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Research Article | Journal of Aquaculture, Marine Biology & Ecology | JAMBE-102

Human Wildlife Conflict around Dinder National Park (DNP) Sudan

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Received Date: February 17, 2020; **Accepted Date:** March 4, 2020; **Published Date:** March 13, 2020

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Abstract

Dinder National Park (DNP) is located in the North-eastern Blue Nile State adjacent to the Ethiopian border. The study has been conducted in five villages namely: HiletHashim, Elgemam, HenuElshitaib, ElhanuElazrege and Om Elkhir around the park along the Rahad River in El Gadaref state;from March to May 2019 with the aim to determine the effect crop damage by wild animals and it is impact on food and economic security of the local communities around the park. The most ominous animals are patus monkey followed by olive baboon and warthog, crops plant by the local communities are sesames, sorghum, lentil, fruits and vegetables, crop raiding and losses by wildlife greatly affect the food and economic security of the local communities in the five villages around the park therefore compensation system is needed in that areas.

Keywords: Crop Damage; Dinder National Park; Food And Economic Security

Introduction

Often wildlife management is thought of in terms of protecting, enhancing and nurturing wildlife population and habitats needed for their survival and wellbeing. Many species however at one time or another require management actions to reduce conflicts with people or other wildlife species. As human populations expand and natural habitat shrinks people and animals are increasingly coming into conflict over living space and food. Human wildlife conflict is one of the main threats to the continued survival for many species in many parts of the world and is also significant threats to many local human populations.

Wildlife management is often thought of in terms of protecting, enhancing, and nurturing wildlife populations and the habitat needed for their wellbeing. Wildlife damage control is an increasingly important part of the wildlife management profession because of expanding human populations and intensified land-use practices. Concurrent with this growing need to reduce wildlife-people conflicts, public attitudes and environmental regulations are restricting use of some of the traditional tools of control such as toxicants and traps.

Agricultural activities surrounding Dinder National Park (DNP) started in 1976 and expanded rapidly since then. This expansion depleted the wet season habitat of the wild animals, so their numbers started to decrease considerably **[1-3]**.

Immigrants from Western Sudan and West Africa have established villages near the park. These new communities are allowed by the wildlife authorities to practice subsistence farming and livestock grazing in the park buffer zone within an area of about 5 km in radius during the dry season. According to Dasmann (1972) **[4]** the most serious limitation of the park is that it is left open to human settlement, cultivation, poaching and heavy use by livestock. He reported that the practice of closing the park and pulling out all the staff at the start of the rainy season leaves the park wide open to poaching.

Large mammals like Heuglin;s gazelle, Oribi and Ostrich were said to move from the Dinder National Park during the rainy season and remain surrounding umm Bagara until the end of the rainy season. Grivet monkey and the Ground squirrel were frequently seen in vicinity of nomads. Reptiles were also reasonably abundant. The Forest, however, is a good habitat for avifauna. Numerous nesting colonies of Northern Masked Weaver were encountered on *Acacia seyal*. Generally, the birds were very abundant in this habitat type **[4]**. Mechanized farming destroys the natural vegetation, which may not recover even if this practice is stopped. The expansion of the farms surrounding the park has limited the movement of nomadic herders, and forced them to trespass into the park **[2].**

Nimir (1983) reported that about twenty villages presently along the boundaries of the park and the inhabitants of these villages depend mainly on domestic livestock and traditional cultivation; they also active by cutting trees for charcoal production for the most of poaching problem in the park. No previous studies have been conducted to determine the human wildlife conflict around Dinder National Park in general and crop damage by wildlife in particular, therefore this study aims to determine crop raiding by wild animals and it is impact on food and economic security of the local communities in the five villages around the park.

Study Area

Dinder National Park (DNP), is the oldest park in Sudan, was proclaimed after the London Convention for Conservation of Fauna and Flora in 1935 **[1]**. Dinder National Park (DNP) is located in the North-eastern Blue Nile State adjacent to the Ethiopian border between latitudes 11-13º N and longitudes 34-36º E and about 550 Km South east of Khartoum. The study has been conducted in five villages namely: HiletHashim, Elgemam, HenuElshitaib, ElhanuElazregeand Om Elkhirin the eastern part of the park along the Rahad River in ElGadaref state. The five villages were randomly selected because the budget allocated for the study was insufficient to cover all villages around the park.

According to population survey of 1993, over 55000people live in 36 villages outside the park **[5]**. More recent estimates reported that about 100000living in 34 villages **[6]**.

Materials and Methods

Questionnaires and discussion were used to collect the necessary data; a total of 250 farmers were interviewed from the five villages from March to May 2019. The questionnaires were split into four parts as follow:

1. Identification of the problem animals causes the damage around the park.
2. Types of crops damaged by wild animals around Dinder National Park (DNP).
3. Damage assessment and it is impact on food and economic security.
4. Do park authorities compensate the farmers for their crops losses in the five villages around the park?

Results and Discussion

Wild animal species caused the damage in the five villages (HiletHashim, HenuElshitaib, Elhanu, ElgemamElazrege and Om Elkhir) around Dinder National Park, are patus monkey (*Thercopicecuspatas*), olive baboon (*Papioanubis*), warthog (*Phacochoerusaethiopicus*), Grivet monkey (*Thercopicecusaethiops*), buffalo (*Synceruscaffer*), ostrich (*Struthiocamelus*), Stripedgroundsquirrels (*Euxenuserythropus*) and birds. Patus monkey is the most problematic animal; about 45%of the crop is damage annually by patus monkey according to the respondent from the five villages, followed by olive baboon which is increasing rapidly because of the absence of it is natural predator in the park and the least pest animal is stripped ground squirrels **(Table 1)**.

Animal species	Frequency of the damage (%)
Patus monkey	45
Olive baboon	20
Warthog	5
Grivet monkey	5
Buffalo	8
Ostrich	5
Birds	7
Stripped ground squirrel	5

Table 1: Identification of the animal species caused the damage in the five villages around Dinder National Park ranked from the most to the least damage.

Farmers of the five villages plant many crops such as sesames, sorghum, lentil, fruits and vegetables **(Table 2)**. Sesames, fruits and lentils are use as cash crops while the sorghum and vegetables are used for their daily consumption.

Type of crops	Part of crops damaged (%)				
	Fruits	Flowers	Stem	Roots	Entire
Sesames	12	10	52	0	26
Sorghum	45	5	25	0	25
Lentil	5	15	35	12	38
Fruits	64	10	0	15	16
Vegetables	37	45	13	5	0

Table 2: Type of crops and it is parts damaged by wild animals in the five villages around Dinder National Park.

52% of the respondent approved that sesame stem is heavily damage by wild animals, while 26% of them have observed the entire plant is damaged by wild animals. Sorghum fruits (seeds) are the most damaged parts according to 45% of the interviewed farmers; lentil is entirely damaged by wild animals according to 38% of the respondent, fruits and vegetables are damaged by pest animals after the fruits have ripped and prior to harvesting season.

In order to assess the crop damaged by wild animals in the five villages; the percentage of the damaged has been quantify then converted to monetary values as shown in **(Table 3)**. Lentil is damaged by wild animals in the studied areas is 9 hectare of the total areas of the farms and when converted to monetary value it is estimated about 150000 SDP which is of economic significant for the local communities, as they use the subsistence farms whose areas ranging from (5- 20 hectare) sesames is greatly trampled by wild animals which reduce it is quality in addition to the 90000 SDP lose as the result of consumption and trampling by wild animals. Concerning the consumptive crops such as vegetables and sorghum; the damage and losses is also affect the food security of the local communities.

Crops	Amount of the damage		
	Percentage of crops damaged%	Area of crops damaged (ha)	Monetary value of crop lose (SD P)
Sesames	75	22	90000
Sorghum	40	15	45000
Lentils	85	55	150000
Fruits	30	12	30000
Vegetables	48	13	60000

Table 3: Damage assessment and it is impact on food and economic security in the five villages around Dinder National Park.

In order to investigate if the park authorities use compensation system; the result prevails that: 90% of the farmers in HeltHashim disagreed that the park authorities compensate the farmers for their losses but only 10% of the studied sample agreed. In HenuElshitaib village 95%dissagreed while 5 agreed, ElhanuElazreg 98% dis agreed and only 2% agreed, and 100% dis agreed in Elgamam and Om Elkhir village **(Table 4)**.

Villages	Agree%	Neutral %	Disagree %
HiletHashim	10	0	90
HenuElshitaib	5	0	95
ElhanuElazrege	2	0	98
Elgemam	0	0	100
Om Elkhir	0	0	100

Table 4: Do park authorities compensate the farmers for their crops losses?.

Conclusion

Local communities around Dinder National Park is the most vulnerable to crop damage by wildlife such as patus monkey, grivet monkey, olive baboon, ostrich, buffalo and stripped ground squirrels; patus monkey is the most ominous animal that cause great damage in the five studied villages around the park. The crop loss is affecting the food and the economic security of the local communities as they depend largely on farming because there is no compensation from the park authorities.

Recommendations

- Use of barriers and guarding of the farms to reduce crop damage.
- Use of compensation system and benefit sharing from the park to the local communities to tolerate the wild animals.
- Use of Lure crops by the park authorities in order to protect local communities' property.
- No management has been conducted in Dinder National Park since it is establishment; there for park management is needed.

Acknowledgement

My thanks and gratitude is due to Mr. Salah Ismael for his valuable help during the data collection. Special thanks are due to the farmers of the five villages for their hospitality, cooperation and support during the field work.

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Citation: *Hassan TA (2020) Human Wildlife Conflict around Dinder National Park (DNP) Sudan. Jr Aqua Mar Bio Eco: JAMBE-102.*