I. (2006). How to handle the stick: positive processes and crucial barriers of participatory forest management. *Forests, trees and livelihoods* 16, 151–165.
- Mvungi, A., S. Mesaki, J. Mwami & S. Maghimbi (2002). Socio-economic Survey of the Buffer Zone of the Selous Game Reserve. Volume 2. Selous Game Reserve Management Project. Final Report March 2002. Department of Sociology, University of Dar es Salaam, Tanzania.
- Mwamfufe, D. (1990). Population. In Baldus, R. D. (ed.): Sustainable Management of Natural Resources in the Liwale Bufferzone. SCP Discussion Paper No. 10. Wildlife Division and Selous Conservation Programme, GTZ, Dar es Salaam, Tanzania.
- Mwamfufe, D., F. Lerise & U. Schüler (1990). Planning for Village Development and Wildlife Utilization. Prospects in Village Development and Wildlife Utilization in the Liwale Bufferzone. Selous Conservation Programme. GTZ, Dar es Salaam, Tanzania.
- Mäkelä, M. (1999). *Community-based Environmental Protection and Natural Resources Management*. 152 pp. Ministry of Foreign Affairs of Finland. Department for International Development Cooperation, Helsinki, Finland.
- Nagy, D. & J. E. Kumpulainen (2006). Rajamaa ja häviämisen mielenmaisema. Kuvastotulkintaa Transilvaniasta ja Karjalasta. *Alue ja ympäristö* 35: 2, 15–31.
- National Land Use Planning Commission (1998). *Guidelines for participatory Village Land Use Management in Tanzania*. Ministry of Lands and Human Settlements Development. Dar es Salaam, Tanzania.
- Naughton-Treves, L. (1998). Predicting patterns of crop damage by wildlife around Kibale National Park, Uganda. *Conservation Biology* 12, 156–168.

- Naughton-Treves, L. (2002). Wild Animals in the Garden: Conserving Wildlife in Amazonian Agroecosystems. *Annals of the Association of American Geographers* 92: 3, 488–506.
- Naughton-Treves, L., J. L. Mena, A. Treves, N. Alvarez & V. C. Radeloff (2003a). Wildlife Survival Beyond Park Boundaries: the Impact of Slash-and-Burn Agriculture and Hunting on Mammals in Tambopata, Peru. *Conservation Biology* 17: 4, 1106–1117.
- Naughton-Treves, L., R. Grossberg & A. Treves (2003b). Paying for Tolerance: Rural Citizens' Attitudes toward Wolf Depredation and Compensation. *Conservation Biology* 17: 6, 1500–1511.
- Naughton-Treves, L. & A. Treves (2005). Socio-ecological factors shaping local support for wildlife: crop-raiding by elephants and other wildlife in Africa. In Woodroffe, R., S. Thirgood & A. Rabinowitz (eds.): *People and Wildlife. Conflict or Coexistence?*, 252–277. Conservation Biology 9. The Zoological Society of London. Cambridge University Press, U. K.
- Ndolanga, M.A. (1996). The Need for a Community-Based Conservation Policy in Tanzania: The Department of Wildlife's Perspective. In Leader-Williams, N., J. A. Kayera & G. L. Overton, (eds.): *Community-based Conservation in Tanzania. Proceedings of a Workshop held in February 1994*, 13–16. Occasional Paper of the IUCN Species Survival Commission (SSC) No. 15. Planning and Assessment for Wildlife Management. Department of Wildlife, Dar es Salaam, Tanzania. IUCN- The World Conservation Union, Gland, Switzerland and Cambridge, UK.
- Ndunguru, I. F. (1989). Big Animals and Big Problems. The Background to the Ruvuma Village Wildlife Project. SCP Discussion paper No. 6. Wildlife Division, Ministry of Lands, Natural Resources and Tourism, United Republic of Tanzania and Selous Conservation Programme. Dar es Salaam, Tanzania.
- Neumann, R. P. (1995). Ways of Seeing Africa: Colonial Recasting of African Society and Landscape in Serengeti National Park. *Ecumene* 2: 2, 149–169.
- Neumann, R. P. (1998). *Imposing Wilderness. Struggles over Livelihood and Nature Preservation in Africa*. 256 pp. University of California Press. Berkeley and Los Angeles, U.S.A.
- Neumann, R. P. (2000). Land, Justice, and the Politics of Conservation in Tanzania. In Zerner, C. (ed.): *People, Plants & Justice. The Politics of Nature Conservation*, 117–134. Columbia University Press, New York, U.S.A.
- Nielsen, M. R. (2006). Importance, cause and effect of bushmeat hunting in the Udzungwa Mountains, Tanzania: Implications for community based wildlife management. *Biological Conservation* 128, 509–516.
- Norton, B. & B. Hannon (1998). Democracy and Sense of Place Values in Environmental Policy. In Light, A. & J. M. Smith (eds.): *Philosophies of Place. Philosophy and Geography, volume III*, 119–145. Rowman & Littlefield Publishers Inc., U.S.A.
- Nshala, R. (1999). Granting Hunting Blocks in Tanzania. The Need for Reform. Lawyers' Environmental Action Team (LEAT). <<http://www.lead.or.tz/>> Read 17.9.2003

- Nummelin, M. & P. Virtanen (2000). Local forest management by traditional and introduced means in southern Africa – a synthesis and recommendations. In Virtanen, P. & M. Nummelin (eds.): *Forests, Chiefs and Peasants in Africa: Local Management of Natural Resources in Tanzania, Zimbabwe and Mozambique*, 220–229. Silva Carelica 34. Faculty of Forestry, University of Joensuu.
- Ogada, M. O., R. Woodroffe, N. O. Oguge & L. G. Frank (2003). Limiting Depredation by African Carnivores: the Role of Livestock Husbandry. *Conservation Biology* 17: 6, 1521–1530.
- Ojalampi, S. (2006). *Contested Lands: Land Disputes in Semi-arid Parts of Northern Tanzania. Case Studies of the Loliondo and Sale Divisions in the Ngorongoro District*. Academic dissertation. Publicationes Instituti Geographici Universitatis Helsingiensis C12. Dark Oy, Vantaa.
- Oksanen, A. (2003). *Paikallisuuden ja kansainvälisyyden kohtaaminen luonnonsuojelussa. Tapaustutkimuksena Natura 2000 –ympäristökonflikti Lounais-Suomessa*. PhD dissertation. Turun yliopiston julkaisu C 192. Turun yliopisto, Turku, Finland.
- Osborn, F.V. (2004). Seasonal variation of feeding patterns and food selection by crop-raiding elephants in Zimbabwe. *African Journal of Ecology* 42, 322–327.
- Osborn, F. V. & C. M. Hill (2005). Techniques to reduce crop loss: human and technical dimensions in Africa. In Woodroffe, R., S. Thirgood & A. Rabinowitz (eds.): *People and Wildlife. Conflict or Coexistence?*, 72–85. Conservation Biology 9. The Zoological Society of London. Cambridge University Press, U. K.
- Palang, H., H. Sooväli, M. Antrop & G. Setten (eds.) (2004). *European Rural Landscapes: Persistence and Change in a Globalising Environment*. Kluwer Academic Publishers, Dordrecht, The Netherlands.
- Patterson, J. H. (1907/1979). *The Man-Eaters of Tsavo and Other East African Adventures*. Macmillan Publishers Ltd., English Press Limited, Nairobi, Kenya.
- Peet, R. & M. Watts (1996). Liberation Ecology. Development, sustainability, and environment in an age of market triumphalism. In Peet, R. & M. Watts (eds.): *Liberation ecologies. Environment, development, social movements*, 1–45. Routledge, London, Great Britain.
- Peritore, P. N. (1999). *Third world environmentalism. Case studies from the Global South*. 329 pp. University Press of Florida, U.S.A.
- Philips, A. (2004). The history of the international system of protected area management categories. *PARKS* 14: 3, 4–14.
- Philo, C. (1998). Animals, Geography, and the City: Notes on Inclusions and Exclusions. In Wolch, J. & J. Emel (eds): *Animal Geographies. Place, Politics, and Identity in the Nature-Culture Borderlands*, 51–71. Verso, London, U.K.
- Platteau, J.-P. (2000). Community Imperfections. Paper prepared for the Annual Bank Conference on Development Economics, Paris, June 2000. Department of economics and CRED, Belgium.

- Platteau, J.-P. (2004). Monitoring Elite Capture in Community-Driven Development. *Development and Change* 35: 2, 223–246.
- Quigley, H. & S. Herrero (2005). Characterization and prevention of attacks on humans. In Woodroffe, R., S. Thirgood & A. Rabinowitz (eds.): *People and Wildlife. Conflict or Coexistence?*, 27–48. Conservation Biology 9. The Zoological Society of London. Cambridge University Press, U. K.
- Ramutsindela, M. (2003). Land reform in South Africa's national parks: a catalyst for the human-nature nexus. *Land Use Policy* 20, 41–49.
- Rannikko, P. (1995). Ympäristötietoisuus ja ympäristöristiriidat. In Jokinen, P., T. Järvikoski & P. Rannikko (eds.): *Näkökulmia ympäristösosiologiaan*, 65–91. Turun yliopiston täydennyskoulutuskeskus, Turku.
- Robbins, P. & R. Krueger (2000). Beyond Bias? The Promise and Limits of Q Method in Human Geography. *Professional Geographer* 52: 4, 636–648.
- Rodgers, W.A. & J. D. Lobo (1978). Elephant control and legal ivory exploitation: 1920 to 1976. *Tanzania Notes and Records* 84 & 85, 25–54.
- Rondinini, C., F. Chiozza & L. Boitani (2006). High human density in the irreplaceable sites for African vertebrates conservation. *Biological Conservation* 133, 358–363.
- Rye, S. (2000). Wild pigs, 'pig-men' and transmigrants in the rainforest of Sumatra. In Knight, J. (ed.): *Natural Enemies. People-Wildlife Conflicts in Anthropological Perspective*, 104–123. Routledge. London, Great Britain.
- Saarinen, J. (2002). Erämaan muuttuvat merkitykset: pohjoisen luonnon traditionaalinen käyttö, moderni suojele ja turistinen tulevaisuus. *Alue ja ympäristö* 31: 2, 25–36.
- Salonen, V. (2004). Eläinmaantiede – näkökulmia ihmisen ja eläimen vuorovaikutussuhteeseen. *Terra* 116: 4, 227–240.
- Sanderson, S. (2005). Poverty and Conservation: The New Century's "Peasant Question?" *World Development* 33: 2, 323–332.
- Sandi, J. S. C. (1996). The Villagisation Process and Organizational Structure of Villages. In Leader-Williams, N., J. A. Kayera & G. L. Overton (eds.): *Community-based Conservation in Tanzania. Proceedings of a Workshop held in February 1994*, 45–50. Occasional Paper of the IUCN Species Survival Commission (SSC) No. 15. Planning and Assessment for Wildlife Management. Department of Wildlife, Dar es Salaam, Tanzania. IUCN- The World Conservation Union, Gland, Switzerland and Cambridge, UK.
- Sauer, C. (1938). The Morphology of Landscape. *University of California Publications in Geography* 2: 2, 19–54.
- Sauer, C. O. (1969). *Seeds, Spades, Heaths & Herds. The Domestication of Animals and Foodstuff*. 175 pp. The MIT Press, Massachusetts, U.S.A.
- Schafer, J. & R. Bell (2002). The State and Community-based Natural Resource Management: the Case of the Moribane Forest Reserve, Mozambique. *Journal of Southern African Studies* 28: 2, 401–420.
- Science and Environment Online (2007). Sri Lanka grapples with elephant-human conflict. December 5, 2007.

- <http://www.downtoearth.org.in/full6.asp?foldername=20070315&filename=life&sec_id=8&sid=1> Read 5.12.2007.
- Seppälä, P. (1998). Tanzanian Local Administration. A vehicle for democratic development? FAD Working Paper 3/98. Research project: Finnish Aid in Development. Institute of Development Studies, University of Helsinki, Finland. <<http://www.valt.helsinki.fi/kmi/fad/fad-wp-3-98.htm>> Read 18.9.2007
- Serpell, J. A. (1986). *In the Company of Animals: Study of Human/Animal Relationships*. Basil Blackwell Inc., New York, U.S.A.
- Severre, E. L. M. (2000). Conservation of Wildlife Outside Core Wildlife Protected Areas in the New Millennium. Paper presented at the African Wildlife Management in the New Millennium Conference organized by the College of African Wildlife Management in Mweka, Tanzania, 13–15 December 2000.
- Sheppard, M. (1996). Proxemics. <<http://www.cs.unm.edu/~sheppard/proxemics.htm>> Read 18.2.2008
- Sheriff, A. (1987). *Slaves, Spices & Ivory in Zanzibar. Integration of an East African Commercial Empire into the World Economy 1770–1873*. 297 pp. James Currey, London.
- Short, J. R. (1991). *Imagined country. Society, culture and environment*. Routledge, London.
- Sibanda, B. M. C. & A. K. Omwega (1996). Some reflections on conservation, sustainable development and equitable sharing of benefits from wildlife in Africa: the case of Kenya and Zimbabwe. *South African Journal of Wildlife Research* 26: 4, 175–181.
- Sibley, D. (1995). *Geographies of Exclusion: Society and Difference in the West*. Routledge, London, U.K.
- Siege, L. (ed.) (1996). Financial Potential of the Selous Game Reserve and its Bufferzones. SCP Discussion Paper No. 21. Price Waterhouse Zimbabwe, Selous Conservation Programme. Selous Game Reserve- Wildlife Division, GTZ. Dar es Salaam, Tanzania.
- Siege, L. (2001a). Community Based Conservation: 13 Years of Experience in Tanzania. In Baldus, R. D. & L. Siege (eds.): Experiences with Community-based Wildlife Conservation in Tanzania, 17–25. Tanzania Wildlife Discussion paper No. 29. Wildlife Division, GTZ Wildlife Programme in Tanzania. GTZ, Dar es Salaam.
- Siege, L. (2001b). Hunting and Community-based Conservation in Tanzania. In Baldus, R. D. & L. Siege (eds.): Experiences with Community-based Wildlife Conservation in Tanzania, 38–43. Tanzania Wildlife Discussion paper No. 29. Wildlife Division, GTZ Wildlife Programme in Tanzania. GTZ, Dar es Salaam.
- Siege, L. and Baldus, R.D. (1998a; eds.). Conservation Attitudes of Villagers living next to the Selous Game Reserve. The Findings of Sarah Gillingham's PhD Thesis. Tanzania Wildlife Discussion Paper No. 23. Selous, Saadani and Katavi Rukwa Conservation Programmes, Community Wildlife Management. Wildlife Division / GTZ, Dar es Salaam, Tanzania.

- Siege, L. and Baldus, R.D. (1998b; eds.). Assessment of Crop Damage and Application of Non-Lethal Deterrents for Crop Protection East of Selous Game Reserve. Tanzania Wildlife Discussion Paper No. 24. Selous, Saadani and Katavi Rukwa Conservation Programmes, Community Wildlife Management. Wildlife Division / GTZ, Dar es Salaam, Tanzania.
- Shand, M.C. (1997). *Tanzania Digital National Atlas. Political. Tanzania Administrative Divisions*, 1: 2,000,000. Department of Geography and Topographic Science, University of Glasgow, Scotland. U.K.
- Smets, K. (ed.) (1997). Smallstock Project Evaluation. November – December 1996. Rural Integrated Project Support Programme – Mtwara and Lindi Regions. Monitoring & Evaluation Unit. Evaluation Report 1.
- Smith, J. M., A. Light & D. Roberts (1998). Introduction: Philosophies and Geographies of Place. In Light, A. & J. M. Smith (eds.): *Philosophies of Place. Philosophy and Geography, volume III*, 1–19. Rowman & Littlefield Publishers Inc., U.S.A.
- Smith, M. (2001). *An Ethics of Place: Radical Ecology, Postmodernity and Social Theory*. State University of New York Press, U.S.A.
- Soini, K. (2004). Between Insiderness and Outsideness- Studying Locals' Perceptions of Landscape. In Palang, H., H. Sooväli, M. Antrop & G. Setten (eds.): *European Rural Landscapes: Persistence and Change in a Globalising Environment*, 83–97. Kluwer Academic Publishers, Dordrecht, The Netherlands.
- Songorwa, A. N. (1999). Community-Based Wildlife Management (CWM) in Tanzania: Are the Communities Interested? *World Development* 27: 12, 2061–2079.
- Songorwa, A. N. (2002). Community Based Wildlife Management in Tanzania. The Policy Environment. *Kakakuona / Tanzania Wildlife* 25, 62–68.
- Stephenson, W. (1953). *The Study of Behavior. Q-Technique and Its Methodology*. 376 pp. The University of Chicago Press, Illinois, U.S.A.
- Stoner, C., T. Caro, S. Mduma, C. Mlingwa, G. Sabuni, M. Borner & C. Schelten (2006). Changes in large herbivore populations across large areas of Tanzania. *African Journal of Ecology* 45, 202–215.
- Sukumar, R. (1998). Wildlife-Human Conflict in India: An Ecological and Social Perspective. In Guha, R. (ed.): *Social Ecology*, 303–317. Oxford in India readings in Sociology and Social Anthropology. Oxford University Press, Delhi, India.
- Swai, I. (1996). The Effect of Villagisation and Other Policies on Wildlife Conservation in Tanzania. In Leader-Williams, N., J. A. Kayera & G. L. Overton (eds.): *Community-based Conservation in Tanzania. Proceedings of a Workshop held in February 1994*, 51–54. Occasional Paper of the IUCN Species Survival Commission (SSC) No. 15. Planning and Assessment for Wildlife Management. Department of Wildlife, Dar es Salaam, Tanzania. IUCN- The World Conservation Union, Gland, Switzerland and Cambridge, UK.
- TANAPA (Tanzania National Parks) (1999). *Udzungwa mountains*. 64 pp. World-wide Fund for Nature, Dar es Salaam, Tanzania.

- Tania, L., P. S. Saj & J. D. Paterson (2001). The conflict between vervet monkeys and farmers at the forest edge in Entebbe, Uganda. *African Journal of Ecology* 39: 2, 195–199.
- The United Republic of Tanzania (1979). *Tanzania map 1:250 000*. Land units of Mtwara and Lindi regions. Maps 1c and 1d. Land Resources Development Centre, The British Government's Ministry of Overseas Development.
- The United Republic of Tanzania (1994). *Report of the Presidential Commission of Inquiry into Land Matters*. Volume II. Selected Land Disputes and Recommendations. The Ministry of Lands, Housing and Urban Development, Government of the United Republic of Tanzania in cooperation with The Scandinavian Institute of African Studies, Uppsala, Sweden. GOTAB, Stockholm, Sweden.
- The United Republic of Tanzania (2002a). Wildlife Conservation (Wildlife Management Areas) Regulations, 2002. The Wildlife Conservation Act, 1974. Regulations. Dar es Salaam, Tanzania.
- The United Republic of Tanzania (2002b). The Forest Act, 2002. Acts Supplement No.7 to the Gazette of the United Republic of Tanzania No.23. Vol.83 dated 7th June, 2002. The Government printer, Dar es Salaam, Tanzania.
- The United Republic of Tanzania (2002c). Wildlife Conservation (Wildlife Management Areas) Regulations, 2002. The Wildlife Conservation Act, 1974 (No.12 of 1974) regulations made under sections 84 and 19. Govern Notice. Dar es Salaam, Tanzania.
- The United Republic of Tanzania (2003). *Tanzania Census 2002. Population and Housing Census General Report*. Central Census Office, National Bureau of Statistics, President's Office, Planning and Privatization. Government Printer, Dar es Salaam, Tanzania.
- Thirgood, S., R. Woodroffe & A. Rabinowitz (2005). The impact of human-wildlife conflict on human lives and livelihoods. In Woodroffe, R., S. Thirgood & A. Rabinowitz (eds.): *People and Wildlife. Conflict or Coexistence?*, 13–26. *Conservation Biology* 9. The Zoological Society of London. Cambridge University Press, U. K.
- Toner, A. (2003). Exploring Sustainable Livelihoods Approaches in Relation to Two Interventions in Tanzania. *Journal of International Development* 15, 771–781.
- Treves, A. & U. K. Karanth (2003). Human-Carnivore Conflict and Perspectives on Carnivore Management Worldwide. *Conservation Biology* 17: 6, 1491–1499.
- Treves, A., L. Naughton-Treves, E. K. Harper, D. J. Mladenoff, R. A. Rose, T. A. Sickley & A. P. Wydeven (2004). Predicting Human-Carnivore Conflict: a Spatial Model Derived from 25 Years of Data on Wolf Predation on Livestock. *Conservation Biology* 18: 1, 114–125.
- Tuan Y-F. (1974). *Topophilia: a study of environmental perception, attitudes and values*. 260 pp. Prentice-Hall, New Jersey, U.S.A.
- Turovski, A. (2000). The semiotics of animal freedom: A zoologist attempt to perceive the semiotic aim of H. Hediger. *Sign System Studies* 28, 380–387.

- TWCM (Tanzania Wildlife Conservation Monitoring Programme) (1989). Selous Census. Tanzania Wildlife Division. Ministry of Lands, Natural Resources and Tourism. Arusha, Tanzania.
- TWCM (Tanzania Wildlife Conservation Monitoring) (1999). Aerial Wildlife Census: The Selous, Mikumi, Kilombero and surrounding areas, October 1999. TWCM / Frankfurt Zoological Society Wildlife Survey Report, Arusha, Tanzania.
- UNCTAD (United Nations Conference on Trade and Development) (1999). United Republic of Tanzania. <http://www.unctad.org/en/docs/ldc99stat_urt.en.pdf> Read 22.7.2007
- University of Missouri-St. Louis (2007). Tanzania. <<http://www.umsl.edu/services/govdocs/wofact97/237.htm>> Read 5.9.2007
- Vaske, J. J. & M. P. Donnelly (1999). A Value-Attitude-Behavior Model Predicting Wildland Preservation Voting Intentions. *Society & Natural Resources* 12, 523–537.
- Veltheim, T., F. Mahenge & E. Msoffe (2001). Study Tour to Angai Forest Reserve in Liwale District, Lindi Region, 21–28 July 2001. East Usambara Conservation Area Management Programme Working Paper 44. Forestry and Beekeeping Division of the Ministry of Natural Resources and Tourism, Tanzania, Department of International Development Co-operation, Finland and Metsähallitus Consulting Oy. Tanga, Tanzania.
- Voets, E. W. (2005). Human-Elephant Conflict: Livelihoods & Coping Mechanisms. MA Thesis. Center for International Development Issues Nijmegen, Radboud University Nijmegen, The Netherlands.
- Walker, P. A. (2003). Reconsidering ‘regional’ political ecologies: toward a political ecology of the rural American West. *Progress in Human Geography* 27: 1, 7–24.
- Walpole, M. J. & C. R. Thouless (2005). Increasing the value of wildlife through non-consumptive use? Deconstructing the myths of ecotourism and community-based tourism in the tropics. In Woodroffe, R., S. Thirgood & A. Rabinowitz (eds.): *People and Wildlife. Conflict or Coexistence?*, 122–139. Conservation Biology 9. The Zoological Society of London. Cambridge University Press, U. K.
- Wanitzek, U. & H. Sippel (1998). Land rights in conservation areas in Tanzania. *GeoJournal* 46, 113–128.
- Wells, M., K. Brandon & L. Hannah (1992). *People and Parks. Linking Protected Area Management with Local Communities*. 99 pp. World Bank/World Wide Fund for Nature/USAID, Washington D.C., U.S.A.
- West, P. & D. Brockington (2006). An Anthropological Perspective on Some Unexpected Consequences of Protected Areas. *Conservation Biology* 20: 3, 609–616.
- Western, D. (1989). Conservation without parks: Wildlife in the rural landscape. In Western, D. & M. C. Pearl (eds.): *Conservation for the Twenty-first century*, 159–165. Oxford University Press, New York.

- Whatmore, S. & S. Boucher (1993). Bargaining with nature: the discourse and practice of 'environmental planning gain'. *Transactions Institute of British Geographers* 18: 2, 166–178.
- Whatmore, S. & L. Thorne (1998). Wild(er)ness: reconfiguring the geographies of wildlife. *Transactions Institute of British Geographers* 23: 4, 435–454.
- Whatmore, S. & L. Thorne (2000). Elephants on the move: spatial formations of wildlife exchange. *Environment and Planning D: Society and Space* 18, 185–203.
- Widgren, M. (2004). Can Landscapes Be Read? In Palang, H., H. Sooväli, M. Antrop & G. Setten (eds.): *European Rural Landscapes: Persistence and Change in a Globalising Environment*, 455–465. Kluwer Academic Publishers, Dordrecht, The Netherlands.
- Williams, A., T. S. Masoud & W. J. Othman (1998). *Community-based Conservation: Experiences from Zanzibar*. International Institute for Environment and Development. Sustainable Agriculture and Rural Livelihoods Programme. Gatekeeper Series No.80. IIED.
- Williams, D. R. (2002). Social Construction of Arctic Wilderness: Place meanings, Value Pluralism, and Globalization. In Watson, A. E., A. Lilian & J. Sproull (eds.): *Wilderness in the Circumpolar North: searching for compatibility in ecological, traditional and ecotourism values*, 120–132. USDA Forest Service Proceedings RMRS-P-26, May 15–16, 2001. U.S. Department of Agriculture, Forest Service. Rocky Mountain Research Station, Ogden, Utah, U.S.A.
- Wilshusen, P. R., S. R. Brechin, C. L. Fortwangler & P. C. West (2002). Reinventing a Square Wheel: Critique of a Resurgent "Protection Paradigm" in International Biodiversity Conservation. *Society and Natural Resources* 15, 17–40.
- Wolch, J. (1998). Zoöpolis. In Wolch, J. & J. Emel (eds): *Animal Geographies. Place, Politics, and Identity in the Nature-Culture Borderlands*, 119–138. Verso, London, U.K.
- Wolch, J. (2002a). Anima urbis. *Progress in Human Geography* 26: 6, 721–742.
- Wolch, J. (2002b). Zoöpolis. In Dear, M. J. & S. Flusty (eds.): *The Spaces of Postmodernity. Readings in Human Geography*, 200–215. Blackwell Publishers Ltd, U.K.
- Wolch, J. & J. Emel (1995). Guest editorial. *Environment and Planning D: Society and Space* 13, 632–636.
- Wolch, J. & J. Emel (eds.) (1998). *Animal Geographies. Place, Politics, and Identity in the Nature-Culture Borderlands*. Verso, London, U.K.
- Wolch, J. & J. Emel (1998). Preface. In Wolch, J. & J. Emel (eds.): *Animal Geographies. Place, Politics, and Identity in the Nature-Culture Borderlands*, xi–xx. Verso, London, U.K.
- Wondrak, A. K. (2002). Seen any wildlife? Community conflict and a struggle for the soul of Estes Park, Colorado. *Cultural Geographies* 9, 68–94.
- Woodroffe, R., S. Thirgood & A. Rabinowitz (2005). The impact of human-wildlife conflict on natural systems. In Woodroffe, R., S. Thirgood & A. Rabinowitz (eds.): *People and Wildlife. Conflict or Coexistence?*, 1–12. Conservation

- Biology 9. The Zoological Society of London. Cambridge University Press, U. K.
- Woods, M. (1997). Researching Rural Conflicts: Hunting, Local Politics and Actor-networks. *Journal of Rural Studies* 14: 3, 321–340.
- World Resources Institute (2006). Biodiversity and protected areas – country profiles. EarthTrends: The Environmental Information Portal. <<http://earthtrends.wri.org/text/biodiversity-protected/country-profiles.html>> Read 4.1.2008
- Zerner, C. (2000). Toward a Broader Vision of Justice and Nature Conservation. In Zerner, C. (ed.): *People, Plants & Justice. The Politics of Nature Conservation*, 3–20. Columbia University Press, New York, U.S.A.
- Zimmerer, K. S. (2007). Cultural ecology (and political ecology) in the ‘environmental borderlands’: exploring the expanded connectivities within geography. *Progress in Human Geography* 31: 2, 227–244.
- Zinn, H. C., M. J. Manfredo, J. J. Vaske & K. Wittmann (1998). Using Normative Beliefs to Determine the Acceptability of Wildlife Management Actions. *Society & Natural Resources* 11, 649–662.

Personal communication:

- Kamuna, A. M. (2002). Discussion 1.7.2002. (Barikiwa Village Chairman).
- Kitandala, C. (2003). Email 31.3.2003. (Teacher in Liwale town).
- Mtila, M. (2002). Discussion 22.7.2002. (Liwale District Assistant Game Officer).
- Munlea, B. (2002). Discussion 25.7.2002. (Liwale District Agriculture and Livestock Development Officer).

Appendix 1.

Questionnaire

There is a list of different objects below. Choose those objects which represent your own images of the rural African landscape. Start from the most important object of your image by marking it with number 1. Then mark the next important with number 2. and so on. Choose as many as you like or add one of your own objects if it is not on the list. Choose first from the list of places below and then choose from the other list of animals.

- ___ sorghum field (mtama)
- ___ farm house (nyumba)
- ___ grinding mill (mashine ya kusaga)
- ___ tree savanna (msitu)
- ___ river (mto)
- ___ vegetable garden (bustani)
- ___ tree plantation (mashamba ya miti)
- ___ goat shelter (ulbanda ya mbuzi)
- ___ bush savanna (mbuga)
- ___ forest (closed) (msitu uliofunga)
- ___ pasture land (malisho ya mifugo)
- ___ cassava plantation (mashamba ya mihogo)
- ___ fish pond (bwawa la samaki)
- ___ lake (ziwa)
- ___ school building (majengo ya shule)
- ___ _____ (other, what?)

Now make similar choices from the list of animals. Which of the animals below belong to your image of African countryside. You can also add one of your own if it is not in the list.

- ___ zebra (pundamilia)
- ___ goat (mbuzi)
- ___ chicken (kuku)
- ___ elephant (tembo)
- ___ snake (nyoka)
- ___ duck (bata)
- ___ lion (simba)
- ___ buffalo (nyati)
- ___ cattle (ng'ombe)
- ___ sheep (kondoo)
- ___ dog (mbwa)
- ___ dove (njiwa)
- ___ impala (swala)
- ___ warthog (ngiri)
- ___ baboon (nyani)
- ___ _____ (other, what?)

Mwanaume (male) / Mwanamke (female)

Umri (Age) _____

Jina la kijiji (Name of the village) _____