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WILDLIFE CONSERVATION AND AGRARIAN ECONOMY IN COMMUNITIES AROUND KAINJI LAKE NATIONAL PARK, NIGER STATE, NIGERIA

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ABSTRACT

This study was carried out to assess the wildlife conservation and agrarian economy in communities around Kainji lake national park of Niger state Nigeria. The study was carried out in ten (10) randomly selected villages around Kainji Lake National Park namely (Luma, Kemenji, Kuble, New-Awuru, Old-Awuru, Dekera, Wawa, Woro, Malale, and Old Bussa). A total of 20 Questionnaires were administered in each community. Data was analysed using simple percentages, frequency counts and tables. The results revealed that most of the respondents (51.5%) engaged in farming for food production and income generation while about 31% of them engaged in farming for income generation only. Damages and destructions caused by wild animals to crops in the study area is high and causes significant danger to the agrarian economy. Wild animals such as Hippopotamus (34.5%) raided the crop farms most, closely followed by Baboons (32.5%) and Patas monkey (24.5%). Farmers in retaliation adopted lethal methods such as using toxic chemicals (34%) and hunting (27.5%) to safeguard their crops. This study showed that conflict between man and animal is a serious problem in communities around conservation areas and this requires an urgent intervention to save animal in the study area from extinction.

Keywords: Wildlife, Conservation, Agrarian economy, Hunting and Extinction.

INTRODUCTION

Wildlife conservation is an activity in which humans make deliberate effort to protect plants, other animal species and their habitats (Tidball, 2014). This act includes the establishment and protection of public lands and responsible public practices that conserve wild animal populations. Some of the threats to wildlife include; poaching, habitat destruction, overexploitation, pollution and climate change leading to the extinction of many endangered species. Virtually all human activities affect wildlife populations either positively or negatively. Those activities that are likely to have adverse effects can be divided into those that function primarily by altering the physical environment in a relatively permanent way and those that cause changes to an animal's behaviour (Rotowa *et al*, 2018). Anthropogenic activities that alter the physical environment also changes the suitability of habitat for species. Common examples include activities that directly alter the structure and composition of the landscape, such as agriculture, forestry, livestock grazing, and unregulated off-road vehicle use. In general, these are land use or land management practices that change the trajectory of ecological succession, including altering the dominant plant communities and the abiotic features of a site. The ecological effects of these activities on vertebrates are readily apparent and have been relatively well studied (Blair 1996; Spies *et al.* 1996; Lichstein *et al.* 2002). Perhaps less obvious in the ecological impacts are those non-consumptive human activities that do not appreciably alter the

physical environment but nonetheless affect wildlife adversely.

In many parts of the world, people and animal are increasingly coming into conflict over living space and food (Madden F, 2004). Human-wildlife conflict (HWC) occurs when animals pose a direct and recurring threat to the livelihood or safety of people, leading to the persecution of that species. Retaliation against the species blamed often ensues, leading to conflict about what should be done to remedy the situation. HWC has been justified as "when requirements and behaviour of wild animals affect negatively on target of humans or when the target of humans negatively affects the requirements of wild animal (Warne and Jones, 2003). Human causalities are caused by carnivorous species while herbivores inflict economic and human losses. Understanding the changing social contexts for conflict between conservation and human welfare is important in biodiversity conservation. Conflicts between communities and wild animals are becoming a serious issue in conservation planning and requires an urgent attention. This study was carried out to assess the wildlife conservation and agrarian economy in communities around Kainji lake.

MATERIAL AND METHODS

Study Area

This study was carried out in ten (10) randomly selected villages around Kainji Lake National Park in Niger state, Nigeria. The villages are: Luma, Kemenji, Kuble, New-Awuru, Old-Awuru, Dekera, Wawa, Woro, Malale, and Old Bussa, all in Borgu Local Government Area of Niger State. Borgu Local Government is an administrative region in Niger State, Nigeria, with headquarters in New Bussa. It is located between latitude 9°51′ N – 10°55′ N and longitude 4°23'E – 4°45′ E a total population of 110,000 with a mixed ethic groups such as Boko, Kambari, Bussa, Hausa, Fulbe, Yoruba, Laru and Igbo. The Local Government is bounded to the North by Kebbi State, to the South by Kaima LGA of Kwara State, to the East by River Niger and Magama local government area of Niger State (Oladeji *et al*., 2017). The major occupations of the people in the study area are farming, trading, fishing and fuel-wood production.

Method of data collection and analysis

Using primary and secondary collection methods, Data was collected using structured questionnaire and interview. A total of 20 Questionnaires were administered in each of the selected communities to gather information on wildlife conservation and agrarian economy in communities around Kainji lake. Secondary data were obtained from reviewing of literature. The data from the study was analysed using simple percentages, frequency counts and tables to enhance comprehension and interpretation.

RESULT

Table 1 shows the age distribution, sex, marital status, occupation, and years of experience and major source of income of respondents. 42% of the respondents were within the age group of 31 and 40 years, 20 % were within the age group of 41 and 50 years, while only 17% were within the age group of 21 and 30 years. 79 % of the respondents were male while 21 % were female. Majority of respondents are married (78 %) with only 19 % of them engaging in farming alone, while 37.5% combine farming and fishing, 15 % combine farming with trading and 10.5 % combine farming with hunting with others engaging in other occupations like trading (5.5%), civil servants (7 %) and students (5.5 %). Furthermore, most of the respondents (82%) have between 4-6 years of experience in their respective occupation while few (7 %) had between 7-9 years of experience.

Table 1: Demographic Characteristics of Respondents

Variables	Frequency	Percentage (%)
Ages (years)		
21-30	34	17
31-40	84	42
41-50	40	20
>50	20	10
Total	**200**	**100**
Sex		
Male	158	79
Female	42	21
Total	**200**	**100**
Marital Status		
Single	30	15
Married	156	78
Divorced	14	7
Total	**200**	**100**
Occupation		
Farming	38	19
Trading	11	5.5
Civil Servant	14	7
Student	11	5.5
Farming and Hunting	21	10.5
Farming and Trading	30	15
Farming ad Fishing	75	37.5
Total	**200**	**100**
Years of experience		
1-3	24	12
4-6	162	82
7-9	14	7
Total	**200**	**100**

Table 2 shows that majority of the respondents (49%) farm on less than one hectare of land, followed by those who farm on a land area between 1-5 ha (31%). only few of the respondents farm on big area of land between 10-20 ha (7.5%). The table also reveals that 51.5% of respondents engaged in farming for food production and income generation, 31% engaged in farming for income generation only, 11.5% engaged in farming for household consumption only (subsistence), while 6% cultivate crops to feed their domestic livestock. As further shown on the table, majority of the respondents cultivate rice (40%), followed closely by those who cultivated maize and guinea corn (34%), while others cultivated crops such as yam (12.5%), yam and cassava (5%), rice and cassava (4.5%), guinea corn and cotton (2.5%), cassava only (1.5%).

Table 2: Frequency Distribution of farm size and crops cultivated in the study area

Variable	Frequency	Percentage (%)
Size of farmlands		
< 1ha	98	49
1-5 ha	62	31
6-10ha	25	12.5
10 – 20 ha	15	7.5
Total	**200**	**100**
Motivation for Farming		
Income generation only	62	31
Household consumption	23	11.5
Consumption and income	103	51.5
Feeding of domestic livestock	12	6
Total	**200**	**100**
Species of crop cultivated		
Yam	25	12.5
Cassava	3	1.5
Rice	80	40
Yam and Cassava	10	5
Rice and Cassava	9	4.5
Maize and Guinea corn	68	34
Guinea Corn and Cotton	5	2.5
Total	**200**	**100**

According to the respondents, much more than other animals, Hippopotamus (34.5%) raided the crop farms most, closely followed by Baboons (32.5%), Patas monkey (24.5%) and Ground squirrel (5.5%) with few other animals (3%). The combination of Guinea Corn and Cotton (42%) were raided most by wild animals. This is followed by the combination of Maize and Guinea corn (23%). Rice only had 19%, Yam only had 6%, while farmland with Cassava (2%) is the least affected. Also, 58% of the farmers interviewed experienced economic loss due to crop damage by wild animals, while 42% did experience crop damage, but the damage was below economic loss. It was further revealed that; in retaliation, 34% of the farmers interviewed used toxic chemicals, 27.5% hunted the animals, 22.5% used scare crow to wade off the animals, while only 16% used traps to prevent wild animal damages to their crops (Table 3).

Figure 1 shows the suggested strategies for conflicts resolution in the study area. Majority of the respondents (37%) suggested that setting up of compensation schemes will resolve human wildlife conflicts, 29% of the respondents suggested community support programmes, 20% respondents suggested an alternative employment, while only 14% farmers were indifferent about strategies that could be adopted to resolve human-wildlife conflicts.

Table 3: Crops raided by wild animals and level of damage to farmers

Variables	Frequency	Percentage
Animal		
Ground squirrel	11	5.5
Patas Monkey	49	24.5
Hippopotamus	69	34.5
Baboons	65	32.5
Other	6	3
Total	**200**	**100**
Crops Affected		
Yam	12	6
Cassava	4	2
Rice	38	19
Yam and Cassava	8	4
Rice and Cassava	8	4
Maize and Guinea Corn	46	23
Guinea Corn and Cotton	84	42
Total	**200**	**100**
Level of Impact		
Below economic loss	84	42
Economic loss	116	58
Total	**200**	**100**
Mitigation method		
Traps	32	16
Toxic materials	68	34
Hunting	55	27.5
Scare crow	45	22.5
Total	**200**	**100**

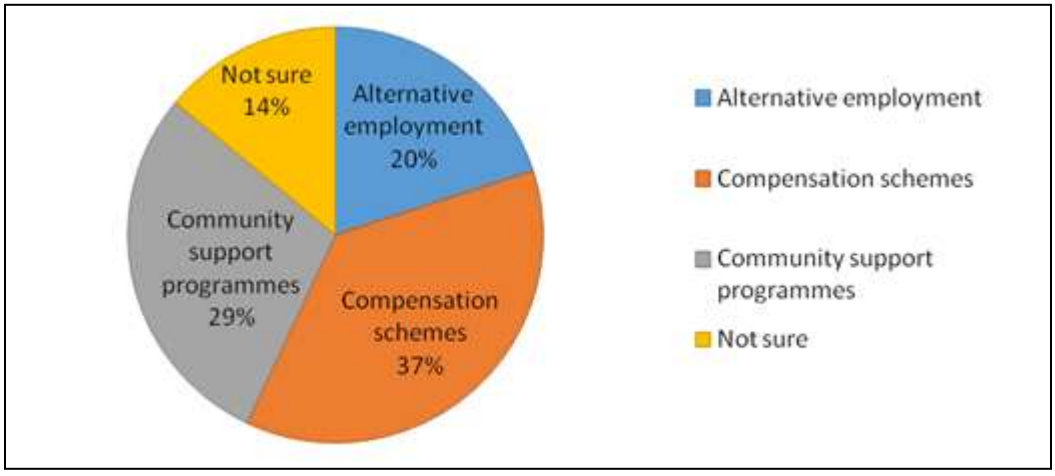

Figure 1: Chart Showing Suggested Strategies for Conflicts Resolution

DISCUSSION

Results obtained showed that majority of the respondents are male between the ages of 21-40 years, this suggests that they are in their active age. Most of them are married showing that they are persons with responsibilities. Many of them

engaging in farming and fishing had between 4-6 years of experience. This implies that age is a major determinant for people engaging in agricultural practice and agreed with the study of Azeez *et al.* (2010), the result also conforms to the age distribution normally obtained among rural farmers in Nigeria according to Agbamu and Fabusoro (2001). Most of the cultivated farms are on a land mass below 5ha and the main motive of cultivation is for consumption and income generation, this agrees with the report of Adisa and Adekunle (2010) in a study carried out in Northern Nigeria where it was reported that rural farmers do not see themselves farming just for subsistence, but rather as people involved in income-generating enterprises.

Animals such as hippopotamus, baboons and patas monkey were reported to be major animals that raid farmlands in the study area. The crops they often affected includes Maize and Guinea corn, Rice, Yam amidst other food crops and this has led to a great loss for the farmers thereby promoting hostility between the human and animal components in the study area. This study revealed that the animal raid of on farmlands has resulted in an economic loss, this is in tandem with the report of Eniang *et al.,* (2011) and Adeagbo *et al.* (2019). It also corroborates the report of Damiba and Ables (1993) who stated that the cultivation of nutritious seasonal crops such as maize and guinea corn attracts primates and other wild animals, involve heavy losses.

Majority of the respondents use toxic materials to prevent wild animals from raiding their farms, a process that may kill the animal and atimes end up harming man. Others use methods such as scarecrows, traps, hunting, it was however reported that none of these methods have been effective in laying off wild animals from raiding their farms (pers. com.). This is in line with the report of Adeagbo *et al.* (2019) which affirms that different method adopted to prevent animal raid on the farm in Osho Forest reserve proved abortive. Majority of the respondents believed that setting up a compensation scheme for the affected farmers will help in offsetting the loss caused by animal raid, this validates with the report of Bulte *et al.* (2005) that compensation programmes will increase the return to agriculture and can therefore be viewed as a subsidy toward crop and livestock production.

CONCLUSION

This study has clearly shown that conflict between man and animals is a serious problem in communities around conservation areas. The damage and destructions caused by different wild animals to crops is high and causes significant danger to the agrarian economy. Farmers in retaliation adopted harmful methods such as hunting with guns, use of toxic chemicals and traps of different sizes to safeguard their crops. With the animal populations declining dramatically due to habitat loss, poaching and conflict with farmers are now the biggest threats to their continued survival.

Recommendations

Based on the result of the study, It is therefore recommendations that:

i. Government should set up compensation schemes for wild animal damages to crop farms. This will prevent the farmers from killing the animals in retaliation for the damage to the crop.
ii. Deliberate efforts must be made to promote public awareness among the park communities to gain support for wildlife conservation.

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