THE UNIVERSITY OF ZAMBIA

HUMAN-WILDLIFE CONFLICTS IN MWANACHINGWALA CONSERVATION AREA (MCA) KAFUE FLATS OF ZAMBIA.

BY

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A THESIS

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ABSTRACT

The study of the human-wildlife conflicts in MCA Kafue flats was done in the month of August. The study used a structured questionnaire, focus group discussions and individual interviews with randomly chosen individuals. Descriptive SPSS software was used to analyze the data at two levels: the whole data and data according to major economic activities of Fishing, Crop production and cattle herders. Twelve villages and one fishing camp were surveyed. The results indicated 19.39 % of crop farmers (17.39 % of local people) were affected by the damage caused by wildlife to crops and the Monkey/Impalas accounted for 66.67 % of this conflict. From the results human-croc/hippo conflicts affected 76.92 % of the fishermen (29 % of the local people) resulting into a loss of 13 human lives in the study year. Most of the croc/hippo attacks (75 %) happened in the Kafue River and at night (90 %). At the time of study, the MCA management through free tick control measures and a planned grazing overlap design were mitigating livestock-wildlife conflicts. The study concluded that the human-wildlife conflicts in the MCA Kafue flats could be either destructive, aggressive or as health risk to the residents and their possession. The combined effects of these conflicts were observed in the increasing levels of poaching activities and animal damage intolerance. Higher wildlife damage tolerance by the local people and more proactive means when resolving a conflict with an animal were recommended.

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DEDICATION

A dedication to my fiancée Megan Chanda and my sister Lista Kakoka

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ABBREVIATIONS AND ACRONYMS

ADMADE	Administration and Management Design.
CBNRM	Community Based National Resources Management.
CBWM	Community Based wildlife Management area.
CPT	Common Property Theory.
Crocs	Crocodiles.
CSO	Central Statistics Office.
GMA	Game Management Area.
LIRDP	Luangwa Integrated Resource Development Project.
MCA	Mwanachingwala Conservation Area.
NP	National Parks.
NPWS	National Parks and Wildlife Service.
NS	Natural Sciences (School of).
RBC	Resource Board Committee.
Sp	Specie.
Spp	Species.
SPSS	Statistical Package for Social Students.
Sq	Square.
UNZA	University of Zambia.
WWF	World wildlife Fund.

1.0 INTRODUCTION

The study to assess the human-wildlife conflicts in the MCA Kafue wetlands was done in the month of August. The human-animal conflicts in CBWM have been known to cause many difficulties in the operatives of these CBNRM. These difficulties are expected to be more significant where the human-animal conflicts involve the local resident (local community) and the wildlife being conserved. The study of these conflicts is therefore of interest to the researcher and the wetlands restoration advocates because the man-animal conflicts can lead to the success or the rejection of the CBWM by the local people.

The study was guided by questions that sought to discover the nature of the human-wildlife conflicts and the impact of these conflicts on the local community. It further established the extent and effects of the conflicts in the community. The research looked at whether these conflicts affected some sections of the community more than the others.

1.1. BACKGROUND INFORMATION

In the pre-colonial Zambia the utilization of the wildlife resources was under the chiefs. During the colonial period and the period that followed, the utilization of the wildlife resources was put under the control of the central government, which created the Game Management Areas (GMA). This unfortunately, led to bad relationship between wildlife and humans resulting into wildlife resources declining in densities (Butler C and Phiri E, 1998).

The decline in the wildlife resources that was associated with the central government's GMA led to the creation of the Community-Base Wildlife Management (CBWM) system called the Administrative and Management

Design (ADMADE). In this system the wildlife, domestic livestock and the human beings are to live side by side while utilizing the same resource base (Butler C and Phiri E, 1998).

Wildlife and Livestock are historically compatible in many grazing ecosystems. However, the additional of human settlements and agricultural production has complicated this compatibility in many ways including the distabilization of the grazing ecosystem.

Rural livelihood security has declined in much of Zambia over the past decade and the contributing factors for this decline include increasing population, draught and lack of skill to diversify income. The most evident effects of the declined rural livelihood security are hunger and poverty (http://www.wcs.org/international/africa/zambia).

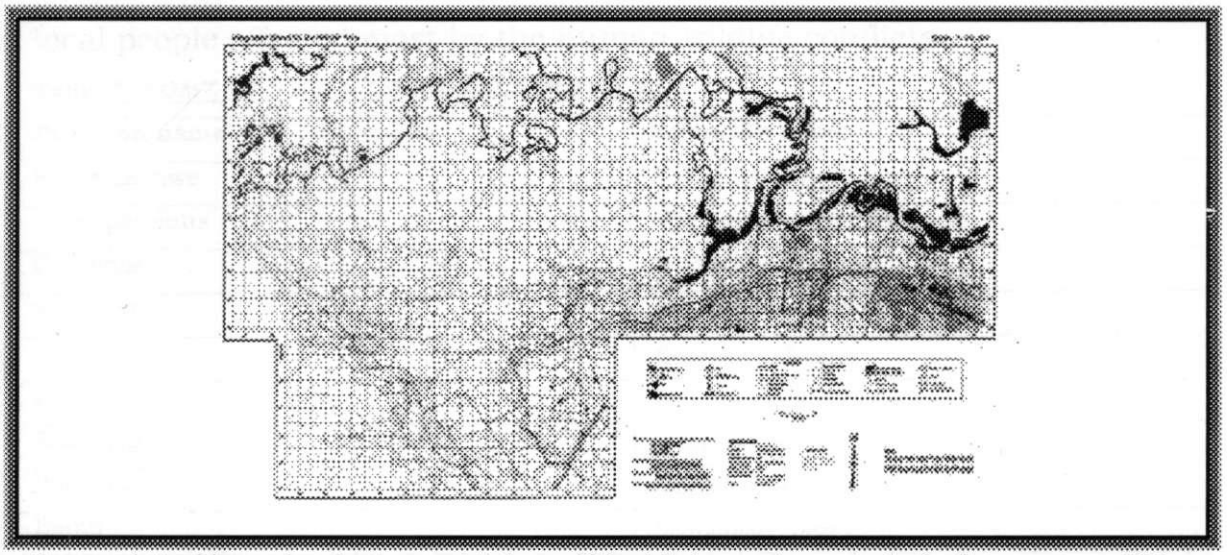
Hunger and poverty are the most important threats responsible for the degradation of wildlife and other natural resources in and around Zambia's national parks. It seems that law enforcement has generally failed to control the harmful impact of these threats resulting into dramatic declines in wildlife numbers in many parts of the country (http://www.wcs.org/international/africa/zambia).

The CBWM face a lot of problems and difficulties in their day-to-day operations. These problems range from political interference, social, policy framework or lack of it and the conflicts of interest of utilization. In Zambia some of the well-known nature conservation Programmes include the Mwanachingwala Conservation Area (MCA) in Mazabuka and the Luangwa Integrated Resource Development Project (LIRDP) area in Luangwa.

1.2 STUDY AREA DESCRIPTION

The MCA is located in the Southern Province of Zambia, Mazabuka district, in the area for chief Mwanachingwala. It is made up of land that has been contributed by the local community of Chief Mwanachingwala and the private sector working in Mazabuka and it is part of the Kafue Flats wetlands. It was started in 2001.

Figure 1: Area map for MCA



Source: http://www.iwmi.cgiar.org/dialogue/Files/dialogues/mappingkafueflats-mwanza-TS9

The MCA land is a total of about 47, 000 hectares with the community of Chief Mwanachingwala being the major land contributors. The private sector in the MCA comprises of sugar plantations namely Zambia Sugar, Nanga Farms, Ceres Farm, Zambezi Ranching and Cropping and Pinkney and Bignell Farms (http://www.mca-kafueflats.org/locaation.htm).

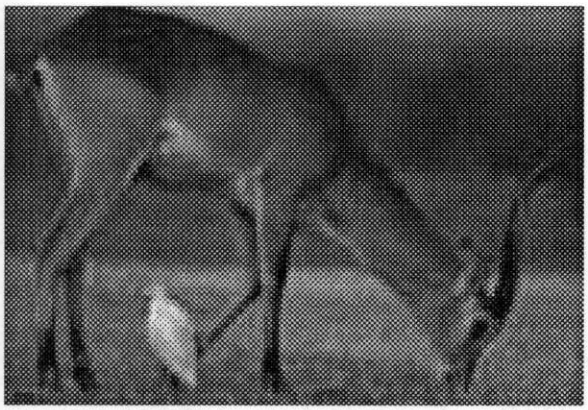
The local community of Chief Mwanachingwala represents the interests of some 60,000 subjects of Chief Mwanachingwala who traditionally claim the wetlands in Mazabuka as their heritage. The communities, who are primarily herders, feel a strong bond with the MCA because they have access to improved rangeland for their cattle, as both domestic and

wild animals share the area. Table 1. The communities also use the MCA for the improved dry season grazing, fishing and use the nutrient rich discharge water from the sugar cane plantation for crop growing (http:/www.mca-kafueflats.org/partners.htm).

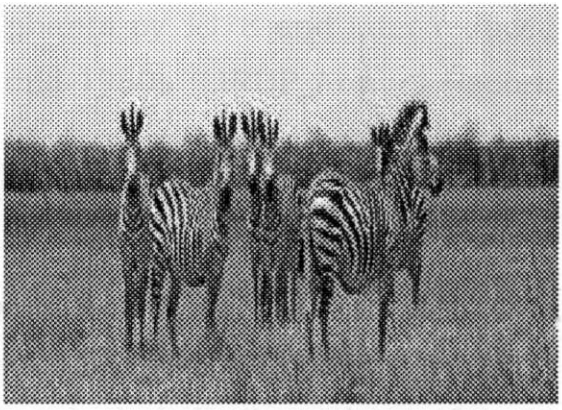
In view of the above multiple utility of the MCA, the study sought to assess human-wildlife conflicts in the MCA Kafue flats of Zambia and to establish their impact on the local people and the conservancy. The specific objective was to identify the wildlife spp and the categories of the local people affected most by the human-wildlife conflicts.

Table 1: SOME OF THE WILD ANIMALS IN THE MCA

Common name	**Scientific name**
Kafue Lechwe	*Kobus leche kafuensis*
Hippopotamus	*Hippopotamus amphibious*
Crocodiles	*Crocodilus niloticus*
Sitatunga	*Tragelaphus spekel*
Impala	*Aepyceros melampus*
Zebra	*Equus burchelli zambeziensis*
Bush pig	*Potamochoerus porcus*
Warthog	*Phacochoerus aethiopicus*
Eland	*Taurotragus oryx*
Oribi	*Ourebia ourebi*



The Kafue Lechwe
(kobus leche kafuensis)



The Zebra
(Equus burchelli zambeziensis)

2.0 LITERATURE REVIEW

Community based wildlife management (CBWM) can be defined as the regulated use of wildlife populations and ecosystems by local 'stakeholders'. It can also be defined as conservation by, for and with the local community (Western and Wright 1994 quoted by Dilys Roe and Magaret Jack 2001).

In pre-colonial Zambia, management of the wildlife resource was invested in the traditional rulers (Chiefs) on behalf of the community. When colonial rulers came in the early 1930's, they thought that local communities did not have the capacity to manage their wildlife resources. The colonial rulers established Game Management Areas (GMAs) and National Parks (NPs) without consultation with the local communities, with the view of establishing proper management of the wildlife resources through strict law enforcement. This led to a negative response from the local community, which resulted in illegal hunting. This in turn caused a decline in the wildlife resource, despite the vigorous law enforcement effort. It was estimated that during the 1960s and 1970s, the Luangwa Valley alone had over 100,000 elephants. This population was reduced to 50,000 elephants by 1978 and later reduced to less than 5,000 elephants by the mid-1980s (LIRDP Annual Report, 1987).

The declining wildlife resources forced National Parks and Wildlife Service (NPWS) to reassess the law enforcement or the militaristic approach to secure the wildlife resource. Instead a multi-sector land-use management project in the GMAs that included all sections of rural resource use as a way to involve local communities in the management and protection of wildlife in the GMAs of Zambia was recommended. There was need to involve the local community in wildlife management in

order to consolidate their participation. There was also a need to share benefits from wildlife resources with them so that they would value and hence protect the wildlife (Phiri E and Butler C, September 1998).

Wildlife resource conservation challenges in Zambia evolve as expanding human needs bring new pressures on the protected areas and its rich diversity. Hunger and poverty are the most important threats responsible for the degradation of wildlife and other natural resources. Conservation in Zambia therefore, requires innovative solutions to help communities become better custodians of their land by benefiting from markets that alleviate the adverse effects of poverty and hunger on wildlife (http://www.mca.org/internation/africa/zambia).

The MCA Kafue flats is renowned for a spectacular array of different birds that feed on the newly spawned fish in the shallow waters. There are over 470 species identified so far in the MCA, including White and Pink backed pelicans, Goliath herons, Spur-winged geese and the largest African Population of the endangered Wattled Crane (http://www.mca-kafueflats.org/birding.htm).

The partners established the MCA in order to achieve its goals, which are beneficial for the sugar plantations, the local community as well as the environment. MCA goals are:

1. Rehabilitation and wise use of the MCA wetland including re-establishment of indigenous flora and fauna.
2. Maintenance of a functioning and healthy wetland, which will provide sufficient water quality and volume for eco system and local partners to sustainably utilize for their needs.
3. MCA should be self-sustainable both financially and managerially.

4. Operating profit from the MCA will be used for the benefit of the MCA and improving living conditions of the people of Chief Mwanachingwala (http://www.mca-kafueflats.org/partners.htm).

Previous studies of the CBWM have indicated that there are both successes and hindrances to success. Some of the successes of the CBWM are seen in the Local communities that have become resourceful and motivated to manage their natural resources and improve their livelihoods. However most of the successes of the CBWM are non-financial benefits, which are difficult to quantify (Lesley P.B, 2000). There are other success stories specific to specific CBWM such as the success stories of the Luangwa Integrated Resource Development Program; Community Based Natural Resources Management (LIRDP CBNRM) which include; small dam construction, community based scouts, Nsendamila cultural village, Kawaza village tourism and Electric fencing (Phiri E and Butler C, September 1998).

However there are a considerable number of conflicts that are hindrances to the successes of the CBWM. Some of the conflicts observed as the potential obstacles to CBWM success by Lesley P. B, June 2000, include; the consideration of the wildlife resources as a common property, the authority of utilization which is vested in the local chiefs and/or government and that the revenues go to the central government or to private enterprise. The other conflicts reported as Flaws in CBWM (Phiri E and Butler C, September 1998) include; the unequal distribution of the benefits, different role players having incongruent goals, the use of the same strategies by the project managers in very different situations, project cycles not taking into account that communities are complex and change constantly, local knowledge which is often imperfect because of people's historical alienation from nature, and that the financial benefits

are over-estimated and consequently over-sold to communities and donors.

In general, communal areas conservancies face a number of conflicts or problems in establishing and or in becoming established, including: the definition of community and of conservancy boundaries, competing interest groups within communities, competition between new conservancy institutions and established institutions, differences in scale between appropriate social units and resource management units; uncertain land tenure, and unequal levels of support available to assist all the communities wishing to form conservancies (Lesley P B, 2000).

A complete study and evaluation of community based wildlife management suggests that CBWM programs have had little impact on the local behavior, community livelihoods and wildlife conservation (Mulenga, 2002). However, in order to promote the stability, productivity and sustainability of wildlife resources and its ecosystem and contribute to rural development, science-based integrated portfolio approach ecosystem management needs to be explored as any alternative (Mulenga, 2002).

The study of these CBWM also suggest of considerable conflict between, and confounding of, traditional and modern roles and the result of these is likely to damage both traditional and modern institutions, making modern institutions unworkable and damaging the credibility of traditional ones (Phiri E and Butler C, 1998).

2.1 THEORETICAL FRAMEWORK (COMMON PROPERTY THEORY)

Fundamental to an investigation of CBWM is an understanding of the theory and assumptions underlying political decentralization. Decentralization here implies a process of redistribution of power and transfer of responsibilities from top (central government) to bottom (rural communities). The fundamental principle of this is the important assumption that decentralization will result in improved management of natural resources. However the Centralized and privatized control of resources has been the predominant management strategy whose strength was on "The Tragedy of the Commons" (Hardin, 1968). Hardin argued that common ownership of a resource couldn't succeed, as the innate human desire to maximize individual benefits would inevitably cause overuse of a common resource leading to ultimate resource degradation.

On the other hand Common Property Theory (CPT) argues for the potential success of commonly managed resources and identifies several broad but crucial criteria for success in commonly, managed natural resources. And these criteria include autonomy and recognition of the community as an institution, proprietorship and tenure rights, rights to make the rules and viable mechanisms to enforce them, and ongoing incentives in the form of benefits that exceed costs (Ostrom, 1990, and Bromley, 1992). The principles of Common Property and decentralization are to increase rural economic development and to improve natural resource management through improved attitudes to wildlife. Attitudes towards wildlife and natural resources are central to the relationships of people with the land and resources (Little & Horowitz, 1987 and Redclift, 1987).

3.0 METHOD AND PROCEDURE

In order to draw manageable but fairly representative sample, the respondents were chosen at random. As the population was composed of individuals whose level of education was not known, research assistants were used to administer a structured questionnaire.

3.1 QUESTIONNAIRE DESIGN

The survey used one type of questionnaire for the local people, 3 different checklists for institutions and individual interview with randomly chosen respondents. An extensive consultation was done from CSO instruments in order to develop the questionnaire. Appendix 3.

A pilot administration of the questionnaire was envisaged as necessary before the actual survey in order to gain information for the modification of the questionnaire before the actual survey. The questions were pre-tested in the pilot administration of the questionnaire and the necessary adjustments were done to the questionnaire. However, due to unforeseen circumstances, mainly because of the resignation of the research-supervising lecturer, the commencement of the process of administrating of the questionnaire was delayed.

The target sample size was 100. However due to time constraints only 70 respondents were surveyed and 1 was a non-respondent leaving only 69 respondents. The sampling unit consisted of individuals of either sex who were picked at random in each village. Since the local community of chief Mwanachingwala is composed of both literate and illiterate individuals, the study used research assistants to administer the questionnaire to randomly chosen individuals as their being able to read and write was not known before the actual contact with the respondent.

3.2 DATA COLLECTION

The required data was captured through a comprehensive questionnaire addressing knowledge, attitudes to wildlife, livestock dependency, benefit flow and perceived value of wildlife which was administered to individuals selected at random in 13 Villages. Table 2 below. Structured questions (closed-end) were used because they are easy both to administer and to analyze.

Table 2: List of the villages surveyed

Serial number	Village name	Frequency	Percentage
01	Chimbololo	4	05.80
02	Chiwala	4	05.80
03	Himaluba	6	08.70
04	Mbozi	7	10.45
05	Moonga	2	02.90
06	Mpikwa	3	04.35
07	Muvwambili	3	04.35
08	Muzyale	2	02.90
09	Mwenda	3	04.35
10	Mweene	3	04.35
11	Shimungalu	24	34.78
12	Simaningi V4	5	07.25
13	Tembwe tembwe	3	04.35
	Total	**69**	**100**

The other data was collected through the focus group discussions using three different checklists for the MCA manager, the royal authority representative and a representative of Ceres Farms. Appendix 3.

In addition to collecting of data through the questionnaire and the checklists, more data was collected through the one-on-one interviews with the residents during the administration of the questionnaire.

3.3 DATA ANALYSIS AND INTERPRETATION

The collected data was analyzed through the use of descriptive SPSS computer software. This data analysis tool was used in order to facilitate the statistical manipulation of the responses. In addition the software is friendly and numbers can easily be used since it has in built functions.

The data was analyzed at two levels. The first level was the analysis of the entire data as collected from the 69 respondents for believes and attitudes towards the wildlife by the local community as these are central to human-wildlife relations. The second level was the analysis of the data according to the major economical activities of crop cultivation, livestock rearing and fishing. This was to identify conflicts in those categories and the wildlife responsible for the conflicts within the categories.

3.4 LIMITATIONS

The commencement of data collection was delayed mainly as a result of the resignation of the study-supervising lecturer. Due to time constraints, some villages were not surveyed and the planned weeks of residence in the MCA was not done. Therefore, the qualitative observations that were supposed to be used to investigate and establish the benefit flow; power relations, conflicts and behaviors as well as to validate quantitative observations were equally not done. This also resulted in no formal community workshop or RBC meetings attended.

4.0 RESULTS

4.1 INTRODUCTION

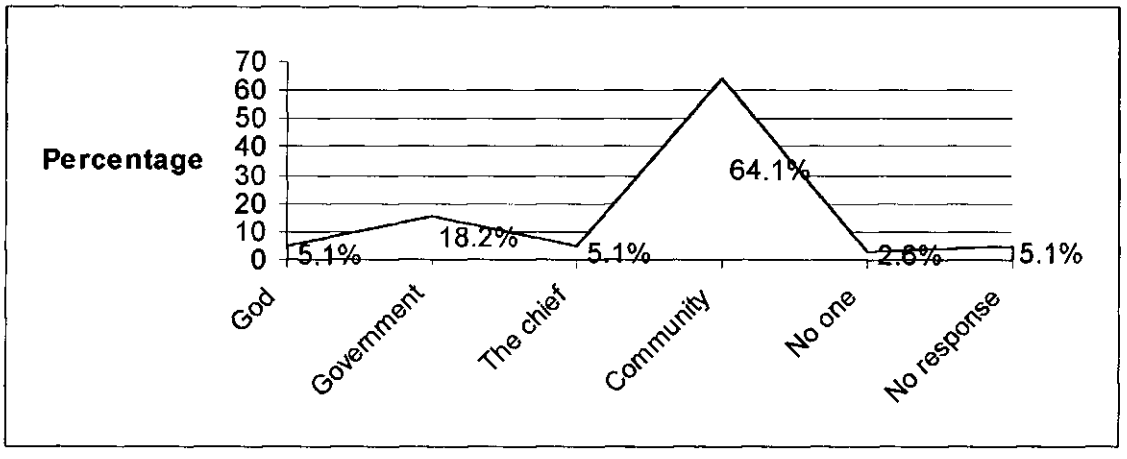
The study surveyed a total of 12 villages and one Fishing Camp (Shimungalu), receiving responses from 69 villagers who live in Chief Mwanachingwala area. This represented 69 % of the initial target sample of 100 and 98.57 % of the contacted residents.

The study surveyed more males (56.52 %) than females (43.48 %). To the advantage of the study 94.20 % of the respondents were able to read and write (had attained education level of Form 3 and above) resulting into ease of questionnaire administration. The major economical activities of the respondents were cultivation of different seasonal crops and gardening, livestock and livestock products sales, fishing and a combination of the above.

4.2 PERCEPTIONS AND ATTITUDE TOWARDS WILDLIFE.

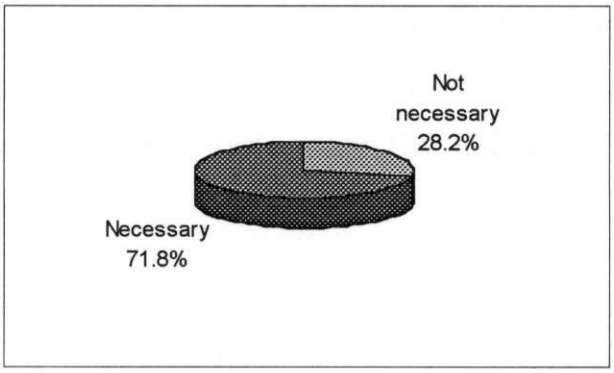
Most of the respondents (64.1 %) were of the opinion that the community owned the wildlife in MCA and that the responsibility to look after the wildlife was upon the community. The others (30.8 %) saw different authorities over wildlife resources in the MCA and that the responsibility to conserve the wildlife rested upon such authorities. Figure 2 below.

Figure 2: Percentage distribution of ownership of wildlife in the MCA.



On the necessity of the wildlife conservation, 71.80 % believed that it was necessary while 28.20 % believed that it was not necessary. Figure 3 below.

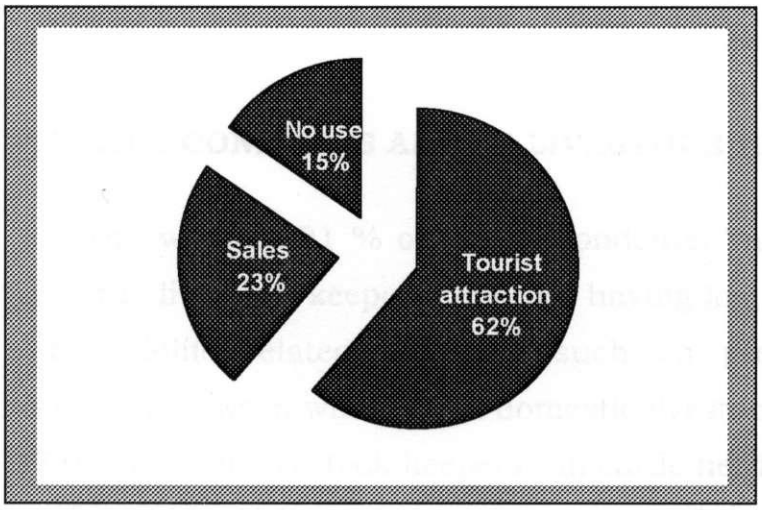
Figure 3: Distribution of respondents by necessarily of wildlife conservation.



The respondents perceived benefits from the wildlife as support services, employment, source of cash and others did not perceive any benefit from wildlife (23.15 %, 25.60 %, 12.5 %and 38.75 % respectively).

The majority, 62 %, of the respondents were of the opinion that the best use of the wildlife was in the attraction of the tourists. Figure 4 below.

Figure 4: Best use of wildlife.



4.3 HUMAN-WILDLIFE CONFLICTS AMONG CROP FARMERS

Most of the respondents, 62 (89.85 %) were involved in crop cultivation. Out of the 62 respondents involved in crop cultivation 45 (72.26 %) cultivated maize and cotton while the rest (27.74 %) did grow various crops. 17.39 % of the respondents (19.36 % of the crop farmers) experienced damage of their crops by wildlife. Table 3 below. The wildlife spp that damaged the crops most were the monkeys and the Impalas. Table 4 below refers to.

Table 3: Respondents that experienced wildlife crop damage.

	Frequency	Percent
Yes	12	17.39
No	57	82.61
Total	69	100.0

Table 4: Wildlife type and crop damage

	Frequency	Percent
Impala/Warthogs	8	66.67
Monkeys	3	25.00
Other wildlife	1	08.33
Total	12	100.0

4.4 HUMAN-WILDLIFE CONFLICTS AMONG LIVESTOCK KEEPERS

The livestock keepers were 73.91 % of the respondents. Table 5 below. Most (82.76 %) of the livestock keepers reported having lost some of the livestock due to wildlife related problems such as predation and transmissible diseases between wildlife and domestic livestock. The cattle herders were 47.06 % of the livestock keepers. All cattle herders reported dipping their cattle against ticks and the other means of protecting their cattle from diseases were through chemotherapy (75 %) and other

methods such as bush burning (25 %). However none of the respondents associated the tick challenge to the presence of the wildlife in the MCA. 80 % of the cattle herders reported grazing overlap with wildlife ungulates by design while 20 % used alternative grazing lands. Only 28% associated poultry mortalities (which was as high as 100 % in some cases) to wildlife while 72 % did not think the wildlife was responsible for poultry mortalities.

Table 5: Livestock rearing distribution.

	Frequency	**Percent**
Yes	51	73.91
No	18	26.09
Total	69	100.0

4.5 HUMAN-WILDLIFE CONFLICTS AMONG THE FISHERMEN

From the MCA records and from the responses 13 lives were lost in the year of the study due to attacks from crocs/hippos. 76.92 % of the fishing community (29 % of the respondents) had been attacked by crocs/hippos and ¾ of the attacks happened in the Kafue River. Table 6 below. 65 % of those attacked by crocs/hippos were men and 90 % of the attacks happened at night.

Table 6: wildlife attacks on human

			Q48					
		Q 46	Home	Fields	River	Forest	Other	Total
Q45	Yes	Crocs/Hippos	1 (5%)	_	15(75%)	2(10%)	2(10%)	20(100%)
		Land animal	_	_	_	_	_	_
		Birds	_	_	_	_		_
		Others	_	_	_	_	_	_
		Total	1 (5%)	_	15(75%)	2(10%)	2(10%)	100%
	No							

5.0 DISCUSSION

From the results, the local people had positive attitude towards community ownership of the wildlife in the MCA (64.1 %) and therefore, thought the responsibilities to look after the wildlife resources were upon themselves. When asked whether the MCA was necessary they answered in the positive. However the respondents were highly divided on the benefits they derived from the MCA project. Those that did not perceive any benefits were in the majority at 38.75 %. While only 12.5 % saw the benefit from wildlife in cash form, 85 % expected the benefits from wildlife to be in form of cash from tourists (62 %) and quarterly sales (23 %). A similar study by Lesley P B. (2000) in Sankuyo village, Okavango region of northern Botswana reported a positive attitude towards community ownership of wildlife resources (Results were community 92 %, God 4 % and Government 4 %). But in Khwai village the results were Government 3 %, God 16 %, community 6 %, Baswana 7 % and all people of Botswana 68 %. There were more conflicts in Khwai village than in Sankuyo. Therefore, the attitudes towards community ownership of wildlife resource have an inverse effect to the human-wildlife conflicts.

The Monkeys, Impalas and warthogs were the wildlife that caused the most damage to the crops. These wildlife damage to crops affected 17.39 % of the respondents (19.39 % of the crop cultivators). Lesley P B. (2000) observes that conflicts between wildlife and agro-pastoral societies result in loss of wildlife (poaching, disturbances). The results of this study agree with these observations as the respondents managed wildlife damage to crops by way of lethal methods of trapping the edible wildlife spp that damaged their crops.

The mortalities in livestock, especially poultry mortalities that reached as high as 100 % (chicken mortalities) affected 82.76 % of the livestock

keepers. All cattle herders (47.06 % of the livestock keepers) dipped their cattle to mitigate the tick challenge on regular bases. Surprisingly no one of the respondents associated the tick challenge or the livestock diseases to the presence of the wildlife in the MCA. The possible explanation of this positive attitude by the local people is in the existing animal health interventions for livestock production by the MCA in providing the dipping chemicals to the cattle herders at no cost of the residents. The MCA management maintains dipping infrastructures and provides free access to dipping chemical to the cattle herders. There was no Livestock-wildlife spatial conflict as the grazing together was by design.

The study results indicate that the crocs/hippos were rated high as the wildlife that caused harm to human life. The results of the study agreed to gender predisposition, as 65 % attacked were males compared to 35 % females. Most of these human-croc/hippo conflicts happened in the Kafue River (75 %) and 90 % of the attacks were at night. It is reported that the village with access to fish has far fewer traditional hunters and contribute much less to the area's poaching problems than the village with less access to fish (http://www.wnf.nl/wnf). Shimungalu fishing camp did not reflect this and the possible reason could be due to high attacks (76.92 %) experienced among the fishing community.

6.0 CONCLUSION

As the human population continues to grow and land-use patterns changes, conflicts between humans and wildlife will inevitably increase. More than ever, maintaining a balance between humans and wildlife requires a strong understanding of not only wildlife and the environment, but also the socio-cultural and economic factors that influence wildlife management.

In the MCA, the human-wildlife conflicts can be classified as either destructive (damage to crops), aggressive (harm to people life) or as health risks (potential transfer of disease/parasites to people and their livestock).

The destructive human-wildlife conflicts were observed in the crop damage caused by Monkeys, Impalas, Warthogs and Hippos or Bush pigs. The residents mostly affected by this type of conflict were the crop farmers, the indigenous local people of chief Mwanachingwala. The effects of this type of conflict were in the attitudes of the residents, which were inversely related to the number of species invading their agricultural fields.

The aggressive human-wildlife conflict affected the fishermen most, mainly due to their way of earning a living. It also affected more males than the females. The wildlife spp exhibiting aggressiveness towards human beings were the Hippos and the crocs. The effect of this type of conflict was seen in the high levels of wildlife intolerance.

The health risk conflict were being mitigated by the MCA management therefore the effects of this conflict were not captured in the study.

7.0 RECOMMENDATIONS

The human-wildlife conflicts cannot be completely eradicated in a conservancy where communities utilize the same resource base that provides food and/or shelter to the wildlife.

Whatever the methods used in the management of the human-wildlife conflicts, a combination of indigenous knowledge and land use planning to improve management and decision making for a good wildlife ecosystem, should be incorporated.

To the already existing methods of resolving a conflict with an animal being implemented by the MCA management, the more proactive means should be considered. Proactive means such as removing attractants, installing barriers, applying repellents and a final alternative of trapping it, should be considered. However, trapping should be the last option because it rarely is a permanent solution if other animals are in the area, and food and/or shelter remain available to them.

Further research is recommendation that should take into account the wildlife-livestock interactions in MCA Kafue flats the livestock-wildlife grazing complementarities.

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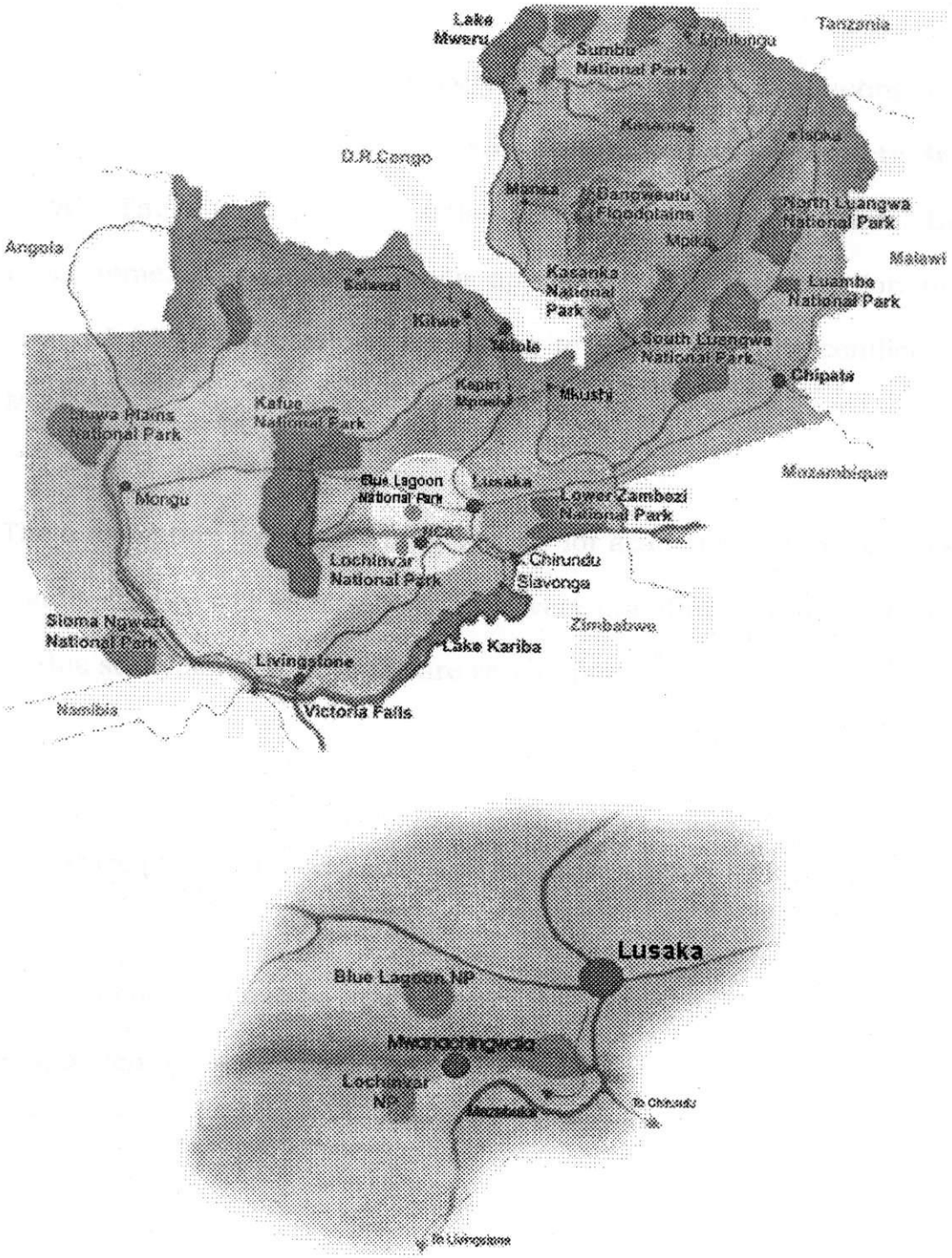
Appendix 1

MCA LOCATION MAP.



Source: **http://www.mca-kafue.org/location.htm**

Appendix 2

CONSENT FORM

My name is..... and I am helping a 5th year student of the University of Zambia who is conducting a study with the aim of **"finding out the Human-wildlife conflicts in the MCA".** This exercise is a partial fulfilment of the Bachelors' Degree programme. I would very much appreciate your participation in this study. I will ask questions pertaining to Human-wildlife conflict in the MCA.

The information collected will be strictly for academic purposes and strict confidentiality will be observed. I am very grateful for your participation in this study since your views are very important.

Signature of interviewer: .....Date: .....

Respondent agrees to be interviewed= 1

Respondent does not agree to be interviewed= 2

Questionnaire No: | | | |

Day/ Month/Year of Interview | | | 0 | 8 | 0 | 5 |

QUESTIONNAIRE

TO FIND OUT THE SOURCES OF THE HUMAN-WILDLIFE CONFLICTS

A.	***BACKGROUND INFORMATION***		
1	Name of Respondent (Optional		
2	Sex	Female.....1 Male.....2	
3	Age	Below 25.....1 Between 25& 40.....2 Over 40.....3	
4	Occupation	Formal employment.....1 Farming.....2 Fishing.....3 Others (specify).....4	
5	Village name	Chiwala.....1 Himalumba.....2 Mpikwa.....3 Fishing camp.....4 Other (specify').....5	
6	Level of education attained	Grade 7.....2 Grade10.....3 Grade 12.....4	
7	Religion	Christian.....1 Moslem.....2 Hindu.....3 Other (specify).....4	
8	Family size	Less than 5.....2 Between 5 and 10.....3 Over 10.....4	
B. SOCIO-ECONOMIC			
9	What is your major source of income?	Formal employment.....1 Crop sale.....2 Livestock sales.....3 Other means.....4	
10	Do you eat meat?	Yes.....1 No.....2	If No go to Q13
11	How often do you eat bush meat (game meat)?	Once per week.....1 Rare.....2 I don't eat.....3 Other (specify).....4	
12	Where do you get the bush meat you eat?	From the MCA.....1 From business men.....2 Don't know.....3 Other (specify).....4	
C.	**DAMAGE TO PROPERTY BY WILDLIFE**		
13	If you have a Farm/Field What do you produce?	Maize & cotton.....1 Sorghum .....2 Vegetables.....3 Other (specify).....4	
14	Have you ever experience damage to crops (in the field/stored) by wildlife?	Yes.....1 No.....2	If no go to Q18.
15	Which animals damage you crops produce?	Rats.....1 Birds.....2 Impalas/warthogs.....3 Others (specify).....4	
16	How do you estimate the damage?	Not much.....1 Medium.....2 High.....3	
17	What do you think should be done to	Kill them.....1	

	the offending wildlife?	Restrict them.....2 Nothing.....3	
18	How do you protect your crop/produce from pests?	Chemical sprays.....1 Crop rotation.....2 Others (specify).....3	
19	How often do you spray the crop/produce with pesticides?	Weekly.....1 Fortnightly.....2 When chemicals are available.....3	
20	Do you keep chickens, goat or cattle?	Yes.....1 No.....2	If **NO** go to Q 31.
21	Have you lost any (Q21) due to "luunga", snakes, hyenas or any carnivores and wildlife diseases?	Yes.....1 No.....2 Not sure.....3	
22	How do you estimate the loss in Q21?	Low.....1 Medium.....2 High.....3	
23	What do you think should be done to minimize these loses?	Do away with wildlife.....1 Reduce wildlife population.....2 Nothing.....3 Other (specify).....4	
24	Do your animals sometimes mix with wildlife?	Yes.....1 No.....2	If no go Q27
25	How often do they graze together with wildlife?	Every day.....1 Most of the year.....2 Less than half a year.....3 Do not mix.....4	
26	Why do they mix?	By design.....1 Lack of grazing lands.....2 Others (specify).....3	
27	How often do you dip/spray your domestic livestock?	Weekly.....1 Fortnightly.....2 Others (specify).....3	
28	Who pays for the dip chemical?	MCA management.....1 Contributions.....2 Myself.....3 Other (specify).....4	
29	Where do you think the ticks come from?	From wildlife.....1 From nearby farms.....2 From nearby bush.....3 No idea.....4 Other (specify).....5	
30	How else do you protect your livestock wildlife diseases and parasites?	Bush burning.....1 Bush clearing.....2 Scaring away wildlife.....3 Other (specify).....4	
D. ATTITUDE TOWARDS WILDLIFE			
31	Who owns the wildlife in the MCA?	God.....1 Government.....2 The chief.....3 Community.....4 No one.....5 Other (specify).....6	
32	Who should look after the wildlife?	Authorities.....1 Community.....2 No one.....3 Other (specify).....4	
33	As an individual what benefits do you realize from the wildlife conservation in the MCA?	Cash.....1 Employment.....2 Meat.....3 Support services.....4	

		Others (specify).....5	
34	In your opinion what is the best use of the wildlife?	Tourism attraction.....1 Sales to generate income.....2 No use.....3 I don't know.....4	
35	Is the wildlife responsible for some diseases?	Yes.....1 No.....2	
36	Is wildlife responsible for some bad luck in the village?	Yes.....1 No.....2 Not sure.....3	
37	How do you feel about wildlife conservation?	Not necessary.....1 Necessary.....2	
E. UNPLANNED UTILIZATION OF THE MCA			
38	How else do you use the MCA?	Firewood, poles, fiber.....1 Gathering foods.....2 Herbs.....3 Hunting/fishing.....4 Other (specify).....5	
39	Is the MCA the only source of the above?	Yes (only source).....1 No (other sources exist)..... 2	
40	Do you get authority from the management or the chief before using the MCA?	Yes I do.....1 No I do not.....2	
41	Do you see the above resources finishing one day?	No they can not..... .....1 Yes they may.....2 No idea.....3	
F. DIRECT CONFRONTATION			
42	Have you ever killed any wildlife for any reason (meat/sport/medical/offense)?	Yes.....1 Not.....2 Not sure.....3	**If No go to Q45**
43	Why did you kill them?	Damaged produce/property.....1 Bring diseases to livestock.....2 Scared you.....3 formeat.....4 Other (specify).....5	
44	If it was due to damage to property. What property?	Crop produce.....1 Boat/fishing equipment..... .....2 Housing unit.....3 Other (specify).....4	
45	Have you been attacked by wildlife before?	Yes.....1 No..... 2	If No go to Q49.
46	Which wildlife?	Crocodile/hippo.....1 Land animal.....2 A large bird.....3 Other (specify).....4	
47	What time was is it?	Night.....1 Daytime.....2	
48	Where were you at the time of attack?	Home.....1 At the field.....2 In the forestry.....3 Fishing in the river.....4 Other (specify) 5	
49	Have you ever head of anyone who was killed by the wildlife (water, land and air animals)	Yes.....1 No.....2 Not sure.....3	
50	How many this year alone (from Q49 above)	More than 10..... .....1 Between 5 and 10.....2 Less than 5.....3 Other (specify).....4	

Appendix 3

GROUP DISCUSSION FOR STAKEHOLDERS

1. Name of Institution
2. Date of interview
3. Name of Respondent
4. The MCA has been facing Human-wildlife conflict. Are you aware of this conflict?
5. For how long have you known this conflict?
6. How did you come to know about this conflict?
7. What are your short terms and long terms plans that you have put in place to address the conflict?
8. When do you intend to implement these measures?

FOCUS GROUP DISCUSSION FOR MCA MANAGEMENT.

1. Date of interview
2. Name of respondent
3. How many residents have lost their lives due to attack by wildlife?
4. According to your opinion as a manager why is there Human-wildlife conflict problem in the MCA?
5. Who is most likely to be affected by this conflict and why?
6. Which animal species are most affected by the conflict?
7. What do you think are the effects of the conflict on the MCA ecosystem?
8. What arrangements have been made by the MCA management to ensure that the conflicts are avoided?
9. What plans are there to help the affected families in reducing the effects of these conflicts?
10. What future plans do you have as MCA management to reduce these conflicts?

FOCUS GROUP DISCUSSION FOR THE ROYAL AUTHORITIES

1. Date of interview
2. Name of respondent
3. What is the royal administration doing to address the Human-wildlife conflict problem? What are short and long term measures?
4. Who are the co–operating partners in these efforts of addressing the Human-wildlife problems?
5. What support is the royal administration offering MCA management in their initiative of reducing the conflict?
6. What is the role of the royal administration in this initiative?
7. Has there been any previous initiative by the royal administration towards alleviating the Human-wildlife conflict problem?

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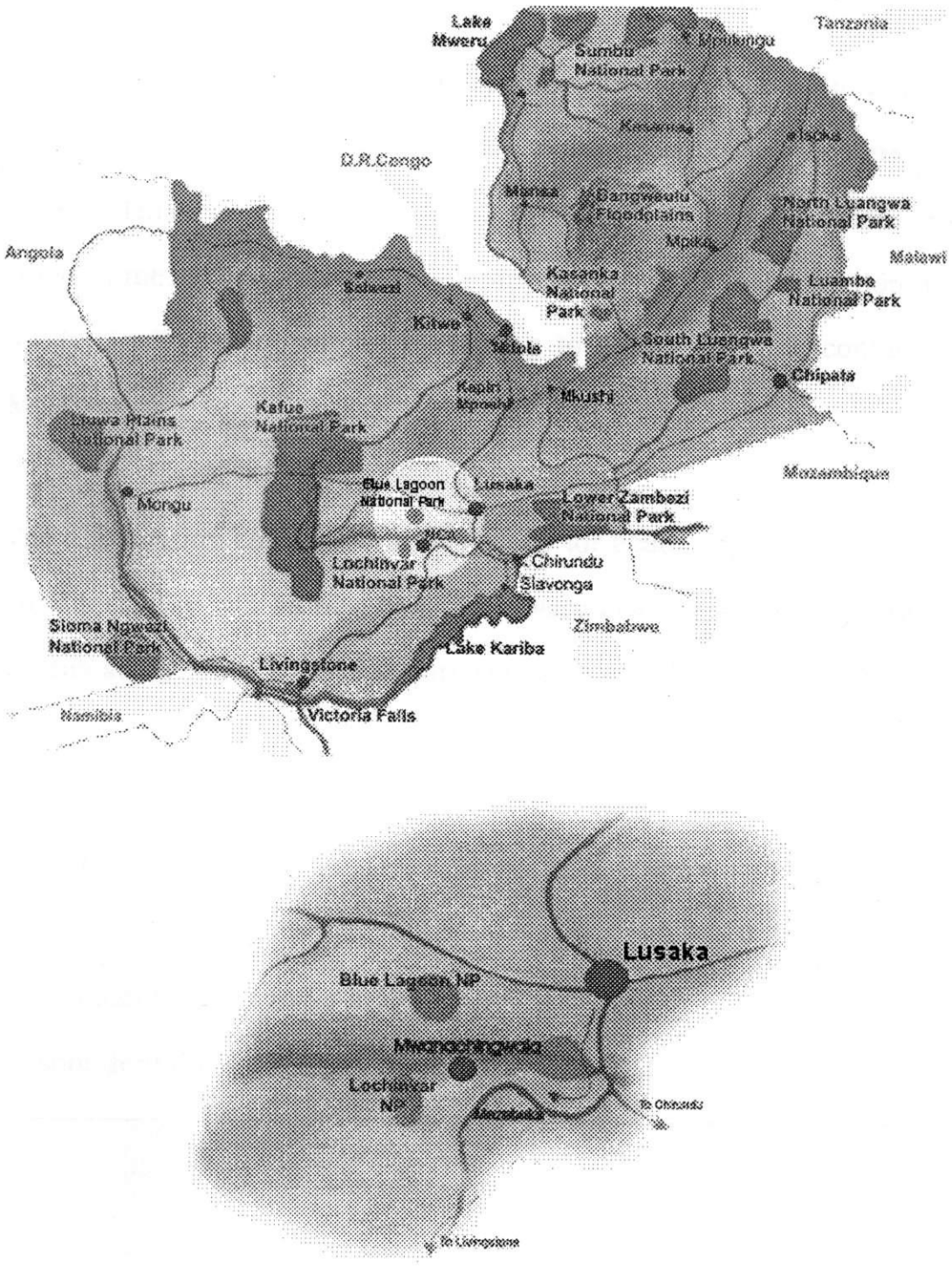

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