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Understanding the Impact of Human Wildlife Conflicts in Conservation Management: The Case of Victoria Falls in Zimbabwe

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Abstract:

This research derives from literature and empirical field based data from doctoral thesis in the aftermath of a study undertaken by Mzembi (2015) entitled “An Exploratory Study of Conservation Management in Zimbabwe: A Governance Perspective”. One of the key issues to emerge was that the cooperation of the local community was an important factor in the success of conservation efforts. This implies close partnership and cooperation between the conservation management staff and the members of the immediate community. As the findings can reveal, the power dynamic imbalances forestall possible cooperation between the local people and conservation management processes in Victoria Falls, which is largely the mirror of what is happening elsewhere in Zimbabwe’s conservation of wildlife. Indeed, as will be shown by results bellow, the communities whose rights seem not being realised in terms of deriving benefits, have made them become accessories to exacerbating human-wildlife conflicts where poaching has increased alarmingly, and this ideally, leads to an unsustainable way as far as sustainable management of wildlife is concerned. The relationship between the local people and wildlife is thus conflict ridden and indeed, if no practical steps are taken to integrate the local people and wildlife in a participatory beneficiary way, leads to wildlife degradation and even extinction of resources.

Keywords: *Communities, sustainable conservation and management, wildlife, conflicts, CAMPFIRE, Transfrontier conservation and management*

1. Introduction and Background of the Study

Conflict between humans and animals continues to be a major issue in the establishment of a stable and sustainable wildlife management and conservation regime. Particularly in areas where game parks are located near the living areas of people, the risk of human and animal conflict is more or less inevitable.

In the context of the sub-regional trans-boundary conservation programmes and supporting the promotion in the Southern African Development Community (SADC) a lot of capacity is required to maintain its vastness. The initial impetus on the Transfrontier conservation management and resource governance gathered a lot of momentum upon inception.

However, this study (2015) discovered that due to various political and economic developments, the donor funding for conservation management dwindled. The people lost the various benefits that they used to receive from the programme. Thus they no longer saw the relevance of the programme. This led to a vicious cycle of conflict, despondence and general disliking of the programme.

This had a major impact on the Communal Areas Management of Indigenous Resources (CAMPFIRE) Programme as it eventually lost its effectiveness. Zimbabwe became the first country to use the Community Based Natural Resources Management soon after independence in 1980. This was achieved through the establishment of the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) model. The design of CAMPFIRE was intended to focus on natural resources like wildlife, water sources, grazing lands and other open grasslands (Nabane, Dzingirai, and Madzudzo, 1996).

In light of the reduction in effectiveness of the CAMPFIRE programme, the people had lost their affection with the programme and levels of conflict between people and animals became an issue. It is a dangerous development because it is undermining the current efforts at conservation.

The critical linkage between tourism development and conservation is severely undermined by this development. It also happens against the backdrop of a land reform programme which saw a rapid rise in human and animal conflict levels. The phase also dwindled the stock of animals through unlawful acts of some criminal elements in the land distribution process.

2. Literature Review

At its peak, the CAMPFIRE programme was a huge revenue earner for the community. The total revenue generated from wildlife projects since 1990 stands at approximately Z\$5 314 731 (US\$ 96 631). Between 1990 and 1996 all revenue came from sport hunting. From 1997 onwards, eco-tourism became another key revenue earner.

Eco-tourism is based on the community / private sector (ZimSun) partnership and investment by the Group. The ZimSun had established two lodges and these paid a certain percentage to the community from their annual sales (Zunza, 2012). Zunza (2012) also cites data derived from in order to give an empirical twist to the portrayal of the revenues from the CAMPFIRE programme. It is derived from the Chipinge in Mahenye Ward.

Income for Mahenye Ward by Source: Chipinge RDC

Year	Sport hunting(Z\$)	Tourism(Z\$)	Other(Z\$)	Total(Z\$)
1990	28 000	0		28 000
1991	70 800	0		70 800
1992	179 910	0		179 910
1993	158 000	0		158 000
1994	163 736	0		163 736
1995	138 445	0	4 000	142 445
1996	200 000	0	78 979	278 979
1997	158 797	429 805		588 602
1998	389 170	545 312		934 482
1999	534 021	753 232		1 287 253
2000	1 085 544	396 980		1 482 524
Total Z\$	3 106 423	2 125 329	82 979	5 314 731
Total US\$	56 480	38 642	1 509	96 631
% of Income Totals	58%	40%	2%	100%

Table 1

Source: African Resources Trust, 2006:1- cited in Zunza 2012:20

Year	Household dividends	Wildlife Management	Council Levy	Projects	Total
1990	100	0	0	0	100
1991	79	0	21	0	100
1992	58	6	17	29	100
1993	51	18	17	14	100
1994	50	17	22	11	100
1995	55	20			100
1996	50	13	20	5	100
1997	58	10	18	19	100
1998	57	9	22	10	100
1999	46	20	20	14	100
2000	53	20	21	6	100
Total %	53	15	20	12	100

Table 2: Percentage Allocation of Revenues- (1990- 2000 Mahenye Ward)

Source: African Resources Trust, 2006:1- cited in Zunza 2012:20

Literature also has many other examples of successful implementation. The CBNRM initiatives established in Botswana members of the community legally create trusts which are entrusted with the business of allocating wildlife quotas in a framework agreed upon by the wildlife management department (Mazambani and Dembetembe, 2010).

However, in light of the dwindling of the benefits from the CAMPFIRE programme, conflicts between humans and animals have shot. "Conservation conflicts are increasing and need to be managed to minimise negative impacts on biodiversity, human livelihoods, and human well-being."

3. Theoretical Framework

The study was based on game theory whereby the nature of the conflict is zero sum. Thus in terms of game theory, conservation conflict is classified in the dimension of "zero-sum/non-zero-sum games"

"The aim of conflict management is to move parties away from zero-sum games to seek alternative non-zero-sum outcomes where both sides can claim victory." (Ramsbotham, O. et al., 2011). However, in order to address the conflict, it is important to determine how much of the conflict is currently existent on the ground. The approach towards measurability is important because then it gives an empirical advantage to the study and this will make a contribution application at policy level. In light of the sacrosanct relationship between

4. Literature Review

In an empirical context, the purpose of the literature review is to explore the various research findings that were produced by other researchers who have carried out research in the area of conflict between animals and humans staying in adjacent areas. Thus, the literature review becomes a firm foundation on which the findings generated in this particular study can be understood in context. According to Anderson (1990:11):

"... research should never take place in a vacuum. It should begin with preliminary analysis to see what in the particular field has been researched before, what types of studies have taken place and when they have been conducted, how and by whom".

A focused understanding of the current state of knowledge in the field of conflict between humans and animals makes it possible articulate the specific niche where the results from this current research can be fitted positioned. This also makes it feasible have a sense of measurement regarding the contributions made by this research to the body of knowledge around human, animal conflict. If a literature review cannot reveal a gap, then it is of little use to the study and if a study cannot make contribute to that gap, then the whole process is pointless.

5. Methodology

The dysfunction of the CAMPFIRE programme resulted in an increase of violence which had not taken place at such scaled before. In the end, a new patterns of A qualitative methodology were preferred methods of collecting data given the diversity of target population including literacy rate. A qualitative face to face interview gave participants enough room to express themselves and could also respond whilst doing their work. The methodology used also took cognisant of the women level of education and time constraint given that most of the participants are usually very busy.

5.1. Sample Description

The sample that participated in the study was derived from 139 people who took part in a survey of the various types of agricultural commodities and the extent to which they suffered attacks from animals. The sample was selected purposively within the Chiredzi, Victoria Falls and Hwange regions.

5.2. Objective of Study

The objective of this study is to investigate the impact of human animal conflict on conservation efforts activities.

5.3. Research Questions

1. What is the nature of the conflict?
2. What is the frequency levels of the attacks?
3. What is the impact of the animal conflicts on human lifestyle?

6. Data Analysis

The study produced two types of data (i) demographic profile of the respondents and (ii) descriptive data on the rate of attacks and impact levels. Only goats and cattle were used as case studies because they play a huge role in defining the livelihoods of the people.

6.1. Findings of Study

In the section below, the first set of data is concerned about the demographic variables while the second is concerned about the levels of attacks and impact.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	63	45.3	45.3	45.3
	Female	76	54.7	54.7	100.0
	Total	139	100.0	100.0	

Table 3: Sex of Respondent

76% of the respondents were female while 63% were male. The population came from a farming area and most of them were mainly subsistence. The vast majority of the males in Matabeleland have sought employment in South Africa and the rural areas are mainly populated by women.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20-30	51	36.7	37.2	37.2
	31-40	38	27.3	27.7	65.0
	41-50	35	25.2	25.5	90.5
	50+	13	9.4	9.5	100.0
	Total	137	98.6	100.0	
Missing	System	2	1.4		
Total		139	100.0		

Table 4: Age of respondent

Most of the respondents were in the 20-30 years' age range (37.2%), followed by 31-40 years (27.7%), 41-50 years (25.5%) and finally above 50 (9.5%). The following is a test of the normalcy of the data distribution for age.

Descriptive Statistics						
	N	Mean	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Age of respondent	137	2.0730	.426	.207	-1.010	.411
Valid N (listwise)	137					

Table 5

In order to determine the normality of the distribution of the age of the respondents, the skewness statistics is divided by its standard error and the figure should not be bigger than +/-1.96. In this case $0.426/0.207=2.05797101$ which is above 1.96 so the data for age is not normally distributed.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Single never married	6	4.3	4.3	4.3
	Married	108	77.7	77.7	82.0
	Divorced	10	7.2	7.2	89.2
	widowed	15	10.8	10.8	100.0
	Total	139	100.0	100.0	

Table 6: Marital status of respondent

The vast majority of the people are married (77.7%) followed by widowed (10.8%), 7.2% divorced and 4.3% single never married. Thus the livelihood structure in these communities is mainly designed around sustaining the family.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never been to school	23	16.5	16.5	16.5
	Primary	70	50.4	50.4	66.9
	Secondary	41	29.5	29.5	96.4
	College	5	3.6	3.6	100.0
	Total	139	100.0	100.0	

Table 7: Respondent's level of education

The majority of the people (50%) had primary school education followed by those with secondary education (29.5%), those who have never been to school (16.5%) and lastly those with college education (3.6%).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	69	49.6	100.0	100.0
Missing	System	70	50.4		
Total		139	100.0		

Table 8: If respondent owns cows

69% of the respondents own cows. Thus cows form an important part of this family oriented livelihood structure. They provide draught power and milk as food as well as a store of wealth which can be used for sale in times of hardships, bride wealth for marriage and even currency for settling conflicts.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	67	48.2	100.0	100.0
Missing	System	72	51.8		
Total		139	100.0		

Table 9: If Respondent owns Goats

67% of the respondents have goats. This also shows that goats play an important role in the security of the people. Goats are resilient against diseases and drought while they also provide food and can be sold.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	57	41.0	47.5	47.5
	No	63	45.3	52.5	100.0
	Total	120	86.3	100.0	
Missing	System	19	13.7		
Total		139	100.0		

Table 10: If Livestock Attacked by Wild Animal

47% of the respondents indicated that their livestock was attacked by wild animals at some point. Although slightly below 50%, it is still a very high prevalence of incidents enough to cause tension.

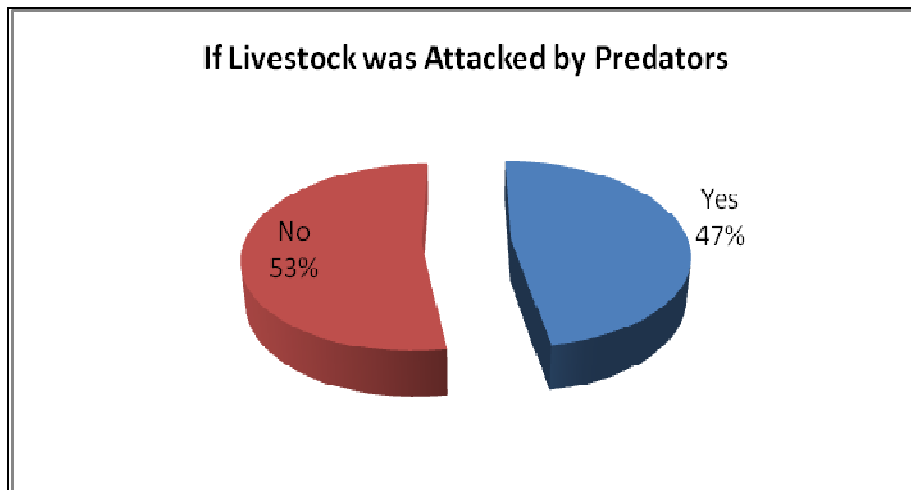


Figure 1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	58	41.7	100.0	100.0
Missing	System	81	58.3		
Total		139	100.0		

Table 11: Compensation for wildlife attacked

All the people whose livestock was attacked by animals were not compensated in any way.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	110	79.1	82.1	82.1
	No	24	17.3	17.9	100.0
	Total	134	96.4	100.0	
Missing	System	5	3.6		
Total		139	100.0		

Table 12: If crops were destroyed by wildlife

82.1% of respondents indicated that their crops were attacked by wild animals.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	121	87.1	100.0	100.0
Missing	System	18	12.9		
Total		139	100.0		

Table 13: Compensation for crops destroyed

None of them were compensated for the acts of wild animals.

7. Discussion

It is very clear that over time the relationship between animals and humans settling around conservation areas have become very strained. This causes a lot of challenges in the field of conservation. Over and above drought and other factors, these strained relationships mean that eventually the people have a huge scope to take matters in their hands. This is more so in times of hard economic challenges. Thus, Human-wildlife conflict is distinct from typical biological parameters (e.g., animal behaviour, population dynamics, or species richness) in that it is as much a sociological phenomenon as it is a biological phenomenon. (Atwood and Breck (2012), "Carnivores, Conflict, and Conservation: Defining The Landscape of Conflict" *USDA National Wildlife Research Center - Staff Publications*. Paper 1620). The evolution of revenge ecological behaviour explains the various types of carnage that has been taking place in the past few months. Elephants were poisoned and the sensational case of Cecil has up to now resulted in the creation of Cecil's Law in the United States, thereby reshaping the entire system of importation of game trophies with huge implications for the various thematic communities of interests and communities of practice in the tourism sector across the globe. And to imagine that such a global ramification can be traced to disgruntled villagers provides deep insights into the kind of action that is required to resolve this issue. The various budgets being put to guard against poachers are completely out of touch with reality. Poachers have an impeccable and highly efficient access point to game through the villagers and yet none of the current efforts at resolving the issue target the villagers. It is essentially a systematic collapse of the traditional system of conservation management which is similar to and a reflection of the general economic challenges that have caused much attrition in the context of the Zimbabwean economy.

The approach to tourism using empirical data collection and analysis fits into the context of the emerging 21st century knowledge economy. Data, information and knowledge are considered to be factors of production and add real value which can be leveraged into financial terms. (Insert citation) This creates an atmosphere of continuous learning not just as a matter of enlightened preference, but in order to survive the various systematic challenges in conservation management. Wildlife is an important global branding factor for Africa and while many bemoan the stereotypes of Africa with wildlife, from the perspective of tourism such a stereotype is very bankable as it attracts the people in the advanced nations to the continent.

8. Conclusions

As a result of the collapse of the CAMPFIRE Programme, there has been a huge rise in the levels of human and animal conflict. The conflicts observed in this particular study are the attack on cattle, goats and crops. No attempt was made to identify the specific animals that caused the majority of the attacks. The most important thrust is the incidence and character of conflict. The findings reaffirm the emerging patterns of revenge ecological carnage on wildlife for various livelihood needs and subsequent institutional failures to sustainably manage and govern natural resources in different parts of Zimbabwe.

It also confirms the findings made by Zunza (2012), the benchmark on which this study was undertaken. Thus attacks by the wild animals are a major source of conflict between humans and animals. In light of is this research, the animals are attacking a vital component of the people's livelihoods and this poses a serious threat to and compromises conservation efforts. At this moment it is apparent that the traditional view of community based conservation as being very efficient is not backed up by evidence on the ground.

The collapse of donor support has had an impact on traditional forms of wildlife conservation and the system is currently undergoing cross cutting dysfunction and collapse. It is important to keep track of the various forms in which the conflict is emerging in order to implement a more accurate and informed intervention in conservation management in the trans-frontier conservation region.

9. Recommendations

The various stakeholders in the conservation management system should seriously start considering ways in which interventions should also target villagers on the grassroots. Current efforts are designed to target the poachers only and exclude the people on the grassroots which are at the center of the conflict itself.

A lot of study should be conducted into the various types of systematic challenges that emerge as a result of the cross cutting collapse of the traditional conservation management system as designed under the CAMPFIRE model. Its collapse has left an institutional vacuum which is the root of deep rooted systematic challenges which are having a chain effect across the entire system of tourism development.

The conservation management framework should facilitate a systematic audit of the extent to which the conservation management system has suffered as a cumulative effect of the various developments like the land reform and the reduction of donor support as a result of the various political forces at play. Alternative ecological management approaches should be devised to meet the current state of wildlife conservation.

A proactive disaster preparedness and disaster management system should be put in place to avoid future situations similar to this one. An early warning system should be put in place to give the system better capability to tackle with the problem by nipping it in the bud. The various institutions like the departments of tourism in the various educational institutions, the departments of conservation and environmental studies and institutions of related interest should be organised into an integrated professional syndicate which provides capacity support to the system of conservation management. There should be a systematic gathering, storage, analysis and utilisation of the various types of knowledge related to these phenomena in order to provide evidence based intelligence

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