

**An Assessment of Effective Communication in Mitigating Human Wildlife  
Conflict in Shai Hills Resource Reserve.**

**By**

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**A DISSERTATION TO THE SCHOOL OF GRADUATE AND RESEARCH  
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## **DEDICATION**

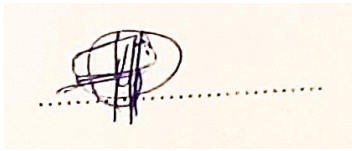
This project work is first and foremost dedicated to the Almighty God for His favor and protection. This work is also dedicated to my supervisor – Dr. Etse Sikanku, my immediate and distanced family as well as my loved ones for their prayers, motivation, love and relentless support throughout the course of study.

## **ACKNOWLEDGEMENT**

I am most grateful to God for sustaining me in my quest for higher education. This project work would not have been possible without the support of certain personalities who deserve my gratitude. I wish to offer my profound appreciation to Dr. Etse Sikanku, my supervisor, for his valuable suggestions and constructive criticisms of the content, structure and preparation of this work. I also extend my profound appreciation to the management of Shai Hills Resource Reserve for their immense contribution towards the development of this work. I thank all my friends and well-wishers who contributed in diverse ways to the success of this work. God bless all.

## **DECLARATION AND CERTIFICATION**

I, Lydia Akosua Kwabia hereby declare that this thesis is my original work and has not been presented in any other university and all materials used in this have been duly acknowledged.

A handwritten signature in black ink on a light beige background. The signature is stylized and appears to be 'Lydia Akosua Kwabia'. A horizontal dotted line is drawn below the signature.

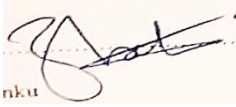
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14 DECEMBER 2021

**Date**

## SUPERVISOR'S DECLARATION

I, hereby certify that this project work was done under my supervision. I thereby approve that the work is adequate in scope and quality for the partial fulfilment of their representation



nku

.....  
Dr. Etse Sikanku

Supervisor

...14...December 2021..  
Date

## **ABSTRACT**

This study sought to investigate the role of communication in mitigating human wildlife conflict at Shai Hills Resource Reserve. This study employs descriptive research design using questionnaires and interviews. The study involves 76 participants from various villages around Shai Hills Resource Reserve. The sample was collected and analysed using SPSS version 20 and Microsoft Excel. Analysis of the data shows that local communities around Shai Hills Forest Reserve are very tolerant with wildlife and do not retaliate against wildlife. However, they do not take part in any conservative measure and also do not benefit from the reserve. This study hence recommends intensive education of the benefits of wildlife and how the reserve can be profitable to the local communities.

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# CHAPTER ONE

## 1.0 INTRODUCTION

### 1.1 Background

Conflicts between humans and wildlife are no new thing; it has been there throughout history. As human populations expand, and natural habitats shrink, people and animals are increasingly coming into conflict over living space and food. In other words, the transformation of geographical landscapes from predominantly wild to predominantly anthropogenic has contributed to the increase in conflicts between humans and wildlife. The increases in human-wildlife conflict present a great danger to the persistence, preservation and survival of many animal species. Therefore, new ways and methods in managing and resolving these conflicts is vital for their long-term conservation of wildlife (Hoffman & O’Riain, 2012). Human–wildlife conflict (HWC) refers to the negative interactions between human and wild animals, with undesirable consequences for both people and their resources and wildlife and their habitats. HWC, caused by competition for shared natural resources between human and wildlife, influences human food security and the well-being of both human and animals.

In many regions these conflicts have intensified over recent decades as a result of human population growth and the transformation of land use. Human-wildlife conflict is defined by the World-Wide Fund for Nature (WWF) as any interaction between humans and wildlife that results in negative impacts of human social, economic or cultural life, on the conservation of wildlife populations, or on the environment. The IUCN SSC Human-Wildlife Conflict Task Force describes human-wildlife conflict as struggles that emerge when the presence or behaviour of wildlife poses an actual or perceived, direct and recurring threat to human interests or needs, leading to disagreements between groups of people and negative impacts on people and/or wildlife. According to Ellis et al., (2010) over the last three centuries competition between humans and wildlife for space and resources reach unprecedented levels. Ellis et al state that almost half of the terrestrial biosphere was wild in 1700, without human settlements or substantial land use with the remainder in a seminatural state (45%) having only minor use for agriculture and settlements. By the twenty first century, majority of terrestrial land is used in anthropogenic activities with less than 20% seminatural and only a quarter left wild. Anthropogenic transformation has turned almost 39% of earth's terrestrial surface into agricultural land and settlements.

In efforts to reduce human wildlife conflicts, conservationists have used several methods such as culling, translocation to manage wildlife and also electric fences, herders to separation of wildlife from humans using a host of deterrents. However, none of these methods are able to solve the issue. HWC is a serious global threat to sustainable development, food security and conservation in urban and rural landscapes alike. In general, the consequences of HWC include: crop destruction, reduced agricultural productivity, competition for grazing lands and water supply, livestock predation, injury and death to human, damage to infrastructure, and increased risk of disease transmission among wildlife and livestock (Clement & Srinivasa, 2019).

With specific reference to forest reserve, a high population density of large primate such as baboons, can cause severe damage to the maize, mango and plantain farms and can threaten road users, crossing and seating the highway. This behaviour can have important economic implications and can lead to division between neighbouring communities and wildlife managers. People request for compensation due to damage of their farm crops.

## **1.2 Problem Statement**

National parks and reserves are protected by law and well managed by Wildlife Division/Forestry Commission of Ghana. The Shai Hill Resource Reserve is one such park in Ghana. The reserve has a fenced area, about 48km<sup>2</sup> and made up largely of savanna covered plains, A mosaic of forest covers the 5 separate hills in the reserve, while grassland and low dry forests are found in intervening canyons. To date 31 mammals, 13 reptiles and 175 bird species have been identified in the reserve. The baboon specie is the most famous due to their numbers.

The rapid population growth human and development close to these protected areas is not helping to achieve its purpose but creating conflicts between human and wildlife. The expansion of human populations into areas inhabited by wildlife, intensification and modification of human uses of those areas and loss of habitat in those areas. In addition, wildlife habitats are encroached upon and used as grazing pastures for the cattle of the local community in addition to reducing areas surrounding the park due to land sub-division and fragmentation. On the other hand, the presence of wildlife outside Shai Hills Resource Reserve has resulted in competition over land resources such as pasture and water by people and wildlife. This has resulted in continuous movement of wildlife outside the park to the local communities destroying their crops and other properties posing a threat to human life. Wildlife threatens, attacks, injures, or kills humans, as well as cases

where wildlife threatens, attacks, injures, or destroys their livestock, crops or property. The damage levels usually cause a halt in the activity of nearby communities or abandonment of their activities due to damages and losses caused by different animals in different seasons. Humans deliberately injure, abuse, or kill wildlife because of perceived or actual threats to their property, livelihoods, lifestyle, person, or family.

Individuals are not compensated for the losses and damages incurred in terms of crop damage because of their reciprocal activity on the park in addition to low funding from the government. There has been no study conducted to address various aspects of human-wildlife interactions, its nature, types, causes and the implications they have had on wildlife conservation and management. The current study was therefore necessary and aimed at assessing the impact of baboons as a prevailing human wildlife conflict in Shai hills resources reserve.

### **1.3 Justification**

Interactions between human and wildlife are inevitable. The rapid expansion of human population and industrial development close to reserve is couple with habitat loss and disintegration has increase the potential for people and animals to come into contact often with overwhelming consequence for all involved. Human life is important and hold at a high esteem, the resources human depends on includes wildlife “baboons” therefore conflicts involving human and wildlife needs proper research to guide policy makers on the mitigation of HWC conflicts.

### **1.4 Objective**

The main objective of the study is to assess wildlife impact and human-wildlife conflict in Shai Hills Resource Reserve.

#### **1.4.1 Specific objectives**

1. To investigate the extent to diverse levels of communication strategies are adopted in human wildlife conflict intervention Shai Hills.
2. Analyze the local communities and wildlife official’s perception of wildlife impacts mechanism (i.e. policy, norms, actors, regulations etc.) in Shai Hills Resource Reserve.
3. Assess communities and wildlife officers’ insights into the nature of human-wildlife conflict prevailing in Shai Hills Resource Reserve.

4. To analyze prevailing conflict management mechanisms and explore strategies to enhance human-wildlife conflict cooperation in the study area.
5. To investigate the extent to which channel of communication, government policies (compensation and benefit sharing), attitude and perception, human wildlife conflict incidences and levels of education influences the local community's participation in human wildlife conflict discourses.
6. Explore the factors that influence human-wildlife conflict in Shai Hills Resource Reserve.
7. Analyze the effects of human-wildlife conflict on the local community's livelihood and management of Shai Hills Resource Reserve.

### **1.5 Scope of Study**

The research will help to understand the impact of baboons as a prevailing threat to human wildlife conflict, the important of the existence of wildlife and the bigger concept of humans been the regulators over these resources. To inform park management (SHRR) and wildlife division in future policy that will guide the communities around protected areas and the wildlife within that protected area.

### **1.6 Research Question**

In order, for the research to achieve its aim, the following questions will be set forth to guide the study.

1. How can communication strategies be adopted in human wildlife conflict interventions in SHRR.
2. What are the factors hinder participatory communication in SHRR.
3. What are the causes of the threat of HWC
4. What is the most preferred channel of communication among local communities around SHRR.

### **1.7 Significance of Study**

This study on HWC can be a learning paradigm in our communities on how to communicate or deal with HWC. The study will help policy makers to put in place programmes to educate people

on how to co-exist with wildlife and resolve conflicts. The study will also add up to the body knowledge about HWC which will be beneficial to scholars, researchers and other people keen on conducting similar studies.

## CHAPTER TWO

### 2.0 LITERATURE REVIEW

#### 2.1 Overview of the Concept of Human-Wildlife Conflicts

Human wildlife interactions have been around since civilisation began and has been a defining experience of human existence. These interactions between man and wildlife can be positive or negative. Positive ones lead to domestication of one's wild animals such as cattle and dogs. Humans have competed and exerted dominance over most ecology on the surface of the earth leading to habitat and resources capture. This interactions lead to conflicts which has lead to the extinction of numerous species, significant structural and functional ecological changes, and inestimable life, crops, livestock, and property loss (Nyhus, 2016).

Human-wildlife conflict (HWC) is defined as any interaction between humans and wildlife that results in negative impacts of human social, economic or cultural life, on the conservation of wildlife populations, or on the environment. Human-wildlife conflict can also be described as any form of tussle or scuffle that unfold when wildlife presence or behaviour poses actual or perceived, direct and recurring threat to human interests or needs, usually leading to disagreements between groups of people and negative impacts on people and/or wildlife. The term wildlife is defined generally as the non-domesticated fauna and flora of any particular region. However in HWC can involve some domesticated and feral animals (Nyhus, 2016).

HWC is currently a global problem as literature of the negative impact of these interactions have been documented in various parts of Asia most especially India, Latin America with the depletion of the Amazon, and Africa in particular West Africa, East Africa, Central Africa and Southern parts of Africa. Due to the innovative and adaptive nature of man, humans usually come out as the dominate one in these interactions except the case when a more charismatic or larger wildlife species is involved. There have been several reports of both human and wildlife casualties are well documented in these interactions.

HWC has noteworthy repercussions for human health, safety, and welfare, as well as biodiversity and ecosystem health. The impacts on humans can be direct or indirect and instantaneous or gradual. Direct attack such as bite, claw, gore can result in injury to humans and even lead to death in the same way indirect attack by wildlife such as collisions between animals and automobiles, either on land, water or in the air can lead to dangerous disasters and transmission of a zoonotic

disease or parasite causing pandemics. The impact of direct attacks of HWC can be measured in terms of material and economic damage to crops, livestock, game species, and property. On the other hand, the impacts of indirect HWC is more difficult to measure due to the opportunity costs HWC to farmers associated with guarding crops or livestock, diminished psychosocial wellbeing, disruption of livelihoods, and food insecurity (Nyhus, 2016).

Researchers such as – have reported that several complications of HWC have been as a result of the use of wildlife for conservational and resource purposes. Other research such as also reports that of complication of HWC is due to fact that HWC is always framed negatively even if human wildlife interaction resulted on a positive note such as being recreational, educational and psychological.

## **2.2 The Concept of Wildlife Reserves and its Implications on Wildlife Conservation**

HWC has been widespread and intractable to the extent that it is one of the major issues facing wildlife conservationist currently. The emergence of the COVID-19, a viral thought to originate from bats has begun a conversation of wildlife conservation. In addition, species such as rodents who destroy grains and are vectors for zoonotic pathogens and felines capable of eating man are a huge diversity of situations facing conservationist. The cost and dangers in co-existing with such species can be very significant.

## **2.3 Nature and Extent of Human-wildlife Conflicts**

Report by Mekonen, (2020) showed that nature and extent of HWC is profound and the impact is not significant on humans but greater on wildlife and the environment. The nature and extent of HWC lead to crop damage, habitat disturbance and destruction, livestock predation, and killing of wildlife and human. The main nature and extent of HWC are explained in subsequent sections.

### **2.3.1 Attacks on humans**

Human attack by wildlife is not very common however, its result is the most significant because of intensity of and eventual loss of human life. Researches Penteriani et al., (2016) and Singh et al., (2021) have shown a significant increase in attack by wild carnivores and injuries by wildlife. Anthropogenic activities such as deforestation, urbanization, industrialization, migration, and most especially intrusion of human to wildlife result in loss of natural wild habitat increasing their

presence over the indwelling human areas. The exact number of human morbidity and mortality due to wildlife is difficult to ascertain as many countries lack of clear records.

The nuisance and injuries that result from HWC may usually increase sentiments giving rise to malevolence and vexation against the involved wildlife, putting challenges for wildlife conservation. The increase in apprehension reduces the willingness to share the landscape with wildlife. Sad to say, these seldom attacks are usually overemphasized by the media. Appalling text and horrific images which appeals to public sentiments are overplayed during media coverage of such attacks generally. Most people move with emotions and forget the logical cause leading humans to overestimate the risk associated with HWC. Overestimating the risk of HCW such as attacks from large carnivore magnifies human fear, triggering a vicious cycle that may affect the increasingly positive conservation (Penteriani et al., 2016).

From 2017 to 2020, there has been 78, 127, 159 and 112 respectively yearly attacks in India mainly from elephant, monkey, bear and snake (Singh et al., 2021). Data from Nepal by shows an average wildlife attack of 27, 19, 17, 11 and 8.8 by elephants, leopards, rhinoceros, bear and tigers respectively per year with a yearly fatality rate of 18, 8, 3, 1 and 4 respectively.

### **2.3.2 Attack on Wildlife**

Although HWC have negative impact on both humans and wildlife the most impact is felt by the wildlife leading to mortality and population decline, and manifest differently across taxa and anthropogenic contexts (Long et al., 2020). Significantly morbidity and mortality are caused to wildlife populations through anthropogenic activities contamination and destruction of wildlife habitats, vehicle strikes, mid-flight collisions with windows, domestic cat predation.

Quantifying causes of morbidity and mortality in wildlife populations is often difficult, as there are significant logistical challenges associated with *in situ* studies of wildlife health. It can also be challenging to navigate the behavioural biology of wild populations in a minimally invasive manner; high stress events and capture myopathy can be significant welfare risks to surveys of live individuals. Continued innovation of methods that can be used to identify threats to wildlife health with fewer logistical and welfare challenges is necessary.

One of the most striking loss to wildlife is the reduction in population of the African lion. Study by shows that the population of the African lion has declined steadily form a a million before colonisation to 500,000 by 1950, then to 200,000 by 1975, and less than 100,000 by the early 1990s and just over 30,000 lions remain in sub-Saharan Africa in the 2000s (Muriuki et al., 2017).

### 2.3.3 Crop Damage

Damage to crop is a common form of HWC due to the proximity of farmland to conserved sites cause a lot of economic losses to farmers. Wildlife from the order of primates such as monkeys, baboon and chimpanzees; those from the order artiodactyla such as antelopes, warthog and wild boars; the order rodentia such as common mole rat, grasscutter and porcupine; are important crop raiders in Southeast Ethiopia (Mekonen, 2020). Crop damage is also caused by other species of wildlife such as elephants which can destroy crops at different maturity levels. According to Stoldt et al., (2020) between 2002 and 2015 71% of all reported incidents reported about HWC were related to crop damage. Human and wildlife have been in conflict because farming crops generally offer a rich food source for wildlife as well as for people. Large wild herbivores compete for fallow resources with livestock and can act as reservoirs of livestock diseases.

The immense expansion of agricultural activities into wildlife habitats or close to wildlife sanctuaries, wildlife parks and conservations has increased HWC as many farms are invaded by wildlife. Studies has shown that many local populations have their farms close to wildlife parks and conservations especially in Africa. This is attributed to the fact that activities of farming have replaced the nomadic life ones lived by the inhabitants. According to Osei-Owusu & Bakker, (2008) the prevalence and extent to crop raiding is usually due to several factors including availability, variability and type of food in their natural habitats, the level of anthropogenic activity on a farmland and the maturation time of crops in contrast to natural food sources. Moreover, the climatic and weather patterns in the region also play a role as some wildlife migrate or go on hibernation. HWC between wildlife and local farmers in both Africa have led to fatal clashes between people and wild animals. These clashes lead farmers killing lots of wildlife in protection of their crops. On the other hand, some individuals kill wildlife for their or as trophies. In some cases, starvation caused by drought and other natural phenomenon cause wildlife to invade farms causing crop damage and forcing farmers to abandon their farms.

Large species of wildlife such as elephants can destroy large areas of farmland in a overnight due to the share numbers they walk with. Destruction of crops does not only have the direct consequence of depriving farmer's ability to feed their family but there are other indirect consequences such as reduction income and cash flow leading to inability to provide for children's education, health needs, nutrition needs and development in general. Ther are rarely

compensations for the losses due to crop raiding making it an individual economic loss; making farmers are poor especially in Africa (Linkie et al., 2007).

#### **2.3.4 Livestock predation**

Crop raiding is not the only difficult agriculturist are facing with wildlife. Livestock predation such as those from lions, cheaters, hyenas and wild dog has terrorised animal farms in Africa (LeFlore et al., 2019), and wildlife such as leopard and tigers have been a serious issue in India and other parts of Asia (Badola et al., 2021), wolves and bears are also issues for farmers in Europe and North America (Torres et al., 2018). As a result of their dominate nature in their landscape and the territorial space required, large terrestrial carnivores are more predisposed to conflict. Predation of farm animals by wildlife creates serious losses for animal farmers leading to conservational challenge threatening wild carnivores. This has led created challenges in practicing certain practices such as pastoral farming which have become very unprofitable. The losses due to livestock predation can result in retaliatory killing of large carnivores.

On the other hand, predation is usually caused by anthropogenic activities on wildlife habitats. Activities such habitat loss of natural habitat for wildlife due to population growth, land degradation, reduction in the natural prey base of lions causes wildlife to search for food outside their wild territories. Also, one significant cause of wildlife predation is the competition for wild prey and competition between wild animals and domestic animals for food in natural environments. For example, wildlife such as antelopes, bison, and zebras share common plant resources with cattle, camels, sheep, and goats (Torres et al., 2018).

The impact of HWC is so severe on large carnivores to the extent that many species are on the brink of extinction. Loss of natural habitat due to and landscape transformation lead to decline of natural prey base of wildlife. Also, wildlife is targeted as source of food (bush meat) for the locals. The bush meat is either eaten by the locals or sold for profits due to poverty caused by a combination of factors including livestock predation.

The decline of wildlife is not good for biodiversity of the ecosystem as it will lead to flourishing of species that may be invasive to the region. However, economic losses due to HWC by large carnivores and its cascading indirect effects on the quality of life on farming communities needs to be critically studied. Furthermore, local farmers attempt to keep the number of wild animals low as low as possible to prevent loss generating negative impacts to wild fauna through the hunting

of species in retaliation for the damage caused, which may even result in drastic reductions to their populations (Muriuki et al., 2017).

### **2.3.5 Disease transmission**

There have been several emergence and re-emerging diseases, many of which originate in wildlife causing challenging pandemics to humans. The emergence of severe acute respiratory syndrome coronavirus 2 (SARS Cov2) that is the current coronavirus strain has shined light on the importance of a suitable monitoring of human-animal interactions to prevent future pandemics we could face (Meurens et al., 2021). Wildlife is full of pathogens that can be transmitted to both livestock and humans. This can lead to multi pathogenic host with the potential to cause devastating effects on the livelihoods of livestock farmers, human lives and national economies (Craft, 2015). The treat of multi pathogenic host has become imminent due to effects such as land development, globalization, climate change and the increasing numbers of HWC. Due to the sharing of common plant source of wildlife such as ungulates to livestock, there is a danger of transmission of pathogens to livestock which might also be transmitted to farmer. Also, wildlife in conservation may transmit pathogens as a result of habitat loss and agricultural activities close to reserves and conservations.

Wildlife serves as reservoir for many pathogens such as hantavirus, fascioliasis, Nipah virus, tularaemia and yersinosis (Rees et al., 2021). In additions pandemics such as AIDS from the virus Human Immunodeficiency Virus (HIV) ha its origins from Simian immunodeficiency virus (SIV) which native to primates. Moreover, carnivores act as reservoirs for the dangerous rabies virus which is responsible for numerous fatalities in human population worldwide. Sharing of same water source for drinking with wildlife is also another disease issue especially in Africa. Seasonal migration of wildlife in search of water and food especially in the dry seasons leads to severe HWC.

According to Rees et al., (2021) understanding how anthropogenic activities such as climate change, loss of biodiversity, land use, and land-cover change changes how zoonotic pathogens get transfer to, and from, the environment due to interactions with wildlife. The multi pathogenic host are very persistent in the environment and complex to deal with. Most pathogens can be transmitted on numerous exposure routes such as occupational, recreational, and socioeconomic circumstances.

## **2.4 Impacts of Human-wildlife Interactions**

Human wildlife interactions can be beneficial or detrimental depending how it is managed. As it stands, humans are inconsiderate to the worth of wildlife in the environment. In developing countries where HWC is of most contention due to poverty as result of damages to livestock and crops which are the main source of livelihoods and income generation. However, the overlap between human population growth and established wildlife territories have been neglected by locals as one of the key components of HWC. The frequency and gravitas of the conflict increases due to human population expansion into wild unchartered territories. HWC thus creates individuals with phobia to large mammals such as lion, hyena, leopard, and elephant.

Crop damage, livestock depredation, and attacks to humans by wildlife such as ungulates, monkeys, rodents, and bird species, leopard, hyena and African rock python bring undue loss to farmers. Thus, farmers consider these animals as pest as the animals constitute a severe problem for the farmers adjacent to national parks. There are other indirect effects such as increased transmission of zoonotic disease to locals, and opportunity costs including children forgoing school-time in order to guard planted fields and “hidden” social costs such as diminished states of psychological or physical well-being (Matseketsa et al., 2019). Moreover, HWC becomes a critical source of insecurity for individuals living within or nearby protected areas (Nyhus, 2016).

The impact can be very serious on wildlife sometimes taking them to be prone to extinction. How prone wildlife is to extinction is dependent on the impact of HWC such as direct impact injury and death caused by humans, retaliatory shooting, poisoning and capture or indirect impacts such as vehicular accident, railways accidents, traps made for pest, falling into farm wells, flying into windows and bush fires (Matseketsa et al., 2019). This put global biodiversity at risk. According to Tollefson, (2019) anthropogenic activities have led to about 75% of land and 66% of ocean to be significantly altered.

According to Kitina Nyamasyo & Odiara Kihima, (2014) Africa has been exceptional in retaining a considerable biodiversity and concentration of its wildlife. Wildlife can be a major boast to a country’s gross domestic product (GDP). Wildlife tourism accounted for 70% of the gross tourism income in Kenya, which is 25% of Kenya’s GDP, and more than 10% of total formal sector employment in 2011 (Kitina Nyamasyo & Odiara Kihima, 2014).

Wild ungulates have high economic values as a source of revenue through consumptive and non-consumptive utilization. Their resources provide environmental goods and services for the livelihood of the people, sociocultural, aesthetic, and ecological values.

scavengers and decomposers wild animals (like vultures, eagles, jackals, hyaenas etc.) as well as micro - organisms, which feed upon dead animals, convert them into different nutrients and release energy back to the nature increasing fertility of the soil. Killing of carnivores leads to an increase in the number of herbivores which in turn affect the forest vegetation, thus due to lack of food in the forest they come out from the forest to agriculture land and destroy our crops.

The wildlife of India has rooted effects on religion, art, sculpture and literature. Many mythological stories and children's stories are based on wildlife.

## **2.5 Communication in Wildlife Conservation**

Conservations or protected areas constitutes a major component of global strategy to counter the loss of biodiversity. These protected areas are considered to have the original genetic information of specie dur to their untouched landscape. However, past conservation efforts have not really survived due to the perpetual exclusion of locals from the contrasted of protected areas. Local people are viewed as destroyers of the forest and anti-conservative group. This mindset has led to serious conflicts between conservation authorities and locals who feel their land and resource have been hijacked by the state and are getting all the negative side effects of HWC. According to Lele et al., (2010) the a militaristic defence strategy by some conservation authority only heightens conflict between the authority and local communities.

The best way to solve conflict with conservation efforts is to make sure local communities around the protected area are part of the conservation efforts. This can be achieved through respects the rights and existence of the local people by using effective communication tools and sharing the benefits between local people and protected areas management. According to Guenther & Shanahan, (2020) should be modelled in terms of risk perception, affect heuristic, narratives, and prior beliefs.

Modelling HWC on the perception of wildlife risk to humans is important bur does not always work due to the the long-standing depiction of horrors and adverse effects about HWC. Many studies have been dedicated to assessing risk solely on negative outcomes to humans but not the other way round. The benefits in the form of ecosystem services and, in some cases, contributions

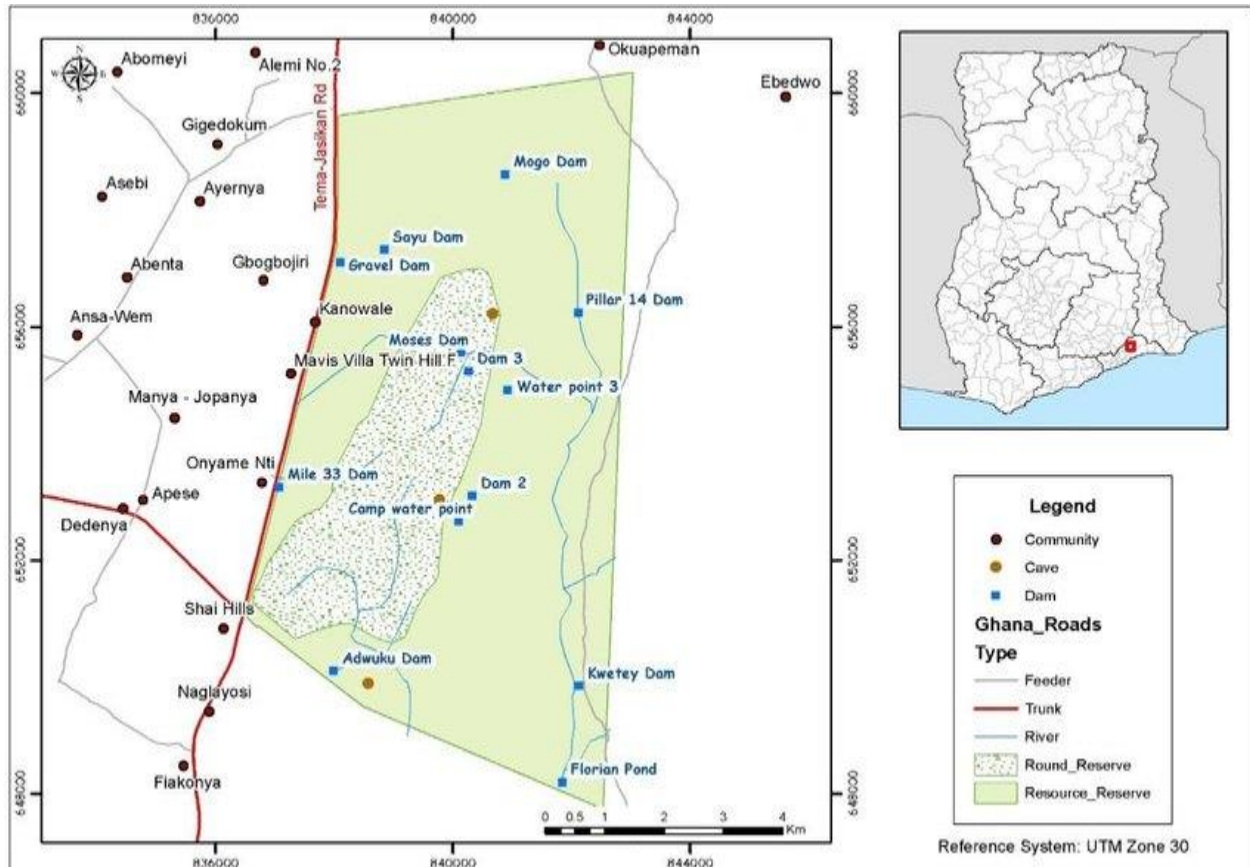
to human health and well-being are often not studied. In recent times the concept of HWC has been reviewed to add the concept of coexistence (Human Wildlife Conflict and Coexistence, HWCC); broadened the concept to include the dual role of risk with wildlife: a purveyor of harm to humans and a positive source of benefits for the environment (Guenther & Shanahan, 2020). Individual often rely on an intuitive affective assessment to manage risk in HWC. However, affect heuristic of these conflicts have powerful cognitive process in the way and manner we perceive the gravitas positive-negative bearing of the HWC (Wilson et al., 2019). This has a direct impact in predicting the intensity of benefits and adverse risk of the conflict.

Moreover, communication about HWC can be modelled in a way to carry the audience through a journey of an affective experience (Guenther & Shanahan, 2020). In this way both positive and negative affect, is presented in the eyes of the audience which will enhance their understanding as well as perceived benefits and risks.

# CHAPTER THREE

## 3.0 METHODOLOGY

### 3.1 Study Area



**Figure 3.1: Map of the Study Area (Adopted from Antwi et al., (2017))**

The study was carried out in the settlement areas surrounding Shai Hills Resource Reserve. Shai Hills Resource Reserve is a resource reserve located in Doryumu in the Shai Osudoku District all in the Greater Accra Region. It was established in 1962 with area of 47 square kilometres (4,700 ha; 18 sq. mi) which was later extended to 51 square kilometres (5,100 ha; 20 sq. mi) in 1973.

### 3.2 Study/Research Design

This study employs descriptive research design using questionnaires and interviews. The study design will involve scientific method which includes observing and describing the behaviour of a subject without influencing it in any way. The design will also describe systematically situations,

problems, phenomenon, service or programme by providing information on what is in existence in respect to conditions or variables that would be found in a given situation to determine the what, how and why of the study. The descriptive survey research design will help in generating data on variables contributing either negatively or positively towards HWC. The research is designed to shade light on variables like, types, causes of HWC, land use changes, mitigation measures implemented that contribute positively or negatively to human wildlife conflict. Moreover, it will enable researchers to undertake a breadth of observation on the phenomena under study

### **3.3 Research Approach**

The study engages the use of both qualitative and quantitative methods to examine the role of communication in HWC in SHRR. The use of both quantitative and qualitative methods will enhance the information generated through combination of information source and analytical approach. This will help eliminate biased due to single method approach making the result more reliable. Open ended questions were used to collect qualitative data. This allowed respondents to express themselves as much as possible.

### **3.4 Target Population**

The target population constituted of people living in surrounding villages close to SHRR since these are the human-wildlife conflict hot spot areas, and staff from SHRR and other conservation organizations involved in wildlife conservation and management as well as mitigation of HWCs in the study area.

### **3.5 Sampling procedures and sample selection**

All communities surrounding SHRR will be selected and used as sample units while households will be used as the units of analysis. To select the representative sample for each location, numbers corresponding to the names of heads of household will be written on papers and samples drawn randomly. The numbers drawn for every location will be used to make separate lists that will be cross checked with the original lists. The corresponding names on the lists will be written against the numbers of the prepared lists and the identified names of household heads or their representatives interviewed. The proportion of the sample selected within the locations will be based on the population found in each.

### **3.6 Data Collection Procedures**

Both primary and secondary data will be collected. Primary data was collected using the questionnaire, discussions and observations. The researcher administered the questionnaire personally with the help of research assistants. Interviews will be held with key informants drawn from SHRR and personnel from other organizations involved in wildlife conservation and conflict management and resolution in the study area.

### **3.7 Data Analysis and Presentation**

Data will be organized and coded and then entered into the computer for analysis using both descriptive and inferential statistics. The Statistical Package for Social Sciences (SPSS, version20) will be used to facilitate the processing and analysis of data process and analyse the data. Frequencies, percentages and standard deviations will be calculated while the Chi square test will be used on selected variables and results either accepted or rejected at 0.05 level of significance. Hypothesis testing will be performed using the chi square goodness of fit test and results tested at the 0.05 level of significance.

## CHAPTER FOUR

### 4.0 RESULTS

#### 4.1 Demography of Respondent

Table 4.1 Socio-demographic characteristics of respondents

Variable	Responses	Frequency (n=76)	Percentage
Age	Less than 30 years	13	17.1
	31-40 years	35	46.1
	41-50 years	21	27.6
	51-60 years	4	5.3
	More than 60 years	3	3
Education	No Education	8	10.5
	Primary	11	14.5
	Secondary	51	67.1
	College/University	6	7.9
Marital Status	Single	3	3.9
	Married	73	96.1
Farm Size	< 5 acres	17	22.4
	5-9 acres	15	19.7
	10-14 acres	8	10.5
	15-19 acres	4	5.3
	>20 acres	32	43.4
Distance of farm from SHRR	1-5 km	29	38.2
	6-10 km	23	30.3
	11-15 km	14	18.4
	16-20 km	5	6.6

>20 km

5

6.6

Most of the respondents were between the ages of 31-40 representing 46.1% followed by ages between 41-50 representing 37.6%, 17.1% were ages less than 30 of the respondents, 5.3 were of respondents between 51 to 60 years and more than 60 were the least of respondents representing 3%. Most of the respondents had secondary education representing 67.1%, primary education of the respondents was 14.5%, respondents with no education were 10.5%, 7.9% were least of respondents with university/college education.

Most of the respondents were married with percentage of 96.1 and representing 3.9% of the respondents were singles. The highest farm size was greater than 20 acres which is 43.4% 5-9 acre of was 19.5% 10.5% of farm size was between 10-14 acres 15-19 acres of farm sizes was the least representing 5.3%. Majority of the farms were of distance between 1-5km representing 38.3% representing 30.3 was distance cover between 6-10 km, 11-15 km distance was represented by 18.4%, between 16-19 km and greater than 20 km representing 6.6% and 6.6% were the least distance of farm from SHRR.

#### 4.2 Types and Nature of Human-Wildlife Conflicts Experienced

**Table 4.2 Responses on Nature of HWC Experienced by respondent**

Variable	Responses	Frequency	Percentage
Do wildlife come to your land	Yes	69	90.8
	No	7	9.2
Total		76	100
Problematic experience with wildlife	Crop raiding	31	40.8
	Livestock predation	14	18.4
	Death/injury to human life	13	17.1
	Destruction of infrastructure	7	9.2
Total		69	100

Majority of the respondents (90.8%) responded yes to wildlife coming to their land. The most problematic experienced faced by respondent is their crops being damaged by wildlife. This is followed by livestock predation and injury to human life. In addition, a few respondents reported damages to their infrastructure.

### 4.3 Impact of Human-Wildlife Conflicts

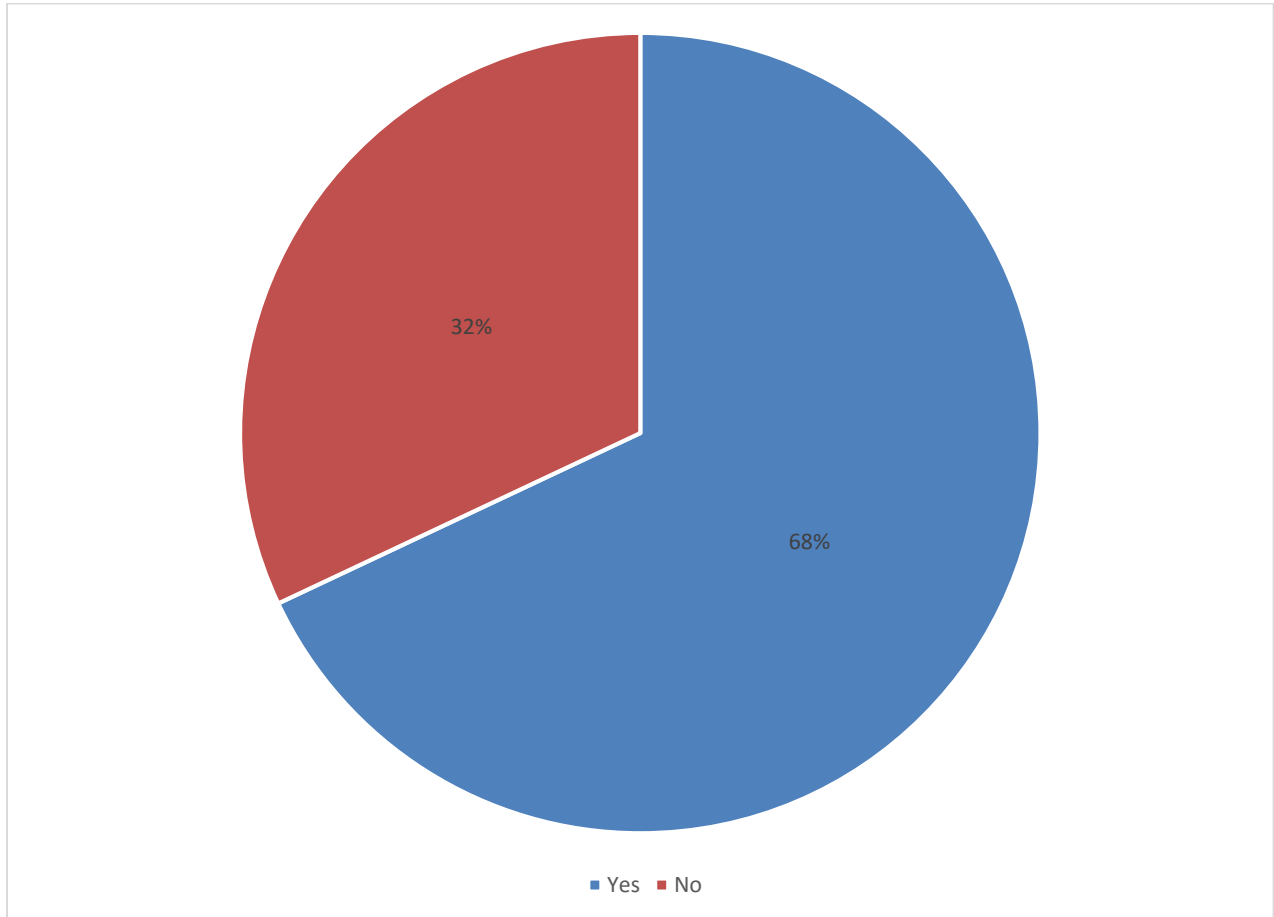
**Table 4.3 Impact of HWC**

<b>Variable</b>	<b>Responses</b>	<b>Frequency (n=76)</b>	<b>Percentage</b>
Had any experience of HWC	Yes	69	90.8
	No	7	9.2
Kind of experience	Farm invasion	48	63.2
	Home invasion	14	18.4
	Human attack	3	3.9
	Crop raiding	9	11.8
	livestock damage	2	2.6
Impact of HWC	Leads to economic losses	38	50
	Is a threat to life/lives	24	31.6
	Abandonment of property	14	18.4
Monetary Impact	Less than 1,000	39	51.3
	1,000 – 5,000	14	18.4
	5,000 –10,000	8	10.5
	10,000 – 50,000	12	15.8
	50,000 – 100,000	0	0
	Over 100,000	3	3.9

Majority of the respondents (90.8%) have experienced HWC. The most experienced HWC is farm invasion, 63.2% followed by home invention, 18.4% then attack on humans. Majority of the respondents suffer economic losses due to HWC. Some respondent responded that HWC is a treat to their lives. Others have abandoned their property to be saved. The monetary value of losses that are made due to HWC for most of the respondents were less than GHC 1000. This is followed by respondent suffered losses between GHC1000 and GHC5000 (18.4%). The least was GHC 100,000 and above with a percentage of 3.9.

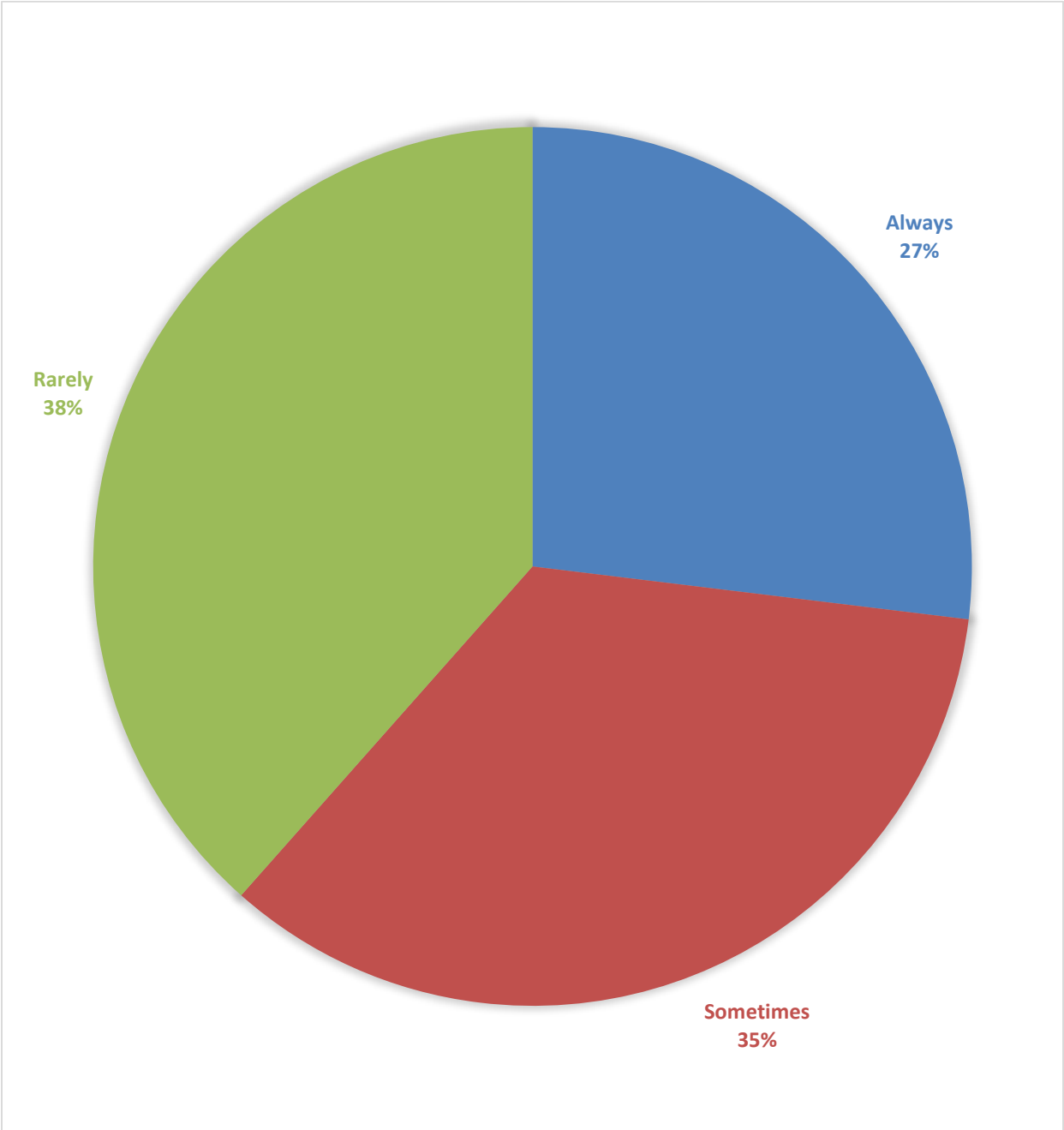
#### 4.4 Reporting of HWC

Most of the respondents respond (68%) report HWC to the SHRR authority. Only 32% did not report.

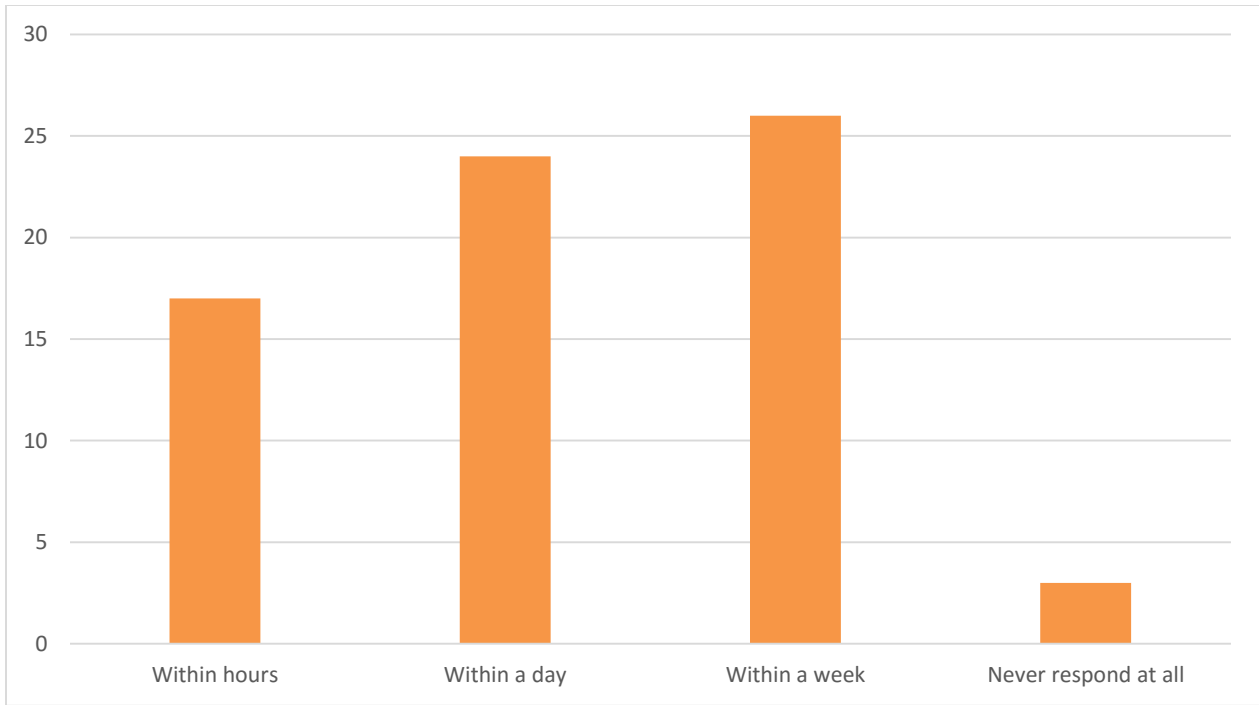


**Figure 4.1 Percentage of respondents who report to SHRR after wildlife invade**

Amongst the percentage that reports HWC to SHRR authority, only a 38% which is the majority rarely do report, 35% sometimes report and 27% always report.

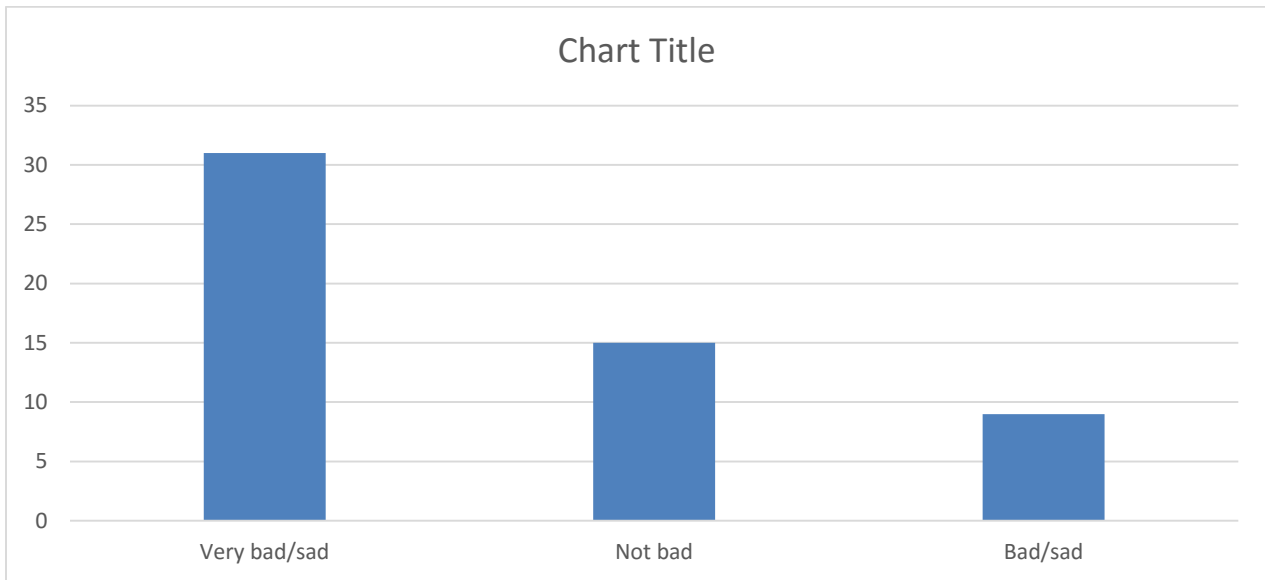


**Figure 4.2 The percentage of frequency of reporting HWC**

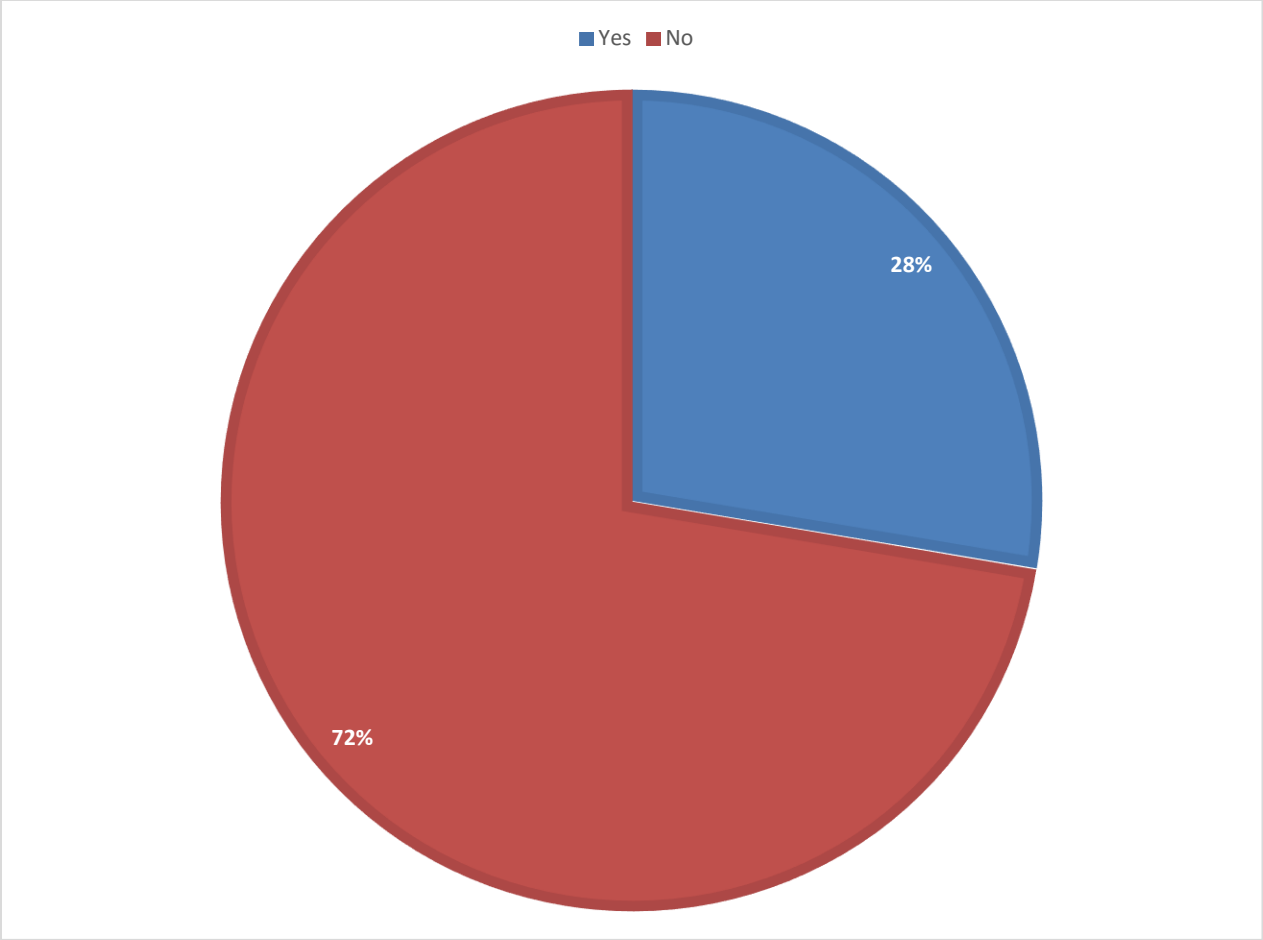


**Figure 4.3 Figure showing how long does SHRR take to respond to your report.**

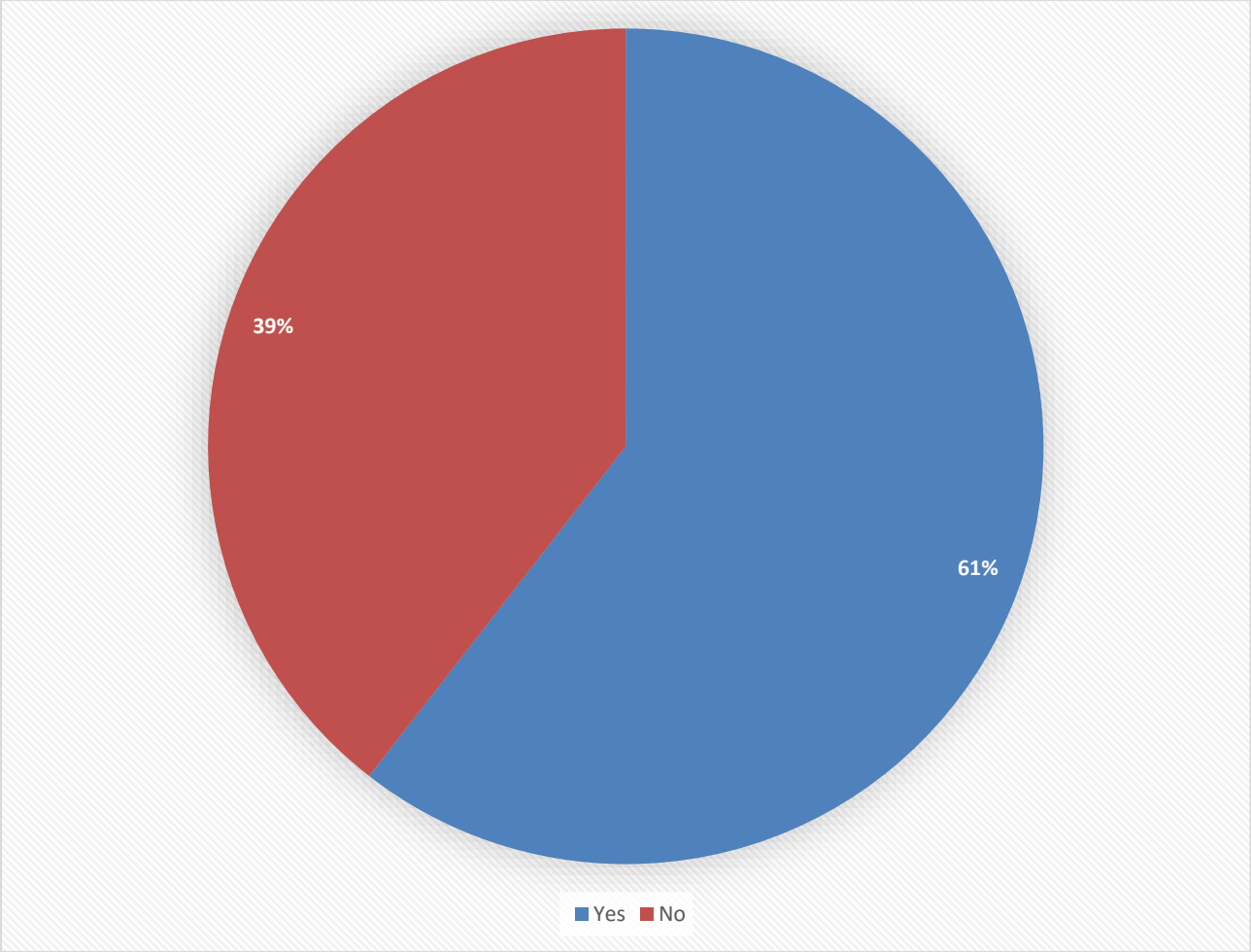
#### **4.6 Attitude Towards Wildlife Conservation**



**Figure 4.4 How respondent if wildlife in this area were eliminated**



**Figure 4.5 Willingness to tolerate the presence of wildlife on land.**

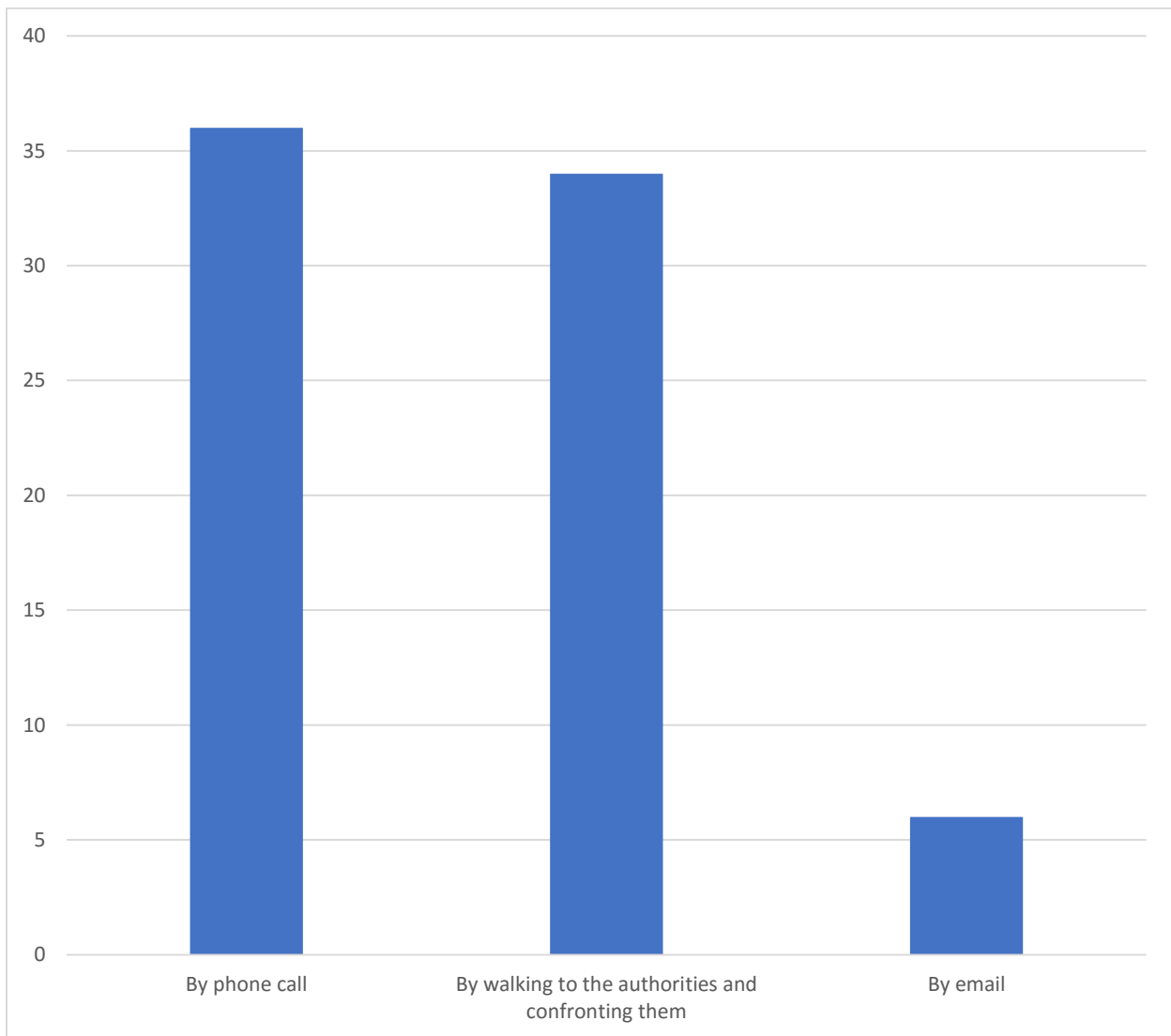


**Figure 4.6 Percentage of respondent who have benefitted from wildlife**

## 4.7 Communicating HWC discourse

### 4.7.1 How do you communicate after HWC

Majority of the respondents either prefer to call the management of SHRR on phone to report HWC or to walk in person and confront the authority on what happened. Only 6 respondents representing 7.9% prefer using email to contact SHRR authorities.



**Figure 4.7 Preferred mode of communicating HWC with SHRR authorities**

#### 4.7.2 Factors that influence participation in HWC discourse

The study sought to rate the extent to which factors in the table below influence participation in HWC conflict in SHRR. The rating was on a scale of 1 to 5 where 1 = No extent, 2 = Little extent, 3 = Moderate extent, 4 = Great extent and 5 = Very great extent.

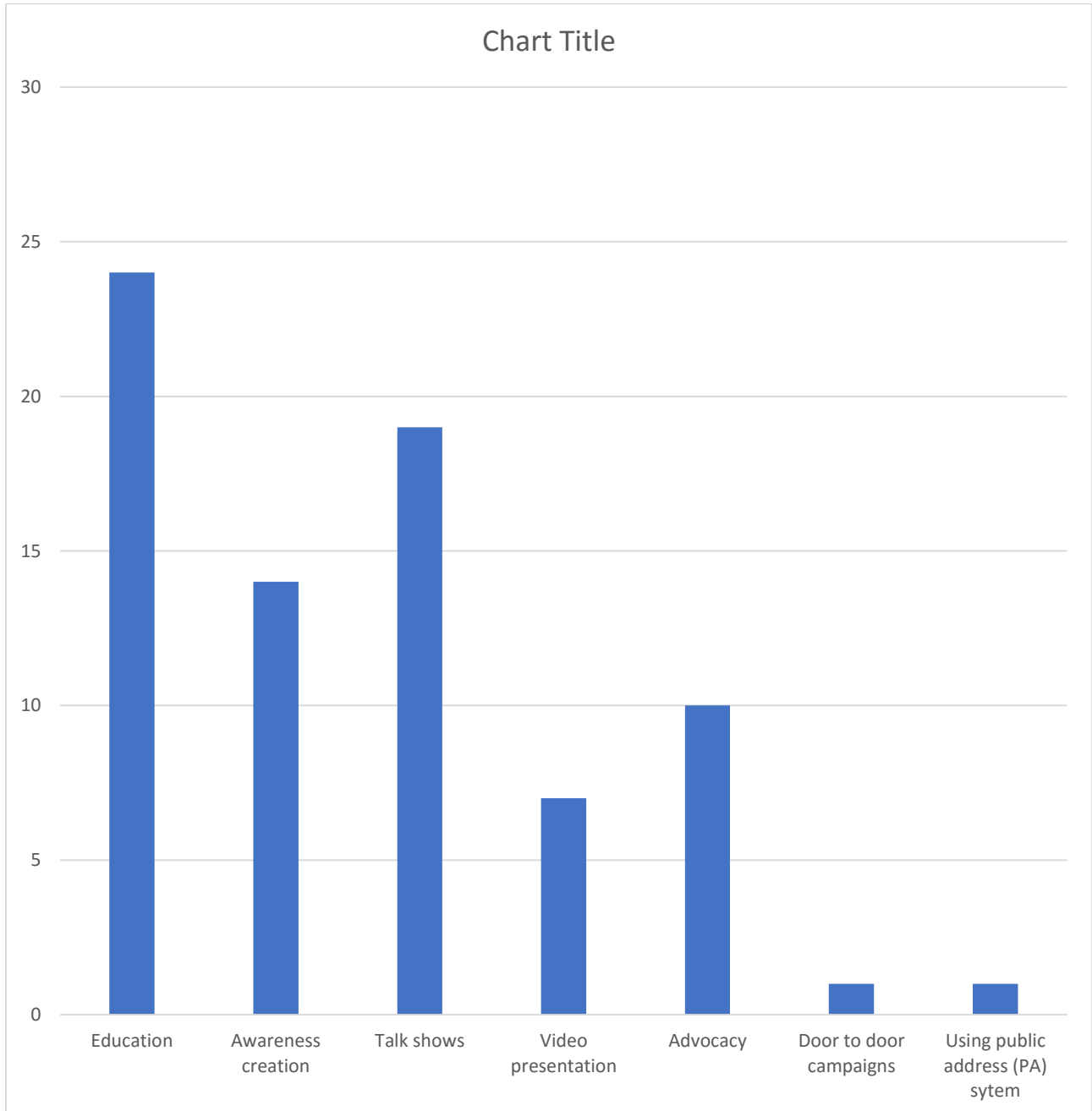
**Table 4.4 Factors that influence participation in HWC discourse.**

	No extent	Little extent	Moderate extent	Great extent	Very Great extent
Local communities in Shai Hills are involved in the development of conservation plans.	32.9%	23.7%	32.9%	7.9%	2.6%
Local communities in Shai Hills are involved in harnessing cultural conservation methods and practices.	30.3%	17.1%	25.0%	18.4%	9.2%
Data on the management of wildlife is open source and can easily be accessed by local communities in Shai Hills.	34.2%	27.6%	30.3%	7.9%	0%
Local communities in Shai Hills are involved in the development implantation and evaluation of strategies /policies to de-escalate HWC.	25.0%	38.2%	23.7%	9.2%	3.9%
Local communities in Shai Hills are involved in the declaration of wildlife ecosystem and habitats in need of protection.	30.3%	21.1%	25.0%	11.8%	11.8%

The table above shows how involved the local communities are involved in HWC discourses.

### 4.7.3 Preferred Communication Platform

The finding showed the majority of respondent preferred educations. The second most preferred communication channel is talk shows. Door to door campaigns and using public address systems were the least preferred by respondents.



**Figure 4.8 The preferred mode of communication.**

## CHAPTER FIVE

### 5.0 DISCUSSION

Wildlife conservation has had tremendous push in the country. However, local communities outside the park and conservations are frequently affected by HWCs. This can be attributed to increased human activities in wildlife habitats, high poverty levels, development of land, political instability, development of infrastructure such as roads in wildlife habitats and requires to plan for strategies to prevent conflicts (Nyhus, 2016). In this study consists of 76 respondents randomly sampled from local communities around SHRR. The discussion on key socio demographic characteristics investigated and their impact on local people's attitudes and perceptions towards and assessment of how effective communication can be used in mitigating HWC.

The ages of the respondent were considered to know the kind of respondent we were dealing with. Most of the respondents had past their youthful ages above 40 years. However, very few respondents had past retirement age of 60 years. As a results, the age demographics is a blend of matured individuals. The level of education is very important to know how respondents would acquires, synthesis and interprets information and understands the issues pertaining to wildlife conservation, information on benefit sharing and communication to mitigate HWC. Most of the respondents were educated and had undergone secondary education. Education is an important in forming social networks, bringing locals together to form a united front to entering in contractual agreements that contribute towards people's empowerment. Majority of the respondents were married which is a normal trend in farming communities. This is because in most farming communities the family is basically the backbone of the farms. The distance of the farm from SHRR also was considered due to the easy with which wildlife can get to the farmland and properties. Majority of the respondent (60%) lived less than 10 km from SHRR which is a distance wildlife can easily get to within a short while.

Results showed that there are various types of HWCs experienced in areas surrounding SHRR. The major HWC according to the respondent was crop raiding followed by livestock predation. These conflicts are due to increases in human activities such as crop and livestock farming and settlement in areas adjacent to SHRR. Other factors include encroaching on SHRR land by locals and or their livestock. Most of the conflicts experienced were reported to SHRR. This is consistent with studies such as (Kitina Nyamasyo & Odiara Kihima, 2014).

Mango, Maize, Pepper, Tomato and cassava are some crops that are cultivated by farmers around SHRR. Mangos are usually cultivated for exports which is also the main cash crop of the locals. The most destructive wildlife species from SHRR is the baboon (Antwi et al., 2017). Wildlife such as monkeys are known lovers for mangoes. Pepper and tomatoes are also cash crops however, most families plant tomatoes and pepper for their own consumption. In spite of the actions of wildlife, most respondent are unwilling to abandon their farms and properties.

The frequency of HWC is dependent on the population density of a region (Mukeka et al., 2019). Invasion of farmland has been reported in most literature as the most frequent HWC (Ogutu et al., 2016). This is due to the proximity of farmlands to wildlife conservational sites and natural habitat of wildlife. Invasion of home by wildlife is one HWC that occur due to siting of home in forest, along migration routes of wildlife and settlements which are within wildlife habitat. Invasion usually occurs when wildlife is in search of food. Home invasion by wildlife is very dangerous as it can cause panic attacks. Some respondent responded that HWC is a treat to their lives. Frequent home invasion can lead to abandonment of properties.

The monetary value of losses that are made due to HWC for most of the respondents were not significantly high as other researchers such as Muriuki et al., (2017) has reported however, similar to Holmern et al., (2007). The low monetary coat of HWC can be due to the fact that most of the farmers are subsistent farmers and do not hold to much value for their crops. However, crop destruction leading will lead to hunger which would be a disturbance for the farmers' family. The education of the children can be halted due to improper nutrition that can be attributed to crop damage. Therefore, the monetary cost of HWC is not always a reflection of the entire scenario due to chain effects of HWC.

Incidents of HWC are not always reported by respondents. This can be due to lack of actions taken by authorities when HWC occur. Moreover, those who report HWC to SHRR authorities do not get any proper feedback. The SHRR authorities and the government do not pay any alimony or compensations to anyone one who has suffered from HWC. This also does not incentivise locals to report any occurrence of HWC. On the hand, the frequency of crop damage is so alarming to be reported. Wild species such as baboons have come to learn the ways and means to damage crop without encountering farmers. Farmers have reported that the species such as baboons almost always come around during their absence. This makes it very difficult to protect their farms.

Although no special actions are taken when HWC occurs, respondents reported that authorities of SHRR are very quick to respond to their plight. It can take a week for the authorities for SHRR to respond to HWC however, the most important thing to the respondents is that they do respond. Respondents feel very sad that this happens to them. This can be due to the fact that the actions of the wildlife is out of their control. Albeit, they percentage of tolerance of respondent to HWC is high. Tolerance to wildlife is very important for the survival of wild species especially the endangered ones. This can also be attributed to the benefits respondents get from the reserve. Majority of respondents benefits from the reserve either directly or indirectly. The main benefit that local benefits from the reserve is selling on the way to the reserve. Others also supply the reserve with local crafts to be sold for them.

The local communities around SHRR are hardly involved in conservation process. Majority of the respondents have little to no extent in conservation plans to manage wildlife, harnessing cultural conservation methods and practices, involved in policies and making and its implementation in de-escalating HWC, data management of HWC, and declaration of wildlife ecosystem. That is to say the local communities have little to do with the conservational status of SHRR. This has led to a gap between locals and management of SHRR.

The best way to breach the gap is to enhance communication between the management of SHRR and the local community. There are few communication channels that are used for the local communities however, this might not resonate among all locals due to some of the locals being uneducated. Majority of the respondent believed education is the best channel to enhance participation in HWC discourse. Talk shows and awareness creation are also very important channels preferred by respondents. Locals can be educated with the aimed of promoting a wider appreciation of wildlife, an understanding of HWC in urban areas and steps we can take in our communities to move towards a human-wildlife coexistence (Forson et al., 2018). In addition, education on the benefits of having a conservation can be given to the locals including how the locals can make some income from the resource reserve.

## **CHAPTER SIX**

### **5.0 CONCLUSION AND RECOMMENDATION**

#### **5.1 Conclusion**

The data analysis determined the role of communication in tackling HWC. The results showed that locals around SHRR are tolerant of wildlife and conservation however, they are not happy with destruction of crops and properties by wildlife. Communication can be the best way to mitigate the issues associated with HWC. Communication through educating locals on the benefits of SHRR and how the locals can generate some income from SHRR will be very important.

#### **5.2 Recommendation**

Further research should be conducted to determine the attitudes and perceptions of local communities living in the two study sites and other areas adjacent to the park towards wildlife, and effectiveness of human-wildlife conflict mitigation measures used in the study area.

Further research should also be conducted to determine other factors leading to the decline in wildlife populations especially the carnivores besides retaliatory killings.

## QUESTIONNAIRE FOR THE LOCAL COMMUNITY

Date of interview \_\_\_\_\_ Location \_\_\_\_\_

### SECTION I: GENERAL INFORMATION ABOUT RESPONDENTS

Occupation (1) Farmer (2) Other (specify) \_\_\_\_\_

Gender (1) Male (2) Female

Age in years \_\_\_\_\_

Marital status \_\_\_\_\_ (1) Single (2) Married (3) Others (specify)

Education level, (1) No Education (2) Primary (3) Secondary

(4) College/University (5) Others (specify) \_\_\_\_\_

Size of land in acres/hectares \_\_\_\_\_

How many years have you lived in this area? \_\_\_\_\_ years

Distance from SHRR boundary \_\_\_\_\_

Types of crops and/or livestock raised on your farm \_\_\_\_\_ a)

Crops \_\_\_\_\_ b)

Livestock \_\_\_\_\_

### SECTION II: TYPES AND NATURE OF HUMAN-WILDLIFE CONFLICTS

#### EXPERIENCED

(a) Do wild animals come to your land? 1) Yes 2) No

(b) If yes, list the names of the species?

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What problems do you experience from wildlife?

(i). Crop raiding (ii). Livestock predation (iii). Death/injury to human life

(iv). Destruction of infrastructure e.g. Fences, houses etc.

(v). Others (specify) \_\_\_\_\_

Which crops among the ones you grow are most preferred by crop raiding animals (List at least 2 crops)

---

Name the wildlife species responsible for crop destruction (Please list them according to the order of their importance) \_\_\_\_\_

\_\_\_\_\_

a) List the livestock that are attacked by wild animals (list at least 2 animals)

\_\_\_\_\_

\_\_\_\_\_ b)

Name the wildlife species responsible for attacks on livestock (Please list them according to the order of most problematic) \_\_\_\_\_

\_\_\_\_\_

**SECTION III: IMPACTS OF HUMAN-WILDLIFE CONFLICTS EXPERIENCED**

a) Do human-wildlife conflicts experienced in this area have any impact on you?

- i) Yes
- ii) No

b) If yes in 15 above, how has it impacted on you?

- i. Led to economic losses
- ii. Is a threat to life/lives
- iii. Has led to abandonment of land-based activities like farming
- iv. Any other impact (specify) \_\_\_\_\_

How much in terms of money are the economic losses you incur per year? (Tick one)

- (i) Less than 10,000
- (ii) 10,000 – 30,000
- (iii) 30,000 – 50,00
- (iii) 50,000 – 70,000
- (iv) 70 – 100,000
- (v) Over 100,000

What are some of the resources that your household obtains from the park (List in order of importance)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**SECTION IV: MEASURES ADOPTED TO MITIGATE HUMAN-WILDLIFE CONFLICTS EXPERIENCED**

Do you protect your farm from wild animals?

- i. Yes
- ii. No

ii. If yes,

What methods do you use to control problem animals? (Use table below and tick against measure used)

Species targeted	Control methods
i. elephants,	Fence
ii. baboon	i. Electric
iii. birds,	ii. Chain link
iv. mongoose	Others
v. zebra	i. Patrols
vi. among others	ii. Light fire
	iii. Throw stones
	iv. Make noise
	v. Dogs
	vi. Flashlights
	vii. Others (specify)

Of the methods you use which is the most effective? \_\_\_\_\_

In your opinion does knowing the impacts of human- wildlife conflicts affect your support to conservation? Will not support -0) (Strongly support-5)

(0) No support, (2) Little support, (3) Moderate support,  
(4) Highly support, (5) Very highly supportive

How effective are the methods adopted in controlling problem wildlife? i. Not applicable

ii. Not effective iii. Slightly effective iv. Effective v. Very effective

What time of the day do you guard your crops/ animals?

i. Day ii. Night iii. Both day and night

Which season / months of the year is the wildlife damage?

i . Least ..... ii. Highest.....

What times does guarding start? a). Starts \_\_\_\_\_ b) Ends \_\_\_\_\_

How many people \_\_\_\_\_ and for how many hours per day (man hours)

\_\_\_\_\_ are used to guard your crops/animals?

Do you report to SHRR when wildlife invades your farm?

- i. Yes ii. No

a) If yes, how often i. Always ii. Sometimes iii. Rarely b) If no, explain why

.....
.....

How long does SHRR take to respond to your report?

- i. Within hours ii. Within a day iii. Within a week,
iv. Never respond at all vi. Other length of time (specify) \_\_\_\_\_

What strategies have been adopted by KWS in dealing with problem animals?

- i. Shooting ii. Translocation iii. Scaring iv. Others (Specify)

How do you describe the occurrence of human –wildlife incidences in this area?

- i. Increased \_\_\_\_\_ ii. No change \_\_\_\_\_ iii. Decreased \_\_\_\_\_

Describe the relationship between you as a farmer and SHRR?

- i. Good ii. Poor iii. Very poor iv. Not sure

(a) Do you report conflicts experienced elsewhere?

- i. Yes, ii No

(b) If yes to whom do you report? \_\_\_\_\_

Please explain why you find it necessary to report elsewhere besides SHRR?

\_\_\_\_\_

Do other organizations offer any protection against wildlife menace to communities living in this area?

- i. Yes ii. No

b) If yes, what kind of protection do they offer?

- i. \_\_\_\_\_
ii. \_\_\_\_\_
iii. \_\_\_\_\_

c) If no, explain why no protection is offered by other organizations-----  
-----  
-----

Where do you think is the origin/source of animals that come to your land? \_\_\_\_  
What is your view regarding the role of Shai Hill Resource Reserve in reference to  
wildlife menace\_\_\_\_\_

\_\_\_\_\_

As part of the local community have you previously organized any village groups to  
enhance security against wildlife invasions here?

- i). Yes            ii). No

a) If yes, how is this done? \_\_\_\_\_

b) If yes, how do they assist the farming community in resolving wildlife conflicts?

\_\_\_\_\_

c) If no, explain why no groups have been organized\_\_\_\_\_

\_\_\_\_\_

How far (in km) is the following from your land?

- i. Migration corridor \_\_\_\_\_ ii. Water point \_\_\_\_\_

In your opinion, do you find wildlife to be of any use to you as an individual?

- i) Yes            ii) No

a) If yes, explain how\_\_\_\_\_

b) If no, state why\_\_\_\_\_

How would you feel if wildlife in this area were eliminated?

- i. Very bad/sad            ii. Not bad            iii. Bad/sad            iv. No response

Are you willing to tolerate the presence of wildlife on your land as you currently do?

- i. Yes            ii. No

a) Are wildlife of any benefit to you?

- i. Yes            ii. No

b) If yes, how do you benefit from wildlife? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Have you ever applied for compensation for wildlife damage?

- i. Yes            ii. No

(a) Do you think wildlife loss or damage should be compensated?

- i. Yes            ii. No

b) If yes, give reasons \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

c) If no, explain why \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

What do you think makes wildlife to cause damage on your farm?

\_\_\_\_\_

\_\_\_\_\_

Suggest the best ways that can be used to control wildlife problems in this area?

\_\_\_\_\_

\_\_\_\_\_

### **Section E: Communications in HWC.**

What do you do after human-wildlife conflict.

### **Section F: Participatory communication in HWC in Shai Hill**

Do you think that participatory communication is being used as a tool that helps de-escalate human-wildlife conflict in Shai Hills.

Rate the extent you agree with the following statements regarding the adoption of participatory communication in HWC interventions? Rate on a scale of 1 to 5 where 1 = No extent, 2 = Little extent, 3 = Moderate extent, 4 = Great extent and 5 = Very great extent.

	1	2	3	4	5
Local communities in Shai Hills are involved in the development of conservation plans for community managed wildlife areas.					
Local communities in Shai Hills are involved in harnessing cultural conservation methods and practices.					
Data on the management of wildlife is open source and can easily be accessed by local communities in Shai Hills.					
Local communities in Shai Hills are involved in the development implantation and evaluation of strategies /policies to de-escalate HWC.					
Local communities in Shai Hills are involved					

in the declaration of wildlife ecosystem and habitats in need of protection.					
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What factors if any hinders communication on HWC discourse

What is your most preferred communication platform in accessing information about HWC?

Communication platform	Tick appropriate answer
Television	
Public barazas and campaigns	
Radio	
Education and entertainment, community theater	
Information education and communication (IEC) tools	
Other (please specify)	

Which language would you prefer to be used in communication about HWC?

What is the role of communication strategies in alleviating HWC?

## REFERENCES

- Antwi, R. A., Owusu, E. H., & Attuquayefio, D. K. (2017). Behavioural and Population ecology of Buffon's Kob (*Kobus kob kob*): A case study of the Shai Hills Resource Reserve, Ghana. *Dialogue on Sustainability and Environmental Management*, 1–10. [https://www.researchgate.net/publication/313900820\\_Behavioural\\_and\\_Population\\_ecology\\_of\\_Buffon's\\_Kob\\_Kobus\\_kob\\_kob\\_A\\_case\\_study\\_of\\_the\\_Shai\\_Hills\\_Resource\\_Reserve\\_Ghana](https://www.researchgate.net/publication/313900820_Behavioural_and_Population_ecology_of_Buffon's_Kob_Kobus_kob_kob_A_case_study_of_the_Shai_Hills_Resource_Reserve_Ghana)
- Badola, R., Ahmed, T., Gill, A. K., Dobriyal, P., Das, G. C., Badola, S., & Hussain, S. A. (2021). An incentive-based mitigation strategy to encourage coexistence of large mammals and humans along the foothills of Indian Western Himalayas. *Scientific Reports 2021 11:1*, 11(1), 1–13. <https://doi.org/10.1038/s41598-021-84119-7>
- Clement, J., & Srinivasa, D. (2019). UNDERSTANDING AND MITIGATING HUMAN WILDLIFE CONFLICT WITH REFERENCE TO THE FOREST BORDERING VILLAGES OF WAYANAD DISTRICT OF KERALA. *International Journal of Economic and Business*, 7(8), 5–9. [www.eprawisdom.com](http://www.eprawisdom.com)
- Craft, M. E. (2015). Infectious disease transmission and contact networks in wildlife and livestock. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 370(1669). <https://doi.org/10.1098/RSTB.2014.0107>
- Ellis, E. C., Goldewijk, K. K., Siebert, S., Lightman, D., & Ramankutty, N. (2010). Anthropogenic transformation of the biomes, 1700 to 2000. *Global Ecology and Biogeography*, 19(5), 589–606. <https://doi.org/10.1111/J.1466-8238.2010.00540.X>
- Forson, A. O., Arthur, I., & Ayeh-Kumi, P. F. (2018). The role of family size, employment and education of parents in the prevalence of intestinal parasitic infections in school children in Accra. *PLoS ONE*, 13(2), e0192303. <https://doi.org/10.1371/journal.pone.0192303>
- Guenther, S. K., & Shanahan, E. A. (2020). Communicating risk in human-wildlife interactions: How stories and images move minds. *PLOS ONE*, 15(12), e0244440. <https://doi.org/10.1371/JOURNAL.PONE.0244440>
- Hoffman, T., & O'Riain, M. (2012). Monkey Management: Using Spatial Ecology to Understand

- the Extent and Severity of Human–Baboon Conflict in the Cape Peninsula, South Africa. *Ecology and Society*, Published Online: Aug 20, 2012 | Doi:10.5751/ES-04882-170313, 17(3), 13. <https://doi.org/10.5751/ES-04882-170313>
- Holmern, T., Nyahongo, J., & Røskoft, E. (2007). Livestock loss caused by predators outside the Serengeti National Park, Tanzania. *Biological Conservation*, 135(4), 518–526. <https://doi.org/10.1016/j.biocon.2006.10.049>
- Kitina Nyamasyo, S., & Odiara Kihima, B. (2014). Changing Land Use Patterns and Their Impacts on Wild Ungulates in Kimana Wetland Ecosystem, Kenya. *International Journal of Biodiversity*, 2014, 1–10. <https://doi.org/10.1155/2014/486727>
- LeFlore, E. G., Fuller, T. K., Tomeletso, M., & Stein, A. B. (2019). Livestock depredation by large carnivores in northern Botswana. *Global Ecology and Conservation*, 18, e00592. <https://doi.org/10.1016/J.GECCO.2019.E00592>
- Lele, S., Wilshusen, P., Brockington, D., Seidler, R., & Bawa, K. (2010). Beyond exclusion: alternative approaches to biodiversity conservation in the developing tropics. *Current Opinion in Environmental Sustainability*, 2(1–2), 94–100. <https://doi.org/10.1016/J.COSUST.2010.03.006>
- Linkie, M., Dinata, Y., Nofrianto, A., & Leader-Williams, N. (2007). Patterns and perceptions of wildlife crop raiding in and around Kerinci Seblat National Park, Sumatra. *Animal Conservation*, 10(1), 127–135. <https://doi.org/10.1111/J.1469-1795.2006.00083.X>
- Long, R. B., Krumlauf, K., & Young, A. M. (2020). Characterizing trends in human-wildlife conflicts in the American Midwest using wildlife rehabilitation records. *PLOS ONE*, 15(9), e0238805. <https://doi.org/10.1371/JOURNAL.PONE.0238805>
- Matseketsa, G., Muboko, N., Gandiwa, E., Kombora, D. M., & Chibememe, G. (2019). An assessment of human-wildlife conflicts in local communities bordering the western part of Save Valley Conservancy, Zimbabwe. *Global Ecology and Conservation*, 20, e00737. <https://doi.org/10.1016/J.GECCO.2019.E00737>
- Mekonen, S. (2020). Coexistence between human and wildlife: The nature, causes and mitigations of human wildlife conflict around Bale Mountains National Park, Southeast Ethiopia. *BMC*

*Ecology*, 20(1). <https://doi.org/10.1186/s12898-020-00319-1>

- Meurens, F., Dunoyer, C., Fourichon, C., Gerdts, V., Haddad, N., Kortekaas, J., Lewandowska, M., Monchatre-Leroy, E., Summerfield, A., Wichgers Schreur, P. J., van der Poel, W. H. M., & Zhu, J. (2021). Animal board invited review: Risks of zoonotic disease emergence at the interface of wildlife and livestock systems. *Animal*, 15(6), 100241. <https://doi.org/10.1016/J.ANIMAL.2021.100241>
- Mukeka, J. M., Ogotu, J. O., Kanga, E., & Røskaft, E. (2019). Human-wildlife conflicts and their correlates in Narok County, Kenya. *Global Ecology and Conservation*, 18, e00620. <https://doi.org/10.1016/J.GECCO.2019.E00620>
- Muriuki, M. W., Ipara, H., & Kiringe, J. W. (2017). The cost of livestock lost to lions and other wildlife species in the Amboseli ecosystem, Kenya. *European Journal of Wildlife Research* 2017 63:4, 63(4), 1–11. <https://doi.org/10.1007/S10344-017-1117-2>
- Nyhus, P. J. (2016). Human-Wildlife Conflict and Coexistence. *Annual Review of Environment and Resources*, 41, 143–171. <https://doi.org/10.1146/annurev-environ-110615-085634>
- Ogotu, J. O., Piepho, H. P., Said, M. Y., Ojwang, G. O., Njino, L. W., Kifugo, S. C., & Wargute, P. W. (2016). Extreme wildlife declines and concurrent increase in livestock numbers in Kenya: What are the causes? *PLoS ONE*, 11(9). <https://doi.org/10.1371/JOURNAL.PONE.0163249>
- Osei-Owusu, Y., & Bakker, L. (2008). *Human-wildlife conflict: Elephant Technical Manual*.
- Penteriani, V., Delgado, M. del M., Pinchera, F., Naves, J., Fernández-Gil, A., Kojola, I., Härkönen, S., Norberg, H., Frank, J., Fedriani, J. M., Sahlén, V., Støen, O.-G., Swenson, J. E., Wabakken, P., Pellegrini, M., Herrero, S., & López-Bao, J. V. (2016). Human behaviour can trigger large carnivore attacks in developed countries. *Scientific Reports* 2016 6:1, 6(1), 1–8. <https://doi.org/10.1038/srep20552>
- Rees, E. M., Minter, A., Edmunds, W. J., Lau, C. L., Kucharski, A. J., & Lowe, R. (2021). Transmission modelling of environmentally persistent zoonotic diseases: a systematic review. *The Lancet Planetary Health*, 5(7), e466–e478. [https://doi.org/10.1016/S2542-5196\(21\)00137-6](https://doi.org/10.1016/S2542-5196(21)00137-6)

- Singh, P. K., Ali, S. M., Radhakrishnan, R. V., Mohanty, C. R., Sahu, M. R., Patro, B. P., MS, I., & Panda, S. K. (2021). Pattern of injuries due to wild animal attack among patients presenting to the emergency department: A retrospective observational study. *Chinese Journal of Traumatology*. <https://doi.org/10.1016/J.CJTEE.2021.09.004>
- Stoldt, M., Göttert, T., Mann, C., & Zeller, U. (2020). Transfrontier Conservation Areas and Human-Wildlife Conflict: The Case of the Namibian Component of the Kavango-Zambezi (KAZA) TFCA. *Scientific Reports 2020 10:1*, 10(1), 1–16. <https://doi.org/10.1038/s41598-020-64537-9>
- Tollefson, J. (2019). Humans are driving one million species to extinction. *Nature*, 569(7755), 171. <https://doi.org/10.1038/D41586-019-01448-4>
- Torres, D. F., Oliveira, E. S., & Alves, R. R. N. (2018). Conflicts Between Humans and Terrestrial Vertebrates: A Global Review: *Https://Doi.Org/10.1177/1940082918794084*, 11. <https://doi.org/10.1177/1940082918794084>
- Wilson, R. S., Zwickle, A., & Walpole, H. (2019). Developing a Broadly Applicable Measure of Risk Perception. *Risk Analysis*, 39(4), 777–791. <https://doi.org/10.1111/RISA.13207>