

**ANALYSIS OF INDIGENOUS KNOWLEDGE IN WILDLIFE CONSERVATION:  
A CASE STUDY OF THE SHOMPOLE CONSERVANCY IN KAJIADO COUNTY, KENYA.**

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Research Project Report submitted in partial fulfillment of the requirements for the award of Master of Arts Degree in Environmental Planning and Management from the Department of Geography and Environmental Studies at the University of Nairobi, Kenya.

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## DECLARATION

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I hereby declare that this research project is my original work and that it has never been presented to any other examination body by any other person for the attainment of any academic qualification whatsoever.

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Sign: 

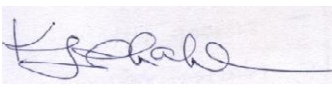
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Date: 26-09-2021.

## DEDICATION

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This project is dedicated to the Almighty God, my creator, my pillar of strength, my source of inspiration, wisdom, knowledge, and understanding. Throughout this program, He has been my source of strength, and I have only flown on His wings. I also dedicate my work to my parents, wife, and children, who have always encouraged me and ensured that I give it everything I have to accomplish what I started. To my wife Branice Vusha Amayi, my children Emmanuel Eyevatsa, Danson Eshaka, and Reena Meira Awinja who have been affected in every way possible by this quest I say thank you. My love for you all can never be quantified. God bless you.

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May God Bless you all.

## ABBREVIATIONS AND ACRONYMS

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|      |                                      |
|------|--------------------------------------|
| AIKS | Africa indigenous knowledge systems. |
| BRT  | Biligiri Rangaswamy temple           |
| CTM  | Chinese Traditional Medicine         |
| EFA  | Education for all                    |
| FGD  | Focused group discussions            |
| IK   | Indigenous knowledge.                |
| IKS  | Indigenous knowledge system.         |
| KIIs | Key Informant Interviews             |
| KWS  | Kenya Wildlife Service               |
| NGOs | Non-governmental organizations       |
| NMS  | Nature, human and supernatural.      |
| NRT  | Northern rangeland trust.            |
| TCM  | Traditional Chinese medicine.        |
| TEK  | Traditional ecological knowledge.    |
| TK   | Traditional knowledge.               |
| TKS  | Traditional knowledge system.        |
| UN   | United Nations                       |
| UNEP | United Nations Environment Program   |

## ABSTRACT

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The role of indigenous peoples' knowledge-practice in wildlife conservation is rarely recognized in studies. In the African setting, indigenous understanding has long been neglected by western conservation expertise. As a result, much of this information is rapidly fading in its applicability to animal variety protection. The purpose of this research was to determine the value of the Maasai people's current indigenous knowledge systems (IKs) in animal conservation and management. Specifically, the study sought to identify existing indigenous knowledge systems for wildlife conservation among the Maasai community living in and around Shompole wildlife conservancy, to assess the relationship between indigenous knowledge systems and wildlife conservation among the Maasai community, and to assess how the needs for human survival affects community wildlife conservation in and around Shompole wildlife conservancy. The study was guided by the Indigenous wholistic theory and the general theory of education. A mixed-method investigation design was utilized to meet study objectives. The study targeted 400 households' heads in the surrounding area of Shompole wildlife conservancy located within the Magadi Division in Kajiado County. A sample size of 120 was selected using a random walk technique. Data preparation exercise included data quality testing; data entry into the computer; data processing and the creation and documentation of a database design that incorporated the different measures. Spearman's rank correlation analysis was used to test the relationship among various study variables and hypotheses. The findings revealed that indigenous knowledge in cultural and social norms has raised awareness of the importance of conserving wildlife. The Maasai culture has deterred the killing of wild animals and promoted wildlife conservation practices such as setting free wild animals and limited firewood collection. Religious practices have restricted the eating of wild animals while economic practices dictate that wild meat is shared to discourage the hunting of wild animals. Besides, the need for human survival negatively impacted community wildlife conservation. The study, therefore, recommended concerted efforts by the Ministry of Environment and Forestry, Ministry of Tourism and Wildlife, and the County government of Kajiado to work towards mainstreaming indigenous knowledge systems to enhance wildlife conservation. Finally, it is essential for the Kajiado County government in collaboration with Kenya Wildlife Service (KWS) to actively involve the community members in the conservation of the wildlife and ensuring that they equally benefit from the wildlife resource.

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## CHAPTER ONE: INTRODUCTION

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### 1.0. Background of Study

Indigenous populations, also known as Principal Settlers, First Cultures, Aboriginal peoples, Original inhabitants, or native peoples, are ethnic groups that were the first documented occupants of a territory that has since been developed, invaded, or colonized by other ethnic groups. These local communities have various forms of knowledge that are attributed to their culture and traditions and this forms what is called indigenous Knowledge (IK). The indigenous people have had various types of expertise on tools for either agriculture and/or hunting, ethnobotany, midwifery, celestial navigation, traditional medicine, ecological knowledge, ethnoastronomy just to mention a few; and this is very critical for the indigenous people's survival (Semali & Kincheloe, 2002). Indigenous knowledge is based on the agglomeration of experiential observation and interaction with the environment. Globally, Indigenous peoples over time have conserved distinctive understandings, entrenched in the cultural experience, on which relations; non-human, human, and other-than-human beings in specified ecosystems (Bruchac, 2014).

The use and integration of IK to advise contemporary wildlife policies for their management are gaining universal interest. There is, however, a marginal essential analysis of how the mutual control of social and ecological processes between (IK) and science structures can be constructively negotiated. Such matters are of top priority on native lands where co-management attempts to respond to the acute conservation agenda and where the subscription of scientific knowledge and IK is required to better understand and manage multiplex ecological and social systems.

Traditional Indigenous territories comprise a good proportion of the world's earth surface and concur with at least 80% of the biodiversity on the planet. In the United States, the natives of Alaska have in the curriculum integrated indigenous knowledge (IK) to enrich the content taught in schools about sustainable hunting of the reindeer, this is because the reindeer is a symbol of identity and livelihood in their communities. The reindeer, a deer species, has a circumpolar distribution; it is native to the Arctic, boreal, tundra, sub-Arctic, and mountainous environments of northern Europe, North America, and parts of Siberia. Some subspecies of the reindeer are rare and at least one of the subspecies has already gotten extinct (Barnhardt & Kawagley, 2005). Arctic people have relied on the reindeer as a source of their basic needs; (Clothing, Housing, and food) for example, the *Caribou*

*Inuit*, which is native to the northern region of Canada. Hunting of the native reindeer and herding of semi-domesticated reindeer are significant to several Arctic and sub-Arctic people.

Elephants in the Indian mainland, have been cared for and managed in internment for more than 3500 years, besides this old culture of elephants, there originate an in-depth appreciation and apprehension of elephants (Srinivasaiah et al., 2014). Safeguarding this knowledge is relevant for the welfare of both the keeper and the elephant. Elephants, either captive-born or wild-caught required to be trained for easy management and duty performance. The capturing and training of elephants has been traditional, a role few tribes that have an exhaustive comprehension of the animals' behaviour and ecology. This rare knowledge was gained over time by operating and living with elephants, passed on to the people, thus keeping this practice alive. Today's decline, though, looks to indicate this long-lasting custom is gradually disappearing owing to various factors, such as the young population of these societies being drawn to lifestyles and new living standards in the increasingly urbanizing country, and therefore moving to urban areas in pursuit of modern jobs (Srinivasaiah et al., 2014).

Indigenous Knowledge structures have been employed by Aboriginal societies in Africa for the management and utilization of resources since time immemorial (Zegeye & Vambe, 2006). In Rwanda, the farmers have depended on IK in soil conservation to reduce soil erosion and deforestation (Lalonde, 1993). Over the years, farmers have applied their ages-old knowledge of using mulches to prevent soil erosion in the hilly farming districts of rural Rwanda.

In Niger entomologists and social scientists work together to encourage the exchange of IK on neem product usage. Whilst the seeds and leaves of the neem tree, (*Azadirachta indica*) have been essential for their insecticidal characteristics for long in India, the Niger local farmers have for long observed the immunity of the neem tree to the attacks by desert locust (Lalonde, 1993). Several communities in Kenya have relied on IK to protect and promote sustainable utilization of natural resources. The pastoral communities in Kenya rely on IK to develop grazing patterns and livestock movement such that they achieve optimum returns amid seasonal variations in pastureland productivity and regeneration conditions.

The Agikuyu community viewed the Mugumo tree as sacred and that the tree together with other organisms surviving on it would not be damaged (Borona, 2019). However, in the recent past, IK competes for relevance with western knowledge. In the past, various development and planning

experts have either misunderstood or even dismissed indigenous peoples' traditions and their relevant knowledge systems (Semali & Kincheloe, 2002). This is partly because most of the African customary knowledge is normally available in an unwritten format and is mastered by the older generation via communal practices or through try-and-error experimentations. It is, besides a part of the composite unfolding of events that comes from the grievous cultural interference encountered by Africans throughout the colonial period. The African tribal practices during this period, that involved the use of traditional knowledge techniques (e.g., traditional medicine), were to a great extent ignored, replaced, or under-valued by the colonial practices (Zegeye & Vambe, 2006).

IK is an important tool that has helped the indigenous community to survive within their natural environment with minimal modification (Borona, 2019). The application of indigenous community knowledge in conservation has made it easier for man to survive in the natural environment with minimal modification (Hartzell et al., 2009). Over the years, study reports indicate that IK thrives well in a subsistence economy (Bruchac, 2014). In a subsistence economy where people produce for family use, livelihoods are sustained primarily by interacting with the natural surroundings (Berkes et al., 1994).

Wild species are an indispensable portion of biodiversity and a basis of livelihoods and regeneration. Yet, animal ecosystems are increasingly declining around the globe (Mavhura & Mushure, 2019). This has been attributed to direct and indirect human activities (Srinivasaiah, 2014). However, certain wildlife management activities focused on collective indigenous awareness tend to preserve rural livelihoods without endangering biodiversity, the practical quality, and morphological features of forest ecosystems and their related ecological systems (Mavhura & Mushure, 2019). At its most basic level, IKS can be contemplated as the underpinning upon which local communities make decisions about local issues. These decisions concerning the various areas of Endeavor, such as water, agriculture, the use, conservation, and management of various local resources, health care matters, as well as providing information and public outreach and education within the local community.

Western conservation knowledge uses biodiversity indicators to help us gauge and keep a track of the threats or pressures such as trends in the loss of habitat or invasive species. The indicators tell the state of the ecosystems and species, such as the species' health or the diversity of the species in the ecosystems. The indicators also help to identify the conservation responses required, for example, the protection of areas of biodiversity significance, and the benefits to people, such as the ecosystem resources that are provided by wildlife (Geleta, 2015). Geleta argued that the fine-scale index may be



developed to guide the local community's decisions on the ground, such as determining the level to which the restoration or the management practices are working. However, on a local scale, there is a potential disjunction between western conservation knowledge and IKS (Indigenous Knowledge Systems) when conserving and managing wildlife. The study aims to identify the correlation between wildlife species diversity trends and aboriginal knowledge structures.

Indigenous knowledge and bio - diversity are mutually beneficial phenomena that are critical to human growth. Following the United Nations Conference on Environment and Development held in Rio de Janeiro in June 1992, global awareness of the biodiversity conservation problem has been ensured. Many world citizens are also concerned about the unclear position of indigenous knowledge, which reflects many generations of experience and problem-solving by thousands of ethnic groups throughout the world. Despite the fact that very little of this information has been documented, it constitutes an enormously important database that provides humans with insights into how many cultures have interacted with their changing environment, including its floral and faunal resources.

### **1.1. Problem Statement**

Indigenous awareness and bio-diversity are important corresponding occurrences for human progress (Semali & Kincheloe, 2002). Bantam of that acquaintance has been documented because very few studies have been conducted on indigenous practice, though, Indigenous Knowledge is an enormous and important resource that provides society insight into how other cultures have dealt with their growing world (Zegeye & Vambe, 2006). Traditional indigenous territories cover up to 22% of the world's land surface and correspond to places that contain 80% of the planet's biodiversity (Sobrevila, 2008). This confluence of biodiversity-significant regions and indigenous territory is a huge opportunity to expand biodiversity conservation efforts beyond parks. According to the Kenya Wildlife Services, more than half of the country's animal's habitats are found outside of protected areas, on community grazing grounds where wildlife, humans, and livestock all interact and share natural resources such as pasture and water (Gordon O Ocholla & Mireri, 2016). This makes such regions more vulnerable to human-wildlife conflict.

The importance of aboriginal awareness, experience, and belief in wildlife protection is barely conversant in research. In the case of Africa, original awareness has extensively been overlooked and often neglected by African environmental information (Gordon O Ocholla & Mireri, 2016). Conversely, Community-based protected areas have been recognized as an important way of

supporting the preservation and conservation of cultural knowledge on biodiversity by indigenous local communities (Langton et al., 2014). It is antagonistic to say that indigenous awareness forms the foundation for decision-making at the Group level while celebrating awareness of Western conservation (Ulluwishewa et al., 2008).

The recognition that indigenous peoples have environmental awareness, sustainable practices, and resource management goals has significant ramifications. This changes the interaction between biodiversity managers and local communities. Indigenous people are becoming acknowledged as significant participants in environmental management, despite being previously seen as passive consumers of services. However, the differences between scientific and indigenous world views, as well as the widespread perception that science is superior to other kinds of knowledge, tend to obstruct productive collaboration. As a result, the purpose of this study was to determine the importance of aboriginal knowledge structures in wildlife conservation and management among the Maasai people living in and near Shompole wildlife conservation in Kajiado County Magadi, Kenya. As a result, the purpose of this study was to examine indigenous knowledge in community animal conservation and management: a case study of the Shompole Conservancy in Magadi, Kenya.

## **1.2. Research questions**

The study aimed to answer the following questions:

1. What are the existing indigenous knowledge systems for wildlife conservation among the Maasai community living around Shompole wildlife conservancy?
2. How do the existing indigenous knowledge systems correlate with wildlife conservation at Shompole conservancy?
3. What is the effect of the human need for survival on community wildlife conservation at Shompole conservancy?

## **1.3. Overall study Objective**

Overall, the study establishes the significance of the existing indigenous knowledge systems of the Maasai people in wildlife conservation and management.

## **1.4. Specific objectives of the study**

Specific objectives of the study are:

1. To examine existing indigenous knowledge systems for wildlife conservation in Shompole wildlife conservancy
2. To assess the relationship between indigenous knowledge systems and wildlife conservation among the Maasai community living in and around Shompole wildlife conservancy.
3. To assess how human survival needs affect community wildlife conservation in and around Shompole wildlife conservancy.

### **1.5. Hypothesis**

The hypotheses of this analysis are.

H<sub>O1</sub>: There is no significant relationship between indigenous knowledge systems and wildlife conservation among the Maasai community living in and around Shompole wildlife conservancy

H<sub>O2</sub>: Human survival needs do not affect Community wildlife conservation in and around Shompole wildlife conservancy.

### **1.6. Justification of the Study**

Maasai land has been a location of uncultivated unfenced coexistence between humans and wildlife for thousands of years (Zegeye & Vambe, 2006). For their herds of cattle and goats, the community relied on fertile pasture land, and the Maasai community was necessarily the guardian of the natural environment. In comparison to the practice of capturing, chasing out, and killing troublesome wildlife such as wolves and mountain lions to the point of extinction in many western cultures, Maasai people have been engaging in fence-free herding among dangerous wildlife for thousands of years. (Borona, 2019).

In the efforts to conserve biodiversity, this study provided detailed empirical findings on strategies policymakers such KWS, county governments, the ministry of tourism, and wildlife can use to enhance the impact of indigenous knowledge on wildlife conservation. The incorporation of aboriginal knowledge with scientific knowledge has the latent of creating synergy among different interventions earmarked at protecting and conserving biodiversity (Geleta, 2015). This study seeks to

identify ways in which we can account for the contribution of IK in community wildlife conservation and management. Subsequently, the study sets to find out the potential benefits of incorporating IK in the conservation and management of wildlife resources. Hence, it sets a foundation upon which the potential application of indigenous knowledge in a monetary economy can be determined. Such an approach may have the ripple effect of cutting down the cost of wildlife conservation through discouraging consumerism.

The Maasai community maintained much of its traditional way of life until the last few years. Survival of their culture depends on the survival of the natural environment. The Shompole Wildlife conservancy is set out in a community of Maasai people in the Magadi Sub- County. The conservancy management routinely implements conservation and management practices within the scientific framework. Besides, the local community also gets to participate in the planning and decision-making process for wildlife management.

The study area is ideal because it features a nexus of western knowledge conservation and IK practices of the Maasai people. The indigenous knowledge of the Maasai community has been instrumental to peaceful existence with wildlife within the natural environment. Therefore, this study seeks to establish ways, knowledge base, and systems that enable the Maasai community to co-exist peacefully with wildlife in a fence-free environment. This knowledge once established could be applied to other areas of conservation characterized by wildlife-human conflicts. If wildlife protection is to be genuinely partaking and equal in terms of constitutional rights and power, the Maasai community's indigenous knowledge and insights must be recognized and welcomed. Genuine, locally driven conservation must take place from the ground up and must consider both the principles and desires of all stakeholders on equal terms. Shompole conservancy was chosen because the Maasai people living in and around the conservancy have been perceived to have high IK which might attribute to wildlife conservancy, yet less research has been conducted in Shompole conservancy.

### **1.7. Study Scope and limitation**

This study focuses on the assessment of indigenous knowledge regarding wildlife conservation and management existing within the Maasai community living in and around Shompole wildlife conservancy. The study sought to establish the significance of IK of the Maasai community as it pertains to wildlife conservation and management. Four key connections between the diversity of wildlife species and indigenous peoples were examined; the geopolitical and bio geographical

connection between the abundance of wildlife species and cultural diversity, the strategic significance of indigenous peoples in the exploitation of biomass; the remarkable similarity between aboriginal regions and the remaining zones of rich biodiversity; and the significance of native skills, views, knowledge, and wildlife conservation practice.

While wildlife refers collectively to the flora and fauna of a region that is not domesticated, the scope of this study was limited to wild animal species within the Shompole Conservancy. The study did not cover the Flora species (wild plant species) found within the conservancy. Given that the nature of IK is passed down through generations by word of mouth, this study was limited by documentation gaps of indigenous knowledge that exists in the community. Ideally, a measure of the diversity of species should be non-parametric and statistically accurate. It should apply to any population regardless of species abundance, distribution and should have limited bias and sampling variance in moderate samples. The fact that this study measured the significance of IKs by correlating wildlife species diversity, richness, and cultural diversity on a temporal scale, the study was affected by documentation gaps of time-series data that was required to develop the wildlife diversity indicator. To overcome this challenge more data on wildlife species diversity, richness, and cultural diversity was sourced from the Kenya wildlife service operating in the area. This secondary data obtained from KWS was used to complement the primary data that was collected from the field.

Indigenous information structures have been represented ecologically, holistically, relationally, experientially, timelessly, endlessly, communally, orally, and narratively (Janet Smylie et al., 2004). There are also no linear, factual, hierarchical, numerical, static, or temporal attributes that can be used to prepare the IK system's aggregate indicator. (Janet Smylie et al., 2004). Thus, developing an indicator of the IK system applicable in a statistical test was limited by theoretical constraints. Consequently, this opens up a grey area in the research method since one of the objectives is to determine the significance of IKs in wildlife conservation while drawing a correlation analysis with wildlife indicators.

### **1.8. Definition of Operational Terms**

Indigenous Knowledge - This is the local knowledge of native peoples or local acquaintance which is inimitable to a particular ethos or society. It's typically entrenched in the cultural traditions of a community. It may also be used to refer to the traits, norms, and practices that are maintained by

indigenous peoples. It is also well-known as traditional acquaintance, native knowledge, aboriginal awareness, homegrown understanding.

**Indigenous knowledge system (IKs)** - This is the way and instruments of holding and passing traditional, native, indigenous knowledge from one generation to another. It is also called traditional knowledge system (TKs).

**Wildlife management** - This applies to efforts to align environmental requirements with the needs of humans, utilizing the finest possible research. Nature protection may involve game-keeping, habitat restoration, and disease control. Nature management borrows the best results from other disciplines like ecology, geography, mathematics, climate, chemistry, and biology.

**Wildlife** - This refers to the animals that live and the plants that thrive in their natural environment. Wildlife has historically been defined as non-domesticated vertebrates, but it has expanded to encompass all wild plants, animals, and other creatures existing in their natural environment.

**Wildlife Conservation** - This is the technique of maintaining wild animals and their habitats in order to maintain healthy wildlife species or populations, as well as restoring, protecting, or enhancing natural ecosystems.

**Biodiversity** - The abundance and variability of life on Earth is referred to as biodiversity. Biodiversity is generally defined as a measure of genetic, species, and ecological variety.

**Aboriginals** - This refers to individuals who have lived on land or in a location since the beginning of time, or before the advent of colonists.

**Indigenous Peoples** - Inheritor and practitioner of distinct cultures and methods of interacting with people and the environment. They have preserved social, cultural, economic, and political traits different from the dominant societies in which they reside.

Traditional Knowledge - Refers to information or behaviors passed down from generation to generation as part of Indigenous cultures' traditions or history. Indigenous groups serve as guardians or custodians of knowledge or practice.

Open Wildlife Conservation - This refers to conservation where wildlife and human co-exist and interact freely in their natural environment with minimal wildlife-human conflicts.

Closed Wildlife Conservation - This refers to wildlife conservation where animals are kept in protected areas that don't allow human activities. Closed conservation includes areas like a national park, national reserves and game parks.

Closed Ranch Approach – This refers to privately owned ranches that are used for wildlife conservation. Mostly they are fenced and they don't allow human activities. An example in Kenya is the Lewa wildlife conservancy in Laikipia.

## CHAPTER TWO: LITERATURE REVIEW

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### 2.0. Introduction

This section evaluates literature from global, regional, and local perspectives to provide the foundation of knowledge on indigenous knowledge and its impact on wildlife conservation and also identify inconsistencies and gaps. The chapter also gives details on the theoretical and conceptual framework and research gap.

### 2.1. Global Perspective

A study conducted by Semali & Kincheloe, (2002) found that Generations of aboriginal expertise guide Aboriginal communities in the United State in fields as diverse as wellness, resource conservation, food processing, marine biology, the climate, and others. They indicated indigenous communities have been drawing on native scientific knowledge to help them understand the world around them. Popularly recognized as Traditional Learning, this empirical knowledge is confirmed by the elders and passed down to new generations, primarily as an oral practice. However, this study used desktop review and did not link indigenous knowledge by the Aboriginal communities in the United State with wildlife conservation.

Ens et al (2015) in their study, used synthesis methodology to compile recommendations for reducing cross-cultural understanding and interaction barriers between Indigenous people and scientists, environmental managers, and policymakers. They proposed that including both tangible and intellectual Indigenous interaction in national conservation agendas could promote more holistic socio-ecological systems thinking and facilitate greater progress in meeting the Indigenous participation directive of international conservation agreements. However, the study employed synthesizing methods and no data was collected to validate their suggestions. Further, their findings did not relate to wildlife conservation rather their suggestion was on the social-ecological system.

Traditional knowledge encompasses practices as varied as agriculture, fisheries, and medicine. It provides insight into climate change, which often affects indigenous communities. Traditional knowledge is also of great value to Western scientists, with the knowledge and experience of indigenous communities useful to archaeologists, climatologists, and botanists. In certain instances, conventional expertise may help scholars simplify or full historical accounts-and also offer Western



scientists a brand-new interpretation of events a long time ago (Lalonde, 1993). However, Western scientists often view the empirical reports of indigenous peoples as inferior since they do not specifically adhere to Western expectations of objectivity and quantifiability. Traditional Science practitioners also claim they fail to be taken seriously by scientists working on the Western model. They are worried that these attitudes that minimize incentives for young aboriginal people to pursue careers in science, technology, engineering, and mathematics (Bruchac, 2014).

In China, a study by ZhiGuo et al., (2014) found that different communities in china had different IKs but serve a common purpose; promoting sustainable utilization of natural resources. Generalized traditional knowledge includes traditional scientific and technological knowledge, genetic resources and folklore, natural resources utilization and conservation, weather and climate, trade, medicine among others and this constitutes the source of innovation. Nevertheless, their findings were limited to perception from leaders but not from the community members.

Another study by Fung & Linn, (2015) observed that CTM (Chinese-Traditional-Medicine) is an illustration of IKs which has remained well-looked-after and continuous for several years. Given the omnipresence of CTM in China and its extensive usage in culture, it is a valuable tool that can be used to further enhance public safety. In their findings, however, they did not explain how IKs can impact wildlife conversation. In additions, the only used descriptive statistics and no empirical evidence on the association between IKS and wildlife conservation

Similarly, a study carried out by Luo Yaofeng, Liu Jinlong, and Zhang Dahong (2009) found that the Chinese ethnic community residing in mountainous areas of the southern region of the domain of Gansu, known as Baima Tibetans has prehistoric sacred beliefs and rich cultural information. Baima Tibetans have established their cultural structures, cultural values, knowledge, customs, and practice of resource use over their successful actions and practices for several generations. The Baima ethnic group has been instrumental in defending local wildlife, as well as the giant panda, and in conserving residents' earns incomes (Luo et al., 2009). Luo-Yaofeng, Liu-Jinlong, and Zhang-Dahong (2009) note that people in the local group of Baima have a clear sagacity of self-identity, connected to their conventional beliefs and understandings. They strongly acknowledge the role of traditional beliefs in protecting their villages and preserving biodiversity richness. The residents of Baima honour their traditional traditions and the usual laws and regulations concerning the conservation and usage of the natural resources of the area(Luo et al., 2009).

In India, Tharakan, (2015) investigated indigenous knowledge systems and a rich appropriate technology resource from 2003 to 2008 and found out that the government committed to protect and preserve the country's ancient knowledge systems through the National Manuscript Project. The study was more based on secondary data while the current study uses views from the community using a questionnaire to collect primary data.

In a study conducted by Madegowda (2009), The Soliga tribe in the BRT (Biligiri Rangaswamy Temple) of Karnataka hills district of Chamarajanagar has long maintained constant and friendly interaction with the forest ecosystem, deriving the greatest of its rudimentary forest supplies. The Soligas used to cultivate and collect non-timber forest products that were harvested in an indigenous and sustainable way until the BRT area was declared a sanctuary for wildlife (Madegowda, 2009). Phondani, Maikhuri, and Bishtui (2013), in their article "Backing of ethnomedicinal skills to conserve", observed that Traditional communities around Uttarakhand State's Binsar Wildlife Sanctuary in India there is a rich local history of healthcare which has existed in practice for several years. This has been possible due to applications of indigenous knowledge of the communities in the area.

Recent studies file the ethnomedicinal practices of fifty-four homoeopathic and sweet-smelling plants, along with their vegetal and dialect appellations, communities, place, risk level, gathering season, collection resolve, amount, preservation practices, market possibility, and parts usable in the old health care structure (Phondani et al., 2013). According to Phondani, Maikhuri, and Bishtui (2013), The species recorded belonging to 38 families cured over 47 different kinds of diseases. Phondani, Maikhuri, and Bishtui (2013) observed that the Successful results were obtained from the wild in a period and utilized in traditional herbal healers (Vaidyas) as a prescribed process.

In New Zealand and Dusun at Darussalam Brunei, a comparative study indicated that IK has had a profound impact on the Habitats and Natural Capital of the Maori people (Ulluwishewa et al., 2008). The research report shows that indigenous people often rely solely on the natural capitals that exist in their living ecologies and usually sustainably manages their resources. They have created and developed aboriginal information structures which involve effective administration of natural capitals (Ulluwishewa et al., 2008b). The research contrasts aboriginal information of natural capital management formed by two distinct groups in two, unlike ecosystems. Maori in the temperate climate in New Zealand and Dusun in the tropical weather in Brunei Darussalam and analyzes the role of

homegrown skills in sustainable resource administration in three information groups, Sustainable harvesting, and habitat conservation.

IK was instrumental in defending Canada's Reindeer (Barnhardt & Kawagley, 2005). Indigenous knowledge supported the sustainable hunting of reindeers intending to avoid the extinction of this species since it was a vital resource to the community. Research showed that in recent decades, the prevalence of different forms of resource co-management agreements has increased significantly (Spak, 2005). Co-management arrangements arise either from First Nations / Inuit land-claim agreements or (real or perceived) crises relating to a specific resource (Spak, 2005). Co-management organizations comprising indigenous and government leaders also prefer to base their policymaking on the science of biological resources and the expertise of the indigenous peoples represented (Spak, 2005). The study explored the actual capacity of Canadian natural resource co-management boards to benefit from the indigenous experience of the groups represented by the First Nations (Spak, 2005). It explored how the epistemological contexts and job structures in which co-management boards work in Canada shape the relationship between the board and indigenous knowledge.

In Western Panama, research was conducted to investigate how indigenous inhabitants of a protected area understood their rights and interpreted them while communicating with authorities (Pelletier et al., 2019). The study explored livelihood conditions for indigenous people under existing governance. The researchers collected socio-economic data during the study using domestic surveys, discussions with local folks, and community deliberations. They investigated the perspectives of native peoples on the realization of civil rights and responsibilities regarding resource administration. They similarly analyzed environmental statistics on the scale of the depletion of the forest cover and its drivers (Pelletier et al., 2019). The findings suggest that food safety is the fundamental fear of societies engaged in animal preservation activities. Fascinatingly, most native people have a favourable opinion of existing in the threatened zones as long as conservation legislation enables them to reap the reimbursements accessible in forest ecosystems. The investigators, however, noted it essential to create common guidelines that are clear around the sustainable utilization and preservation of natural resources (Pelletier et al., 2019).

## **2.2. Regional perspective**

A study by Zegeye and Vambe, (2006) provided evidence from development practitioners which indicate that traditional methods and expertise have contributed to environmental sustainability by

preserving natural resources and increasing agricultural efficiency without recourse to outside agricultural input. This includes, for example, local farmers managing, conserving and domesticating, and developing traditional crop species and varieties. Traditional knowledge, crops, and agricultural practices offer opportunities to adapt farming to climate change. However, their argument was based on a review of the literature there was no empirical evidence.

Kolawole (2004) carried a study on Communities and Indigenous Knowledge Systems in a Changing World: Soil Fertility Conservation Practices Amongst Farmers. His findings revealed that local communities prefer traditional crop varieties over modern ones because they are technologically and financially viable, have a better nutritional value, can withstand various diseases or are better suited to local conditions, and are more likely to endure environmental stress and climate variability. However, the Kolawole study was limited in sample size and analytic methods. He used a sample of 20 respondents and analyzed data using qualitative methods only. The current study used a larger sample size and employed both qualitative and quantitative techniques.

Indigenous knowledge (IK) is an important resource in Uganda that contributes to social and economic needs, the sustainability of the community, and sustainable development (Tabuti & Van Damme, 2012). In the Karamajong community of Uganda, the IK holders use it for the exploitation, management, and conservation of their environments. There is a wide range of IK in Ugandan communities, such as herbal medicine. Nevertheless, IK is experiencing rapid change and is deteriorating due to factors like the external impact of Western cultures and inadequate documentation.

Reports by Lalonde (1993) have documented the use of native knowledge in agroforestry and subsistence agricultural practices by the Mossi community in Burkina Faso (Lalonde, 1993). For one report, government officials and forestry counsellors selected a site identified as "useless bushland" by project officials (Lalonde, 1993). They cleared the brush and the trees and planted straight lines of exotic fuelwood species. Neither the project planners nor the foresters knew that this useless-looking brushland (fallow) was part of a delicately balanced indigenous agroforestry network. Local Mossi people relied on this land for a variety of valuable forest products such as shea nuts used for cooking oil; specific seeds and leaves used in nutritious sauces; grasses and barks used for weaving and colouring mats and baskets; berries, pods, and roots used for home remedies; dead branches and sticks used for cooking fuels; and fruit (Lalonde, 1993).

### **2.2.1. Local perspective**

Ayaa and Waswa (2016) discovered in Kenya that the value of traditional information organizations utilized by Teso people in the biophysical setting from before independent Kenya to the late 2000s has been researched and recorded in Western Kenya. The findings of these investigations indicate that while indigenous information structures are sometimes discarded as unsystematic and therefore not routinely caught and stored with the tacit danger of their disappearance, some facets of home-grown information and practices are still crucial in local communities' administration of the bio-physical climate, such as it is in Teso region of Busia County. Nevertheless, their findings did not provide an association between indigenous information obtained and wildlife conservations.

According to Rose Antipa, (2015) Communities in Ijara Sub County have extensive knowledge of their woods and a strong understanding of how to protect them. They have a diverse range of forest uses, which naturally motivates people to protect the forest. Indigenous knowledge systems (IKS) are also used by the Boni and Somali people to protect the environment and create products and services on a long-term basis. According to Antipa, IKS has had a significant impact on the preservation and protection of natural species in the Boni forest for many generations.

Another study by Ocholla et al., (2016) revealed that The Samburu are one of the pastoral communities in northern Kenya that have employed indigenous ecological information systems to manage their livestock under difficult conditions. A very insufficient research was conducted to determine the significance of aboriginal knowledge on wildlife administration within the Samburu community. The Samburu are one of the country's indigenous communities, with a culture that may be defined by a richness of knowledge that can be enhanced in the management of natural resources. To future generations, this information is neither documented nor preserved.

The principal reason why homegrown knowledge structures are inherited by offspring is to be well equipped with skills for future survival. Learning is habitually done orally via word of mouth (Puffer, 1995). Homegrown systems of acquaintance are transmitted by legends, tales, myths, riddles, rituals, taboos, and signs infused with cultural and conservation awareness and encryptions of conduct (Walter V. et al., 2013).

A study by Dondolo (2005) found that the youth witness, practice and take part in community events and thus attain home-grown knowledge. Elders may use presentations and guidance to provide

information to youth and other community members. (Borona, 2019). Storage and communication methods have been criticized as ineffective and inefficient, as indigenous information networks are prone to casualties when custodians die or other external forces are applied (Kalawole, 2004).

### **2.3. Importance of Wildlife to Indigenous Communities**

Globally, initiatives on environmental conservation require a further contribution of aboriginal societies and their skills in global biodiversity administration(Ens et al., 2015). Colonized nations, such as New Zealand, Canada, the United States of America, Australia, and Britain have come up with a variety of policies and initiatives to promote Aboriginal engagement, but a major challenge is matching indigenous and non-indigenous interests and choosing management approaches (Ens et al., 2015). The local community enjoys many benefits from wildlife. These include the following.

#### a) Ecological benefits of conservancies.

Conservancies are expected to incorporate a broader variety of territories than product farmsteads, allowing a greater population to be re-introduced and preserved effectively than in smaller fenced ranches(Lindsey et al., 2009). Environmental suppleness, greater resident numbers, and inclusion of a bursting range of animal types combine to enable restoration of natural environmental progressions in conservation areas rather than the continuous management involvement required in trivial restricted ranches (Lindsey et al., 2009).

#### b) Credit advantages

Communities have compelling financial reasons to be interested in conserving wildlife. Wildlife conservation helps in making land use more competitive. Ecotourism and trophy shooting (including large fascinating species) are further lucrative than fenced game ranches traditional biltong hunting (Falkena, 2003). Moreover, the sort of ecotourism and trophy hunting activities that can be performed in protected areas are likely to be more profitable than utilizing the same property in closed ranches (Lindsey et al., 2006, 2007).

Credit advantages also come in through the Scale economies. Aside from possibly higher earnings, conservancy management expenses are expected to be lesser than those encountered in a comparable region of enclosed game ranching owing to financial prudence(Lindsey et al., 2009). Rising land

value, development of conservancy, and the reintroduction of iconic animals improve the appeal of the property and attract investors (Lindsey et al., 2009).

The demand for nature goods has culminated in the illegal trafficking of economically valuable organisms contributing to the local loss of protected species (Rao et al., 2010). Professionally run conservancies will provide a strong source of income for the conservation community hence it is a source of livelihood. In his paper "Livelihood bases, risks and adaptations among the older persons in Turkana and Lamu Districts in Kenya," Dr Omoke Kennedy points out that the existence of the elderly in both the districts of Turkana and Lamu in Kenya depends practically largely on the traditional family formed. When ageing happens, most people in the society cannot help themselves in fulfilling much of their everyday needs. (Omoke, 2013). In this scenario, the protection and management efforts of community wildlife will provide a lively service to the elderly in communities where protection is being undertaken. Elderly people are in most cultures the guardians of indigenous knowledge. This group of people can be easily involved in conservation activities and can make a living out of conservation activities.

Socio-political advantages arise through addressing existing land ownership imbalances and affecting previously vulnerable communities which is crucial to ensuring wildlife's future sustainability as private land use. Conservancies provide greater incentives for previously disadvantaged groups to participate in wildlife commerce. Additionally, with current structures for sharing common wildlife resources, private conservation facilities can easily be expanded to include community-owned land (Lindsey et al., 2009).

#### c) Wildlife tourism.

Wildlife tourism is a component of many countries' tourism industries that focuses on seeing and interacting with native animal and plant life in their natural settings. Wildlife tourism include eco-friendly and animal-friendly tourism, as well as safari hunting and other high-intervention activities. In its most basic form, wildlife tourism is engaging with wild creatures in their natural environment, either actively (e.g., hunting/collection) or passively (e.g., watching/photography). Wildlife tourism is a significant element of the tourist industry in many nations, including several African and South American countries, Australia, India, Canada, Indonesia, Bangladesh, Malaysia, Sri Lanka, and the Maldives, to name a few. It has witnessed significant and quick expansion in recent years across the world, with many components closely connected with eco-tourism and sustainable tourism.

Prof. E. M. Irandu observed in his article “The role of tourism in the conservation of cultural heritage in Kenya” that due to declining fortunes in the agricultural, mining, and manufacturing sectors, many developing countries have turned to tourism as a panacea to the numerous economic problems they face. However, in Kenya, the focus has been mostly on beach and game tourists, to the neglect of cultural tourism (Irandu, 2004).

## **2.4. Research Gaps**

Examination of literature has argued on the role of IK on the ecosystem and more specifically on wildlife conservation (Fung & Linn, 2015; ZhiGuo, 2014; Pelletier et al., 2019). For example, various scholars showed that cultural norms and beliefs were shown to positively impact wildlife conservation. This is because native knowledge schemes are entrenched in an economy of subsistence rather than a monetary economy. However, most of these studies used synthesis reviews methodology and did not provide empirical evidence on how IK is related to community wildlife conservation particularly in community conservancy such as Shompole, thus, the gaps for the study. Therefore, there is an immediate need to explore emerging indigenous expertise in wildlife protection and management and to identify new ways in which IKs can be incorporated into a capitalist system so that the net effect is a reduction in the cost of maintaining wildlife resources. Thus, the current study investigated existing indigenous knowledge systems of the Maasai people in wildlife conservation and management.

## **2.5. Theoretical Framework**

Theories are developed to describe, forecast, and comprehend occurrences, as well as to challenge and extend present understanding beyond the bounds of key border assumptions in some cases. There are numerous theories that explain the relationship between indigenous knowledge and animal conservation, but this study was directed by two of them: the indigenous wholistic theory and the general theory of education.

### **2.5.1. Indigenous wholistic theory**

Indigenous wholistic theory by Absolon (1993; 2010) is a complete, ecological, cyclical, and relational system. Indigenous cognition, worldviews, methods, and frameworks, according to the idea, must serve as the foundation for our knowledge pursuits and practice. Cole (2002), Duran & Duran (2000), Fitznor (2002), Kenny (2000), Simpson (2002), Sinclair (2003). Spirituality is part of the



fundamental of Aboriginal epistemology and Indigenous people's obligations include honouring the connection with all of the creation; following the original orders as spoken; constantly re-learn ceremonies, practices, and everyday procedures; to redevelop shared associations and not reproducing Western models. (Cole, 2002).

Absolon (2010) indicated that Aboriginal peoples have considerable power and wealth from which links, healing, regeneration, well-being, sustainability, and collectivity occur. As a result, the importance of community ties in animal conservation management cannot be overstated. Identifying community strengths in all aspects of prevention, intervention, rehabilitation, support, and post-prevention measures can help to advance grassroots and community strengths approaches to animal conservation (Gone, 2004). This idea is crucial to research in wildlife conservation because it explains Indigenous knowledge via the culture of a society. Community interests should be regarded as fundamental components of practice, and community engagement should be encouraged at all levels of wildlife conservation.

### **2.5.2. The General Theory of Education**

The general theory of education by Dewey (1954) and Khôi (1986) states that education is an effort to achieve a healthier view of the essence of teaching, based on a concerted focus on an empirical interpretation of a pedagogical circumstance. Conceptual abstraction is important in defining the sense of the general theory of education in this regard. The public education ideology is analogous to communalism. Munyoki (2012) Argues that communalism is an element of the network of indigenous wisdom that reinforces community unity toward unnecessary individualism and rivalry. However, there are no definite measures to measure or take into account the importance of IK concerning communalism.

The theory explains concepts and facts, describing the importance of training and education. In this situation, instructional ideas are obligatory to guide the preparation of education to improve methods, procedures, and ways of successful experience with the education needs of students in the academic environment. Cognitive structures were used in cognitive philosophy such as reflective reasoning, scientific experimentation, serious rationalism, hermeneutics, African science, phenomenology, the system of thought, and post-modernism (Mwinzi, 2012:20&42, Dall'Alba, 2009: 8) Controls the essence of edification experience and, offers an effective framework for scientific study in education. Theories in this sense are necessary for the educational activity to build and link models. The

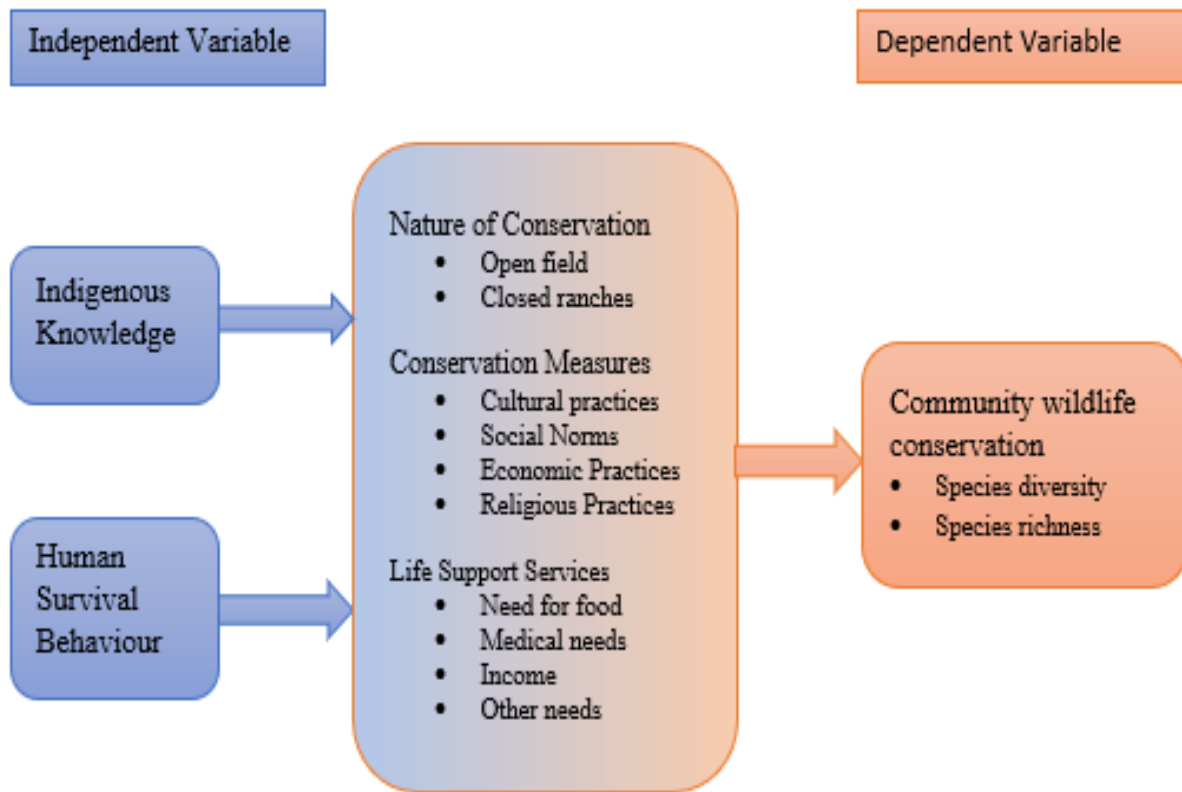
definition of education theory, however, is flexible in the case of IK, given the learning method is informal and there is no documentation.

The concept is applicable to the study by the point that the community can uphold their indigenous facts, old-style cultural lexes, and the embodiments of their sciences, technology, and beliefs, includes plants, knowledge of animals, and vegetation products thereby enhancing theory conversation (Mwinzi, 2015). Similarly, they have the civic right to conserve, rule, defend and advance their rational riches over these cultural legacies, old-fashioned wisdom, and ancient cultural lexes. The general philosophy of education has little insight into how aboriginal peoples can benefit from cultural heritage theft, conventional expertise, and common cultural expressions in wildlife protection and management.

## **2.6. Conceptual Framework for indigenous knowledge in wildlife conservation.**

Appreciation of the impact of appropriate traditional and indigenous knowledge on decisions to promote biodiversity conservation and its safe and equal use goes beyond its unpretentious rationale for the study of biodiversity in the light of modern science-based approaches (Bruchac, 2014). Old-style, need for human survival and indigenous information on biodiversity is essential for explaining its position, patterns and creating realistic theories that focus on community engagement on biodiversity protection and use (Bruchac, 2014).

The study presents a framework of the proposed relationship between independent variables; indigenous knowledge (nature of conservation and conservation measures); human survival needs (life-supporting services) and dependent variable (wildlife conservation) as shown in Figure 2.1. The study assumes that current indigenous awareness regulates the community's social norms, cultural practices, religious beliefs, community economic needs which help in wildlife conservation. Besides, the study assumed that human survival behaviour helps to regulate the community social norms, cultural practices, religious beliefs, community economic needs which help in community wildlife conservation and management.



Source: Modified from (Bruchac, 2014).

*Figure 2.1: Conceptual framework*

## CHAPTER THREE: RESEARCH METHODOLOGY

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### 3.0. Introduction

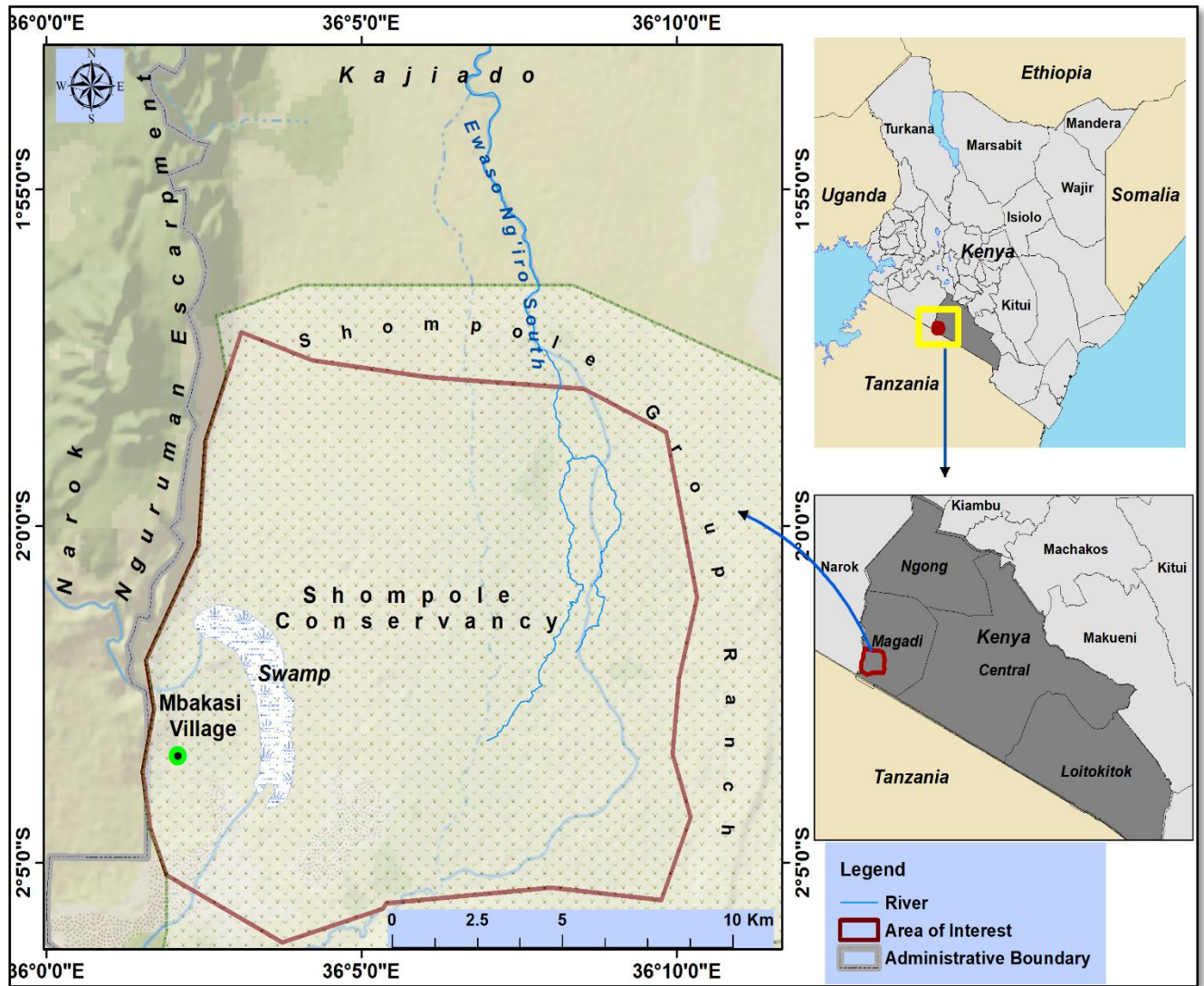
This chapter addresses in depth the following essential components of the study's methodologies: the research design, the study's target population, sample size and sampling methods, data collection tools and procedures, data analysis methodologies, and ethical concerns.

### 3.1. Study area

This study was conducted at Shompole wildlife conservancy located within the Magadi Division in Kajiado County. Shompole wildlife conservancy is situated to the southwest of Magadi town. The conservancy is located between the two alkaline lakes: Lake Magadi to the north and Lake Natron to the south. The reserve encompasses a portion of the 62,700 hectares (155,000 acres) Shompole group ranch, which was founded in 1979 and was communally held by the Loodokilani Maasai, who have around 2000 registered members. The conservancy is located on Geographical location at Longitude: 36° 02'35.78" East of Greenwich Meridian, Latitude: 02° 00'57.14" South of Equator and Altitude: Ranges from 610 to 640 meters above the mean sea level.

The conservancy has a dry climate; the warmest months are November and October, while the rainiest months are May and April. Flora, which includes thorny umbrella trees and the colorful toothbrush tree, is adapted to semi-arid conditions. The area is a biodiversity hotspot in the South Rift region because it is located between two internationally significant ecosystems: Maasai Mara National Reserve and Amboseli National Park. The Ewaso Ng'iro (Brown River), which runs from the Mau Forest into Lake Natron, is the primary water supply. Giraffe, deer, elephants, lions, and desert antelope such as gerenuk and oryx are among the fauna. There are additional bird species present, such as the lesser and greater flamingos.

The Shompole Group Ranch serves as a key migratory corridor and dispersion area for animal species that live in the Nguruman Escarpment and Olkiramatian, including the magnificent African Elephants that travel between Shompole and Loita Hills. Livestock pastoralism is the principal source of income in the area, with the most common species kept being cattle, sheep, goats, and donkeys. The pastoralists and their cattle are largely reliant on livestock for food security. The map of the research region is shown in Fig 3.1 below.



Data Source: Esri, Garmin, RCMRD, Survey of Kenya.

*Figure 3.1: Map showing the study area*

### 3.2. Research Design

A mixed-method study design was utilized to meet study objectives. The study used both quantitative and qualitative approaches. Quantitatively and a qualitative measure of wildlife species diversity and richness and indigenous knowledge was used to collect data. The conservancy maintains a register of wildlife population and it is updated every year. The register contains such information as the overall number of animal classes in the conservancy, species growth rate, and species richness that can help to develop a quantitative measure for wild animals. Wildlife health was determined by measuring

richness. Richness is a simple numerical count of the various types of organisms present (DeJong, 1975). The richness of species is a sum of the number of species (named or otherwise) are present (DeJong, 1975). Taxonomy richness is the amount of the number of diverse taxons existing (DeJong, 1975). Statistics essential for this type of measurement was attained from secondary data sources within the conservancy. Some of the sources identified for utilization include the records of wildlife population maintained by the Kenya Wildlife Service, the conservancy administration, and other research organizations.

### 3.3. Target population

Based on the 2019 population housing census report, Shompole Sub-location, where Shompole conservancy is located, has a population of 1,503 people as shown in Table 1 below. The total number of households in the area was 347 in 2019 (KNBS, Population and Housing Census 2019).

Table 3.1: Extract of the 2019 Kenya Pop 2

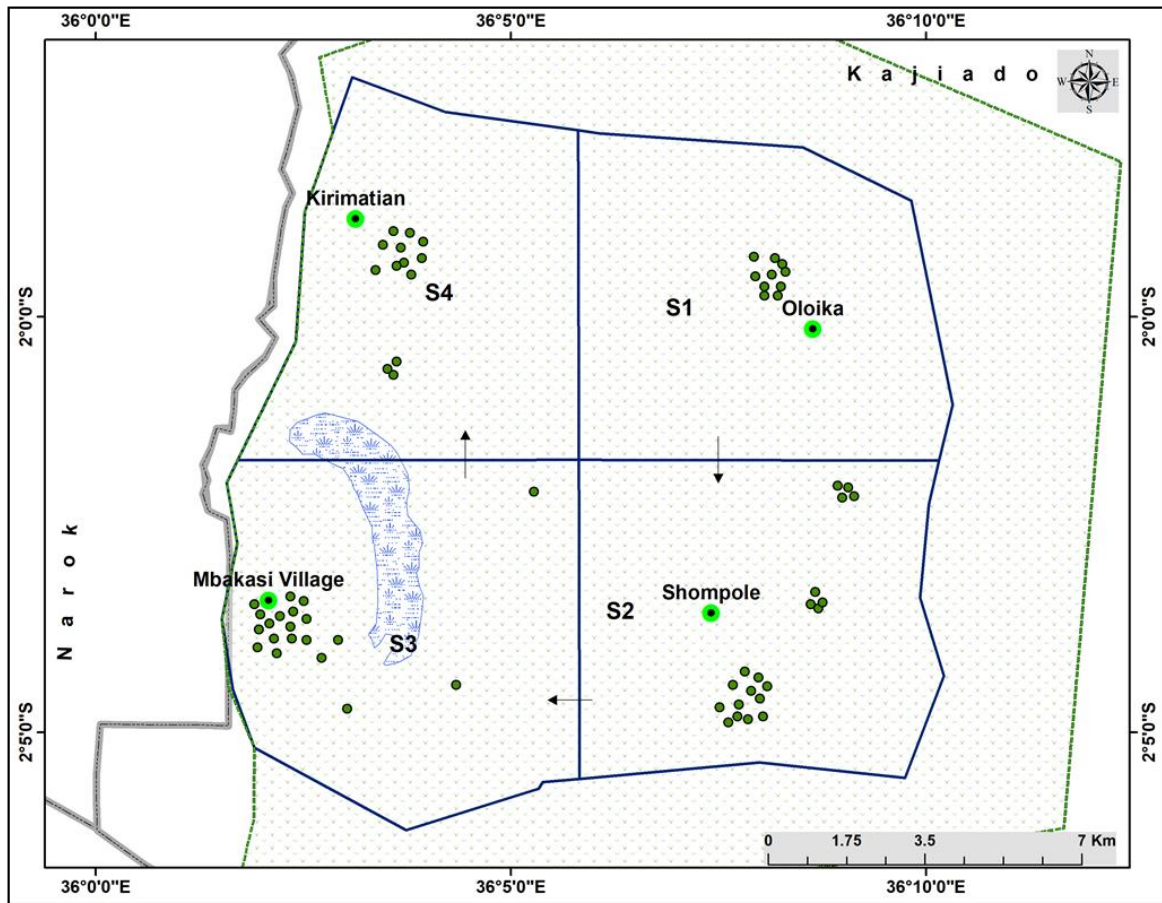
| Area Name              | Total Pop. | Male  | Female | Total Household | Group quarters | Area (in Sq. Km) | Persons per Sq. Km |
|------------------------|------------|-------|--------|-----------------|----------------|------------------|--------------------|
| Shompole West Location | 3,801      | 1,835 | 1,966  | 859             | 859            | 253.0            | 15                 |
| Pakase Sub-Location    | 2,298      | 1,104 | 1,194  | 512             | 512            | 145.2            | 16                 |
| Shompole Sub-Location  | 1,503      | 731   | 772    | 394             | 394            | 107.8            | 14                 |

In 2020, the total number of households was projected to be about 400 based on the population growth rate of 1.5% (KNBS, Population and Housing Census 2019). Therefore, the sample size was 30% of the total households present in 2020 in the Shompole wildlife conservancy. In descriptive research, a sample size of 10-50% is acceptable, provided that the target population and the sampling frame is made up of less than 1000 sampling units, (Mugenda & Mugenda, 2003). The target population was considered appropriate for providing a focal point for the study as regards how indigenous knowledge impacts wild conservation.

### 3.4. Sampling Size and Sampling Procedure

The observations made during the field reconnaissance exercise helped to subdivide the area of interest into four sections: S1, S2, S3, and S4 as shown below in figure 3.2. Given the nature of the study area, high-resolution satellite images were used to identify the location of households and villages in each of the four sections. The villages and households are distributed in the four sections

as shown in figure 3.2. 28 households were sampled in Shompole, and Mbakasi village. The two villages represent section 2 and 3 of the study areas. In Kirimatian and Oloika, 27 households were sampled in each village. They represent section 4 and section 1.



*Figure 3.2: Shows the movement pattern during the interviewing exercise.*

The sampling exercise in the area of interest followed the direction of the arrows indicated in figure 3.2. A random walking technique was used in each section to identify and select households. The technique aimed to survey a representative area by talking to persons who are accessible and willing. It is an well-organized means of information gathering because repeat visits were not necessary where respondents are not available (Lyon, 2000).



*Figure 3.3: Satellite image showing a cluster of households in Mbakasi village in 2019. Image courtesy of Maxar Technologies.*

The number of paces between sample sites is chosen by random numbers drawn from random-number tables, and the direction of the next sample point is determined by a right-angle turn from each sample point. To choose whether to turn left or right, a coin was tossed. The numerical range from which a selection was chosen gave each location in the research an equal chance of being selected each time. As a result, a sample size of one hundred and twenty (120) responses represents 30% of the entire population (400). Respondents were chosen using the random walking approach (Lyon 2000). The random walk approach does not offer a precise random sample frame, but rather seeks to survey a representative region by chatting with individuals who are accessible and willing to participate. It is an efficient method of data collecting (i.e., multiple visits are not made if persons are not present), which is consistent with previous power relationship research (Jones 2007).



### **3.5. Data Collection Instruments**

To obtain primary data, open and closed-ended questionnaires and interview schedules were used. This marked a slight shift from the originally planned focused group discussions (FGD) based on the advisory from the Ministry of health that restricted the gathering of people in groups to control the spread of the COVID 19 pandemic in the country. The researcher, therefore, employed the use of a questionnaire and interview schedule in collecting primary data since this method allowed the keeping of social distance between the individuals participating in this study.

#### **3.5.1. Questionnaire**

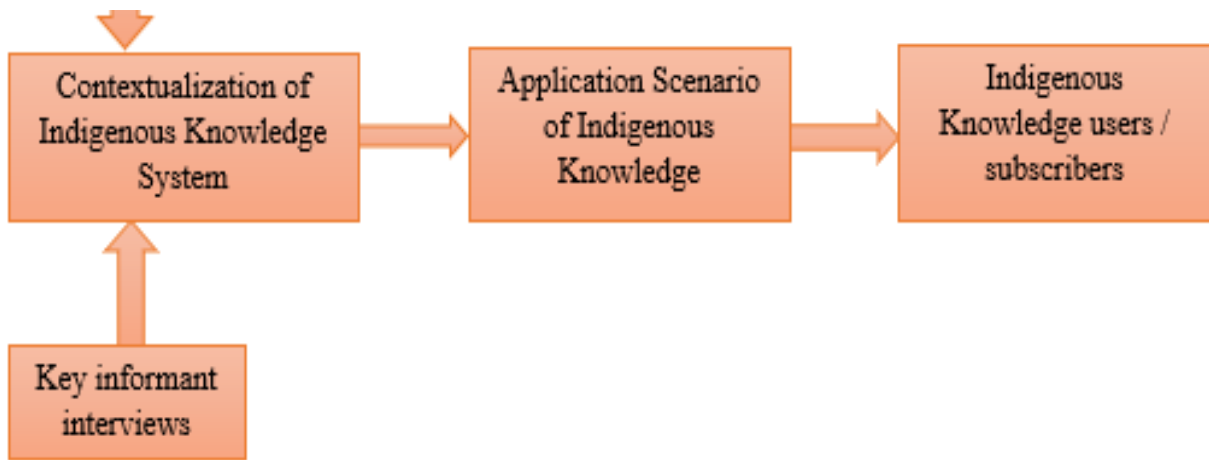
To obtain primary data from household heads in the neighborhood around the wildlife reserve, an open and closed-ended questionnaire was employed. As a result, the major data collecting technique for the current investigation was a structured questionnaire. For data collection, a closed-ended questionnaire with closed questions (point Likert scale questionnaire) was employed. Questionnaires are frequently used to gather vital information about the population. Each item in the questionnaire was designed to meet a specific study goal. The researcher used the drop-and-pick-later approach with the random walk technique to self-administer 90 surveys to the house heads. All of the respondents that were chosen were the heads of their households. This method allowed responders adequate time to complete the surveys.

#### **3.5.2. Key Informant Interviews (KIIs)**

Data was also collected through face-to-face and telephone interviews. To determine the relevance of the Maasai people's current IKs (indigenous knowledge systems) in animal conservation and management, interviews were conducted with key informants identified, including traditional community leaders and other community leaders in the region. Members of the Shompole Conservation Trust, Shompole Group Ranch Committee Senior Chief, local Councilor, and Oloika women group were among those questioned in the field, with a total of 9 people interviewed (nine interviews).

According to Mikkelsen (2005), Interviews allow for more sophisticated and thorough questions to be asked; they also reduce misinterpretations and inconsistencies since they are readily reviewed by the interviewer. As a follow-up on information that was not clear during the analysis and drafting of the report, telephone interviews were conducted with a community liaison officer who is both a member

of the community and well-versed in matters pertaining to community resource management. Semi-structured interview questions were targeted at key informants to establish the application of IKs and the extent of use. The 9 key informants included clan elders and community wildlife conservancy management staff. A reconnaissance was carried out to find out the potential key informants who were available. According to Anne Galletta, broadly defined questions about human experiences and realities learned by contacting individuals in their ordinary habitat produce rich, concise facts that help to appreciate their perceptions and insouciances (Galletta, 2013). Figure 3.2, below illustrates the qualitative research design that was implemented.



*Figure 3.4: Qualitative research approach.*

The ultimate number of IK system users shall serve as an aggregate indicator of the application extent and strength of the IK system.

### **3.5.3. Validity and Reliability of Instruments**

Instruments of the study were presented to households in neighbouring Segarra Conservancy for piloting to ensure content clarity. Upon completion of the pilot study, the data was reviewed and the items were modified accordingly. This region was used for piloting because it shares similar conditions. The research adopted the rationality to ration the validity of the devices to be used. The study provided a created questionnaire and interview schedule to the university's supervisors and research specialists to evaluate the relevance and suitability of the content, clarity, and adequacy of the instrument's design from a research standpoint. The questionnaire was further assessed for reliability using the Cronbach alpha statistical tests, with reliability coefficients of 0.90 regarded

outstanding, 0.80 as very good, and 0.70 as sufficient (Koul, 2005). The piloting of the questionnaire was done to identify faults hence improving its reliability

### **3.6. Data Analysis**

Data preparation exercise included data inspection or logging in; data quality testing; data entry into the computer; data processing and the creation and documentation of a database design that incorporates the different measures using SPSS version 24.

#### **a) Data Validation**

The data validation exercise was carried out to determine if the data collecting method was carried out in accordance with the agreed-upon standards and without bias. A random sample of the gathered data was reviewed to ensure that respondents were chosen in accordance with the study criteria. An assessment of the obtained data samples was performed to ensure completeness and to establish whether each respondent had been questioned. The inspection also confirmed that the interviewer asked all of the essential questions to the respondent, rather than just a handful. To verify that the findings are comprehensive, the evaluation would entail comparing the number of rows in the data with the number of respondents questioned. It should also involve matching the total number of columns in the table with the total number of questions in the survey while keeping a close eye on the structure of the survey and the kind of answer required. To seek for outliers, all statistical data was sorted in ascending order. The erroneous outliers and missing values that existed in the gathered data, the outlier's data points were resurveyed.

#### **b) Qualitative Data Analysis**

Qualitative data was composed of observations, words, images, pictures, and even symbols during the study. As such, the analytical method starts by cleaning, screening, and interpreting to get familiarised with it and continues to search for unique findings or trends. Research objectives were revisited severally to identify the inquiries that can be responded through the collected statistics. The content analysis was done to scrutinize known information in the form of media, physical items, and texts. The story breakdown was utilized to analyse content from numerous sources, such as consultations with the respondents, field records, or investigations. The narrative review concentrated on the stories and perspectives people express when reacting to the research questions. This was analysed using thematic analysis.

### c) Quantitative Data Analysis

Descriptive statistical methods namely; means, standard deviations, frequencies, and percentages were used to identify the specific characteristics of the data in the analysis using SPSS version 24. The methodology included clear summaries of the data samples and the steps taken. The inferential statistical technique used in this study was the Spearman correlation for testing hypotheses. In descriptive statistics, the Mean was used to describe the average response of the study variables, the percentage and frequencies were used to express categorical responses from Likert scale rated statements.

### **3.7. Hypothesis Testing**

Data collected from questionnaires (closed-ended five-point Likert scale questionnaire) was converted into interval data which helped in the testing hypothesis. The research hypotheses were tested by the use of bivariate correlation analysis. Spearman's Rank-Order Correlation was employed to measure the forte of association between the two elements: IK system users and wildlife conservation and the relationship between human survival needs and wildlife conservation and also to give connection can give insight into the degree of interaction and nature of the partnership. The study chose a Spearman correlation to show the direction and strength of the association between IK system users and wildlife conservation and the relationship between human survival needs and wildlife conservation. Besides, Spearman correlation indicates a linear relationship that exists between two continuous or interval variables while at the same time regulating the impact of one or many other independent variables (can also be referred to as 'covariates or 'control' variables).

## CHAPTER FOUR: RESULTS AND DISCUSSION

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### 4.0. Introduction

This chapter presents the results and discussion of findings. The purpose of the study was to establish the significance of the existing IKs of the Maasai people in wildlife conservation and management. The study objectives were: to identify existing IKs (indigenous knowledge systems) and wildlife species diversity and richness in Shompole wildlife conservancy, assess the relationship between indigenous knowledge systems and wildlife conservation among the Maasai community living in and around Shompole wildlife conservancy, and assess how the needs for human survival affects community wildlife conservation in and around Shompole wildlife conservancy. Data were collected by the use of a questionnaire and an in-depth interview (ID) for key informants. The data were analysed with the use of descriptive and inferential statistics. The findings were presented in the form of figures and tables. Results were presented for each of the themes drawn from the objectives and were interpreted. In this study, 120 questionnaires were distributed to the respondents. After the questionnaires were filled, 88 were collected and verified. This means that there was a 73.3% response rate. For the interview schedule, 9 were distributed and 5 were responded to, giving a response rate of 55.55%. This response rate was high and it enabled the collection of enough data whose analysis outcomes could be generalized to the whole population especially concerning the phenomenon under investigation. Thus, the response rate of this study was approximately 81.4% way above the conventionally accepted rate of 30% (Sekaran & Bougie, 2013).

### 4.1. Social-demographic Characteristics of respondents

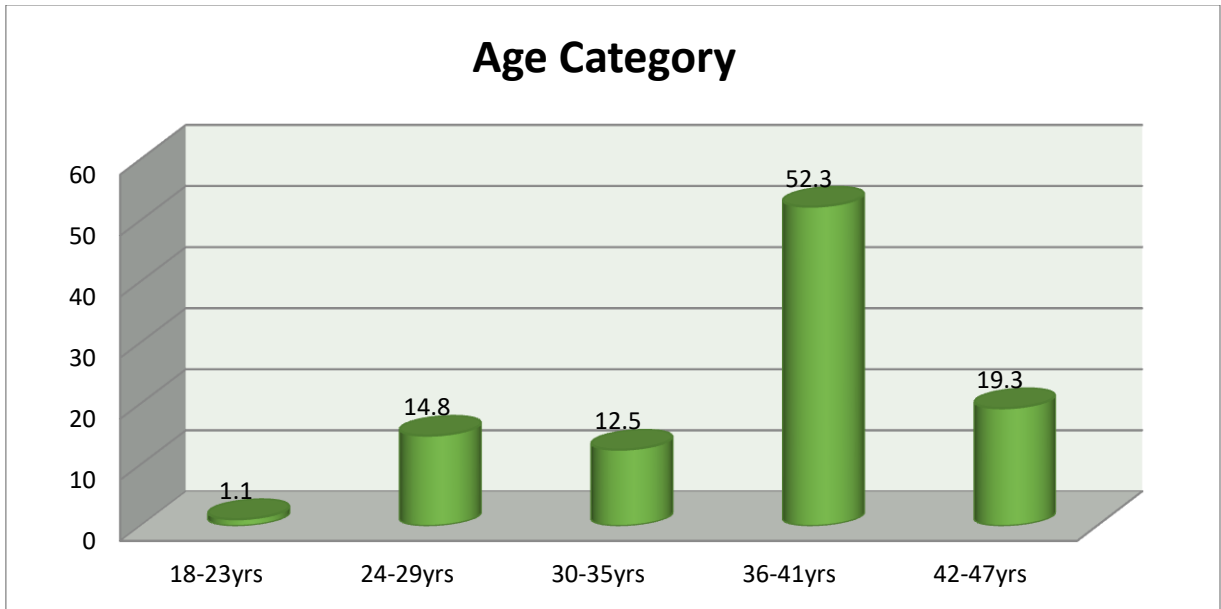
The background information of community leaders and households lays a foundation on which the interpretations of the study are based. The emphasis of the background information is on gender, age bracket, marital status, and occupation. This background information is relevant to this study such that it helped the researcher to understand how each factor contributes to the understanding of various groups helps in the transmission of Indigenous knowledge from one generation to another and how these groups value wildlife conservation activities.

#### **4.1.1. Gender**

Male and female individuals have access to different forms of indigenous knowledge. Although both genders share knowledge on aspects of wildlife conservation, they have different forms of communicating such knowledge to future generations. The study, therefore, sought to establish the gender of community members around Shompole wildlife conservancy. The results indicated that 86.4% were male, while 13.6% were female. It appears that male individuals comprise the majority of members of the community around Shompole wildlife conservancy who are engaged in conservation activities. Though women were lowly represented, the study was able to gain insights into how both male and female individuals transmit indigenous knowledge to the other members of the community. The study revealed that women are in good position to transmit indigenous knowledge to young ones since they spend most time with them. According to Pfeiffer and Butz (2005), The gender elements of rural development and conservation policy goals must be addressed immediately. Neglecting the gendered character of IK might result in the quick deterioration of some management practices owing to a lack of awareness of their presence. Gender as a cross-cutting problem in ecosystem and biodiversity management should be considered, and women's needs and interests should be targeted through women's engagement and empowerment, such as acknowledging their active role as users, transmitters, and preservers of IK (Deda and Rubian 2004).

#### **4.1.2. Age Category**

Specialists in transmitting indigenous knowledge exist by their age and experience. The reason for this is that the distribution of social and cultural norms, religious and economic practices are dependent on the memories of different individuals. The study, therefore, sought to establish the age of the community members. Figure 4.1, illustrates the findings. Notably, 52.3% are between 36 to 41 years, 19.3% are in the 42 to 47 years age bracket, 14.3% are between 24 to 29 years while the least are those between 18 to 23 years (1.1%). The bulk of the respondents are those between 30 to 47 years of age (84.1%). Consequently, the indigenous knowledge possessed by these age sets constitutes a pool of practices that of utmost importance in wildlife conservation. This concurs with Iniesta-Arandia (2015) finding that elderly people have tended to use their indigenous knowledge than young people and they also transfer this knowledge to the young people. This important since the findings shows indigenous knowledge is learned through experience over a long period of time hence age becomes a very important factor in transmission of indigenous knowledge from one generation to another,



*Figure 4.1: Age category*

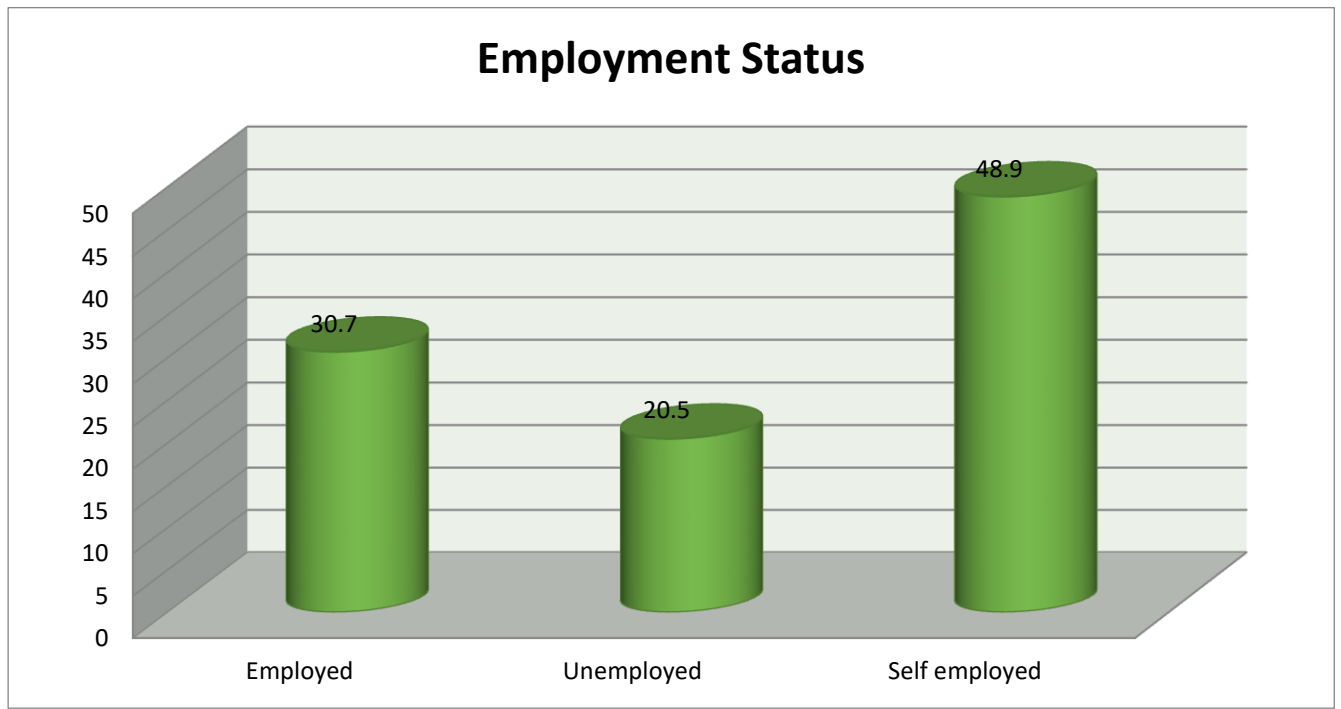
#### **4.1.3. Marital Status**

The indigenous knowledge held by individuals that are married often differs from those held by those that are single, divorced, or even widowed. Besides, the marital status of individuals affects how the community members access and use indigenous knowledge from such individuals. In most cases, especially in the Maasai community, married individuals are respected and have a say in the community on matters to do with wildlife conservation. It is in this regard that the study sought to establish the marital status of the community members. Findings revealed that 75% of the respondents are married while 25% of them are single. Since the majority of the community members comprise of those that are married, there is a possibility that there are highly involved in transmitting indigenous knowledge on wildlife conservation to not only their children but also the other members of the community.

#### **4.1.4. Occupation**

The transmission of indigenous knowledge from one individual to the other is dependent on the responsibilities of the individual in question. It could be argued that individuals that are in self-employment could be more flexible in transmitting indigenous knowledge compared to those that are employed. The study, therefore, sought to ascertain the occupation status of the community members.

The results in Figure 4.2, indicated that 48.9% of the respondents are self-employed, 30.7% are employed, while 20.5% are unemployed. The distribution of indigenous knowledge on wildlife conservation is expected to differ concerning the occupation status of the community members.



*Figure 4.2: Employment Status of Respondent*

## **4.2. Existing Indigenous Knowledge Systems for Wildlife Conservation in Shompole Wildlife Conservancy**

### **4.2.1. Awareness of Wildlife Protection Practices**

Indigenous knowledge is critical for the survival of the cultural heritage of a particular member of the community as it forms the basis for their identity. As such, the study enquired from the respondents whether they are aware of practices that can protect the wildlife. It was indicated that 86% of the respondents are aware of practices that can protect wildlife, whereas 14% lack this knowledge. The implication is that majority of the community members are better placed to give an account of indigenous knowledge systems that are designed to promote the conservation of wildlife. The finding confirms ZhiGuo et al., (2014) who found that different communities in china were aware of IKs that promote wildlife conservation. Similarly, Luo Yaofeng, Liu Jinlong, and Zhang Dahong (2009) found that the Chinese ethnic community residing in mountainous areas of the southern region of the domain of Gansu, known as Baima Tibetans, have established their cultural structures, cultural



values, knowledge, customs, and practice of resource use over their successful actions and practices for several generations.

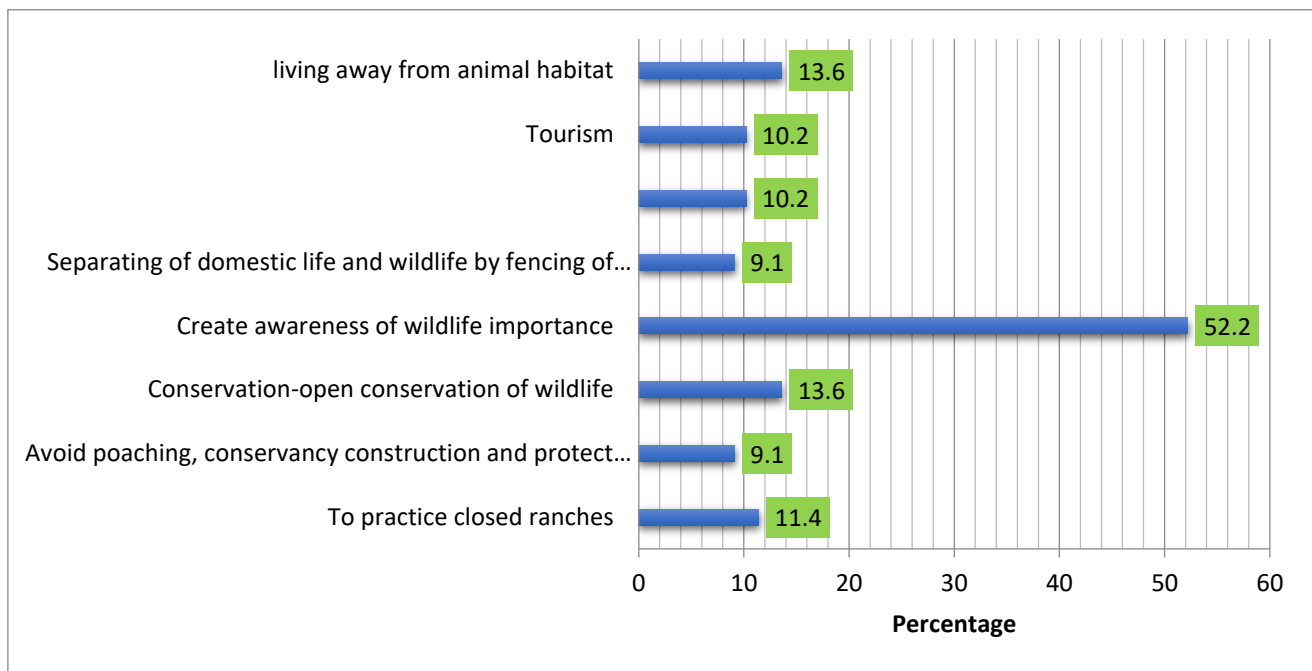
#### **4.2.2. Practices to Protect Wildlife**

The study aimed to obtain from the community members information on the practices they have in place to protect wildlife. As shown in Figure 4.3, the respondents create awareness of the importance of wildlife (52.2%) and open conservation of wildlife (13.6%). Besides, some live away from the animal habitat (13.6%), practice closed ranches (11.4%), and teach the community the importance of conservation (10.2%). Also, they fence their premises to prevent human-wildlife conflict (9.1%), and they avoid poaching and protect the environment (9.1%). The community members engage in practices aimed at protecting wildlife. In support of the above notion, the community members noted the following:

We have fenced our premises to prevent wild animals such as elephants, lions' baboons, and monkeys from gaining access to our homes and farms. Most of us have resorted to zero-grazing as opposed to grazing our cattle in the conservancy. In that way, we had significantly reduced human-wildlife conflict and protected our livestock from wild animals (Key informant, northern Shompole conservancy)<sup>1</sup>.

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<sup>1</sup> Voices from Key informant of northern part of Shompole conservancy July, 2020



*Figure 4.3. Practices to Protect Wildlife*

#### **4.2.3. Importance of Closed and Open Field in Wildlife Conservation**

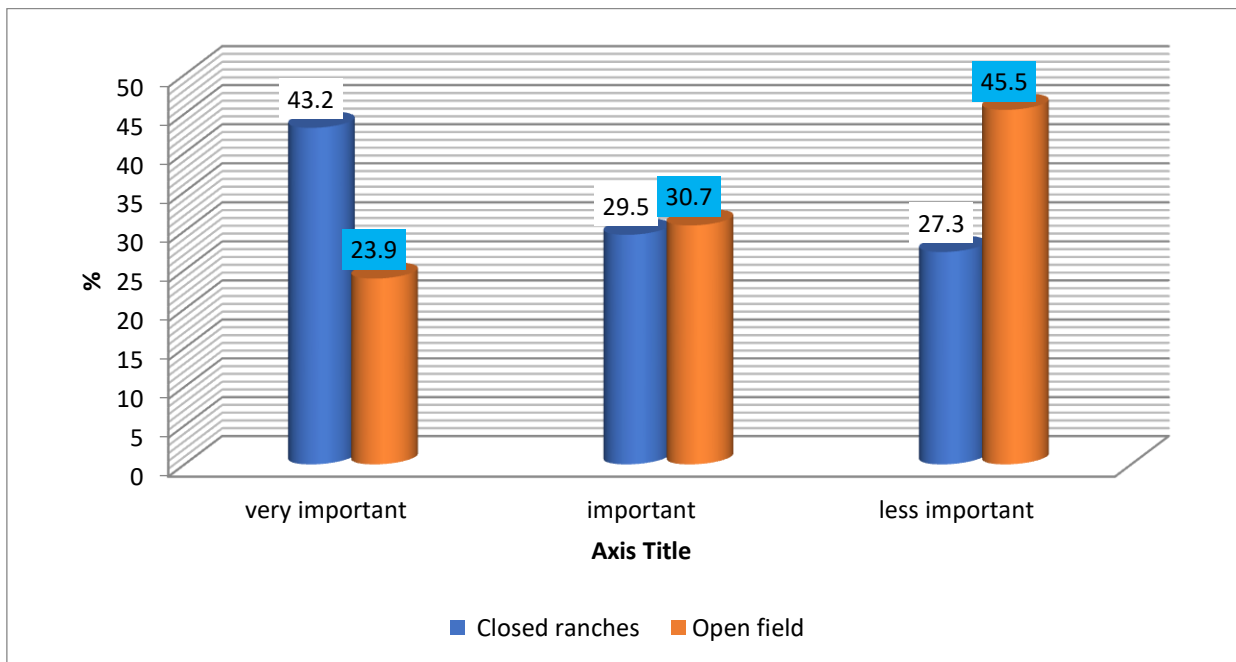
The study enquired from the respondents on the importance of closed and open fields in wildlife conservation. As evidenced in Figure 4.4, most (43.2%) of the respondents believed that closed ranches are very important. On the other hand, 45.5% of them noted that open fields are less important. To reiterate the importance of closed ranches, the community members from the southern part of the conservancy had this to say:

Closed ranches are important to us because they create a boundary between us and the conservancy. We can therefore cultivate the land without fear that the animals would destroy our crops. However, there are still instances we experience crop loss and cattle predation by wild animals that destroy our fences. As such, there are cases in which the wild animals expose us to food insecurity and economic instability since the majority of us depend on our cultivated crops (Key informant, southern Shompole conservancy)<sup>2</sup>.

From the initial findings, it is evident that closed ranches are most effective in wildlife conservation and preventing human-wildlife conflict. There is, however, a need for more concerted efforts towards

<sup>2</sup> Voices from Key informant of southern part of Shompole conservancy July, 2020

ensuring that there are no conflicts between the community members and the wild animals in the conservancy. The results coincide with Lindsey et al., (2009) that closed conservancies allow a greater population to be re-introduced and preserved effectively than in smaller fenced ranches. Environmental suppleness, greater resident numbers, and inclusion of a bursting range of animal types combine to enable restoration of natural environmental progressions in conservation areas rather than the continuous management involvement required in trivial restricted ranches. This is also supported by Falkena (2003) that closed ranches leads to ecotourism and trophy shooting (including large fascinating species) and are lucrative. Moreover, the sort of ecotourism and trophy hunting activities that can be performed in protected areas are likely to be more profitable than utilizing the same property in closed ranches (Lindsey et al., 2006, 2007).



*Figure 4.4. Importance of Closed and Open Field in Wildlife Conservation*

### **4.3. Indigenous Knowledge in Cultural and Socials Norms for Wildlife Conservation**

This section of the analysis highlights the results of the respondents' knowledge of cultural and social norms for protecting wildlife. From the findings in Appendix 3.1, 40.9% (36) of the respondents agreed that their culture does not allow the killing of wild animals for commercial purposes (mean = 3.52, SD = 1.15). Specifically, one of the community members had this to say:

Our community considers the hunting of wild animals for commercial purposes as taboo. Therefore, community members found engaging in this vice are reported to the community elders who decide the kind of punishment to give them. Also, such individuals are closely monitored, and if found hunting wild animals for commercial purposes, they are reported to the relevant authorities (ID4).

The same notion was shared by 38.6% (34) of the community members who strongly agreed that their culture does not allow hunting and killing of wild animals for fun, especially non-edible wild animals (mean = 3.72, SD = 1.45). Besides, 60.2% (53) strongly agreed that their culture does not allow killing an animal found giving birth (mean = 3.89, SD = 1.55). In the same way, 38.6% (34) strongly agreed that their culture does not allow killing wild animals indiscriminately (mean = 3.88, SD = 1.16). During the interview, one of the respondents went further and elucidated that, "individuals found indiscriminately killing helpless wild animals will be cursed. For instance, if one kills an animal found, giving birth will be cursed, and will not be able to own livestock. They will therefore remain poor for the rest of their life because of this act" (ID3).

Moreover, 50% (44) agreed that their culture does not allow killing rare species (mean = 3.75, SD = 1.09). As well, 62.5% (55) agreed that they do not kill young, pregnant, or lactating animals (mean = 4.32, SD = 1.21). The act is considered taboo among the community members. However, 60.2% (53) strongly disagreed that they use wild meat in weddings and rituals (mean = 2.15, SD = 1.61). The implication is that their culture discourages them from using wild meat in festivities and rituals.

Also, 53.4% (47) agreed that they set free wild animals found trapped (mean = 3.78, SD = 1.06). Other than that, 51.1% (45) agreed that their community restricts the hunting of some species unless a special permit is obtained from the tribal chief (mean = 3.41, SD = 1.47). Also, 37.5% (33) disagreed that their community restricts the hunting of certain species to specific seasons to allow breeding (mean = 2.94, SD = 1.42). Besides, 69.3% (61) strongly agreed that their community has hefty fines on anyone found setting fires (mean = 4.02, SD = 1.53). Finally, 33% (29) agreed that their community limits firewood collection for cooking and heating (mean = 3.31, SD = 1.35). Further on the same, one of the community elders interviewed has this to say:

We have agreed as a community to limit the amount of firewood collected for domestic purposes. Community members are not allowed to collect firewood from

restricted areas of the conservancy that are considered sacred by the community. Even those that collect firewood are not allowed to make charcoal and sell it to other community members. The reason for this is that we are discouraging our community members from using the firewood collected for commercial purposes. If this is not checked and discouraged, community members will start cutting down trees hence impacting the wildlife negatively (ID1).

These findings infer that communities residing near Shompole Wildlife Conservancy were practicing IK in cultural and social norms for wildlife conservation. These results tally with Fung & Linn, (2015) that IKs in culture. The findings are also supported by Luo Yaofeng, Liu Jinlong, and Zhang Dahong (2009) findings that Chinese ethnic community residing in mountainous areas of the southern region of the domain of Gansu, known as Baima Tibetans, has prehistoric sacred beliefs and rich cultural information. Luo (2009) strongly acknowledges the role of traditional beliefs in protecting their villages and preserving biodiversity richness. The residents of Baima honour their traditional traditions and the usual laws and regulations concerning the conservation and usage of the natural resources of the area (Luo et al., 2009).

#### **4.4. Indigenous knowledge in religious practice for wildlife conservation**

The study sought to establish if the respondents had indigenous knowledge in religious practice for wildlife conservation. Basing on the findings in Table 4.1, 34.1% (30) of the respondents strongly disagreed that their religion does not allow the killing of sacred animals (mean = 2.52, SD = 1.51). Specifically, the community members are not allowed to consume some of the wildlife species. According to one of the community elders, "the community considers having a spiritual connection with the elephant whose cow dung we use for medicinal purposes. Community members are, therefore, not allowed to harm the elephant (ID2)." Further, 35.2% (31) agreed that they only kill one animal for rituals or sacrifice (mean = 3.61, SD = 1.37). One of the community members had this to say:

The youth in our community usually kill one wild animal as a rite of passage and partake of it in the sacred forest. As part of the community ritual, wild meat is considered to restore strength to the youth and bring them in union with the ancestors. It is also done to encourage

brotherliness among the youth in the community and facilitate the transition from warrior-hood to elder hood (ID6).

Besides, 38.6% (34) agreed that eating wild animals is prohibited in their religion (mean = 3.10, SD = 1.43). Finally, 43.2% (38) of them strongly disagreed that killing wild animals is prohibited in their religion (mean = 2.44, SD = 1.48). The killing of wild animals is prohibited, not unless it is done for ritual purposes. Community members from the southern part of the conservancy had this to say:

We are required to live harmoniously with the wild animals just the way our ancestors peacefully co-existed with them. We have to protect wildlife for future generations. Also, the animals have rights, the same way as we have. (Key informant, southern Shompole conservancy)<sup>3</sup>.

Table 4.0:1. Indigenous Knowledge in Religious Practice for Wildlife Conservation

|   |           | SD   | D    | NS   | A    | SA   | Mean        | Std. Dev    |
|---|-----------|------|------|------|------|------|-------------|-------------|
| Our religion does not allow the killing of sacred animals | Frequency | 30   | 25   | 5    | 13   | 15   | 2.52        | 1.51        |
|   | Percent   | 34.1 | 28.4 | 5.7  | 14.8 | 17   |             |             |
| We only kill one animal for rituals or sacrifice          | Frequency | 13   | 5    | 12   | 31   | 27   | 3.61        | 1.37        |
|   | Percent   | 14.8 | 5.7  | 13.6 | 35.2 | 30.7 |             |             |
| Eating of wild animals is prohibited in our religion      | Frequency | 18   | 17   | 5    | 34   | 14   | 3.10        | 1.43        |
|   | Percent   | 20.5 | 19.3 | 5.7  | 38.6 | 15.9 |             |             |
| The killing of wild animals is prohibited in our religion | Frequency | 38   | 12   | 6    | 25   | 7    | 2.44        | 1.48        |
|   | Percent   | 43.2 | 13.6 | 6.8  | 28.4 | 8    |             |             |
| <b>IK in religion practice</b>                            |           |      |      |      |      |      | <b>2.92</b> | <b>1.03</b> |

#### 4.5. Indigenous knowledge in economic practices for wildlife conservation

This section of the analysis highlights the findings on the indigenous knowledge in economic practices for wildlife conservation. From the findings in Table 4.2, 43.2% (38) of the respondents

<sup>3</sup> Voices from Key informant of southern part of Shompole conservancy July, 2020

agreed that they share wild meat among members of the community to keep the number of hunters in society at low levels (mean = 3.59, SD = 1.37). Besides, 39.8% (35) strongly disagreed that their community encourages farming to reduce dependency on wild animals' meat (mean = 2.52, SD = 1.49). Further, 53.4% (47) strongly disagreed that their community encourages the protection of wildlife as a tourism attraction site (mean = 1.94, SD = 1.27). It appears there are little efforts towards reducing the dependency on wildlife. For instance, not all of the community members have embraced farming as a way of reducing the dependency on wild meat. Nevertheless, the community makes use of the conservancy for medicinal purposes. The community members had this to say:

We make use of the sacred forest to get medicine that treats several diseases. The medicine men in our community are the ones tasked with identifying the plants that can be used as medicine. We have even come up with a community enterprise that sells herbal medicine. Many individuals within our community prefer herbal medicine as opposed to synthetic alternatives. As such, we can get an income to support our families. It is encouraging to us because it gives us the motivation to conserve the forest since it is our source of income (Key informant, northern Shompole conservancy)<sup>4</sup>.

The community members benefit from the conservancy in terms of herbal medicine. As such, there is a higher likelihood of them engaging in practices aimed at protecting and conserving the Shompole Conservancy.

Table 4.0:2. Indigenous Knowledge Economic Practices for Wildlife Conservation

|   |      | SD   | D    | NS   | A    | SA   | Mean | Std. Dev |
|---|------|------|------|------|------|------|------|----------|
| We share wild meat among members of the community to keep the number of hunters in society at low levels) | Freq | 13   | 8    | 5    | 38   | 24   | 3.59 | 1.37     |
|   | %    | 14.8 | 9.1  | 5.7  | 43.2 | 27.3 |      |          |
| Our community encourages farming to reduce dependency on wild animals (wild meat)                         | Freq | 35   | 12   | 12   | 18   | 11   | 2.52 | 1.49     |
|   | %    | 39.8 | 13.6 | 13.6 | 20.5 | 12.5 |      |          |
| Our community encourages protection of  | Freq | 47   | 19   | 8    | 8    | 6    | 1.94 | 1.27     |
|   |      |      |      |      |      |      |      |          |

<sup>4</sup> Voices from Key informant of northern part of Shompole conservancy July, 2020

wild life as tourism attraction site

% 53.4 21.6 9.1 9.1 6.8

**IK in Economic Practice**

**2.69 0.92**

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In a nutshell, IK in economic were less practiced. According to Tharakan, (2015) indigenous knowledge systems are appropriate for economic benefit and communities are committed to protect and preserve the wildlife by encourages farming to reduce dependency on wild animals. The results are supported by Madegowda (2009) that The Soliga tribe in the BRT (Biligiri Rangaswamy Temple) of Karnataka hills district of Chamarajanagar has long maintained constant and friendly interaction with the forest ecosystem, deriving the greatest of its rudimentary forest supplies. Phondani, Maikhuri, and Bishtui (2013) indicated that Traditional communities around Uttarakhand State's, Binsar Wildlife Sanctuary in India there is a rich local history of healthcare which has existed in practice for several years. This has been possible due to applications of indigenous knowledge of the communities in the area.

**4.6. Other Cultural, Religious and Economic Practices to Protect Wildlife**

The study enquired from the respondents on other cultural, religious, and economic practices on protecting wildlife. As highlighted in Table 4.3, cultural festivals, music, and prayers were measures used to protect wildlife (10.2%). Also, educating the community on animal conservation (10.2%), not killing animals and releasing trapped animals to the forest (13.6%), and avoiding the hunting of animals were measures used to protect wildlife. Besides, a group of members from the community noted the following:

Our community believes that the killing of wild animals without any purpose will bring curses such as drought and poor harvest to our community. We are therefore discouraged from hunting wild animals. Instead, we punish members from our community found poaching wildlife, and we educate them of their importance and how they complement the domestic animals we keep (Key informant, northern Shompole conservancy)<sup>5</sup>.

Table 4.0:3. Other Cultural, Religious and Economic Practices to Protect Wildlife

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<sup>5</sup> Voices from Key informant of northern part of Shompole conservancy July, 2020



|   | Frequency | Per cent   |
|---|-----------|------------|
| cultural music and festivals and cultural prayers   | 9         | 10.2       |
| avoiding hunting them   | 11        | 12.5       |
| conservancy   | 8         | 9.1        |
| educating the community on animal conservation  | 9         | 10.2       |
| N/A   | 22        | 25         |
| not killing the animals and releasing trapped animals to the forest   | 12        | 13.6       |
| our heritage, killing of animals without purpose can bring curses to community and existence of wild animals compliment the existence of domestic animals | 8         | 9.1        |
| tourism   | 9         | 10.2       |
| <b>Total</b>  | <b>88</b> | <b>100</b> |

#### 4.7. Wildlife conservation practices

The study sought to establish wildlife conservation practices by the community members. The Table in Appendix 3.2 illustrates the results. As evidenced in the table, 42% (37) strongly agreed that they report any illegal hunting or killing of wild animals (mean = 3.82, SD = 1.38). As well, 56.8% (50) agreed that they prefer using gas rather than collecting firewood in the forest (mean = 3.45, SD = 1.25). Moreover, 54.5% (48) strongly agreed that it is important to protect plants and trees in the conservancy (mean = 4.23, SD = 1.11). Besides, 52.3% (46) strongly agreed that they would be happy to see more different types of animals (mean = 4.17, SD = 1.21). Additionally, 51.1% (45) strongly agreed that it is important to protect wild animals' species in the Shompole Conservancy (mean = 4.19, SD = 1.12).

Further, 46.6% (41) strongly agreed they would be happy if their children worked in the Shompole Conservancy (mean = 4.00, SD = 1.21). They are also happy that their village borders the Shompole conservancy (mean = 3.83, SD = 1.29). Moreover, 48.9% (43) agreed that people who poach should be punished (mean = 4.02, SD = 1.04). On the other hand, 56.8% (50) agreed that tourism benefits the whole community (mean = 3.56, SD = 1.15). Also, 51.1% (45) of them would be happy to see an increase in wild animals in the conservancy (mean = 3.95, SD = 1.05). Besides, 43.2% (38) of them agreed that their family has more money because of tourism (mean = 3.00, SD = 1.11). In the same way, 42% (37) strongly agreed that the conservancy was created for the betterment of the community (mean = 4.08, SD = 1.04). Finally, 27.3% (24) agreed that tourism offers financial opportunities for them to adequately offset their losses from conservation (mean = 3.56, SD = 1.17).

In a nutshell, the community members are involved in protecting the wildlife, limiting firewood collection, and protecting plants and trees. Besides that, they would be happy to see a variety of animals and see to it that poachers are punished. Moreover, some members have benefited financially from the conservancy and would be happy to see their children working for the conservancy. The findings are supported by Omoke (2013) the protection and management efforts of community wildlife will provide a financial support to the communities through interacting with wild animals in their natural habitat, either by actively (e.g., hunting/collection) or passively (e.g., watching/photography). Similarly, Rao et al., (2010) argued conserving wild life and reducing illegal trafficking lead to economic benefits Professionally run conservancies will provide a strong source of income for the conservation community hence it is a source of livelihood.

#### 4.8. Sensitization of Children/Siblings on Wildlife Conservation

The study enquired from the community members on what measures they have in place in sensitizing their children/siblings on wildlife conservation. The focus of the community members is on educating their children on the importance of wildlife and wildlife conservation. As evidenced in Table 4.4, Children are educated through narrations, and nature walks in the conservancy. Besides, they are acquainted with the potential of wildlife in terms of job creation. Indigenous knowledge has contributed immensely to wildlife conservation as noted by the community members:

The community elders have been instrumental in passing important information on wildlife conservation to the community members. Some of the technologically savvy members have been able to write down and print cultural and social norms, religious practices that promote the protection of wildlife. Other than that, one per month, meetings are scheduled by community elders whereby they teach the youth and other members of the community how to obtain medicine from the forest that is deemed sacred as well as how to peacefully co-exist with the wildlife (Key informant, southern Shompole conservancy)<sup>6</sup>.

Table 4.0:4. Sensitization of children/Siblings on wildlife conservation

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|   |
|---|
| educate them  |
| educating the children on the importance of Wildlife  |
| Educating them on how they create jobs  |
| educating them on the importance of wildlife conservation   |
| Educating them on the importance of wildlife conservation   |
| Narrating their stories, educating them through seminars and workshops, and taking them to different conservancies to enjoy nature                                |
| Narration and nature walk in the conservancy  |
| tell stories about wildlife importance, provide the game drive to the conservancy and provide a visit to the resource centre to learn and see more about Wildlife |
| To educate them on the importance of wildlife conservation like the creation of employment  |

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#### 4.9. Relationship between Indigenous Knowledge Systems and Wildlife Conservation

<sup>6</sup> Voices from Key informant of southern part of Shompole conservancy July, 2020

*H<sub>01</sub>: There is no significant relationship between indigenous knowledge systems and wildlife conservation among the Maasai community living in and around Shompole wildlife conservancy*

The study utilized Spearman Rho correlation analysis to ascertain if there is a significant correlation between indigenous knowledge systems and wildlife conservation among the Maasai community living in and around Shompole wildlife conservancy. The study adopted an ‘average score approach’ to compute participants’ overall scores (Osborne, 2013). This strategy accumulates and computes merely those items responded by (e.g., if five items are used to measure a scale and one item is lacking, the syntax computes the mean of the four items responded to) Hence, it offers a precise overall score for each construct by getting the responses lacking. The syntax used was “MEAN#.X (a, b, c...)” where X is the least number of items with a fitting score. Osborne, (2013) opines that to utilize this technique, most of the items must be resolved.

Table 4.5 highlights the results. From the findings in Table, the relationship between indigenous knowledge and wildlife conservation was found to be positive and significant,  $\rho = 0.338$ ,  $p$ -value = 0.000. Furthermore, the relationship between indigenous knowledge in cultural and social norms and wildlife conservation was found to be positive and significant,  $\rho = 0.470$ ,  $p$ -value = 0.000. In line with the findings, Luo et al., (2009) confirmed that the cultural values, knowledge, customs, and practice of resource use have been instrumental in defending local wildlife.

The findings also showed that there is a positive correlation between indigenous knowledge in religious practices and wildlife conservation through the relationship is insignificant,  $\rho = 0.024$ ,  $p$ -value = 0.825. However, there is a significant correlation between indigenous knowledge in economic practice and wildlife conservation,  $\rho = -0.450$ ,  $p$ -value = 0.000. Overall, there is a positive and significant correlation between indigenous knowledge and indigenous knowledge in cultural and social norms with wildlife conservation. Consistent with the results, Madegowda (2009) confirmed that indigenous knowledge enabled the Soliga tribe to maintain constant and friendly interaction with the forest ecosystem thereby deriving the greatest of its rudimentary forest supplies.

Table 4.0:5. Relationship between indigenous knowledge systems and wildlife conservation

|                             |  | Wildlife conservation | Indigenous knowledge | IK in cultural social norms | IK in religion practice | IK in economic practice |
|-----------------------------|--|-----------------------|----------------------|-----------------------------|-------------------------|-------------------------|
| wildlife conservation       | Spearman's rho Correlation Coefficient | 1                     |                      |                             |                         |                         |
|                             | Sig. (2-tailed)                        | .                     |                      |                             |                         |                         |
| Indigenous knowledge        | Spearman's rho Correlation Coefficient | 0.338*                | 1                    |                             |                         |                         |
|                             | Sig. (2-tailed)                        | 0.000                 | .                    |                             |                         |                         |
| IK in cultural social norms | Spearman's rho Correlation Coefficient | 0.470*                | -.520**              | 1                           |                         |                         |
|                             | Sig. (2-tailed)                        | 0.002                 | 0.000                | .                           |                         |                         |
| IK in religion practice     | Spearman's rho Correlation Coefficient | 0.024                 | .680**               | -.735**                     | 1                       |                         |
|                             | Sig. (2-tailed)                        | 0.825                 | 0.000                | 0                           | .                       |                         |
| IK in economic practice     | Spearman's rho Correlation Coefficient | -0.450**              | .789**               | -.353**                     | .262*                   | 1                       |
|                             | Sig. (2-tailed)                        | 0.000                 | 0.000                | 0.001                       | 0.014                   | .                       |

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

#### 4.10. Human Behavior Survival

The study sought to establish if the need for human survival affects community wildlife conservation in and around Shompole wildlife conservancy. One of the aspects that the study sought to establish if the community members hunt or kill wildlife. From the results, 33% (29) of the respondents confirmed that they hunt/kill wildlife for food. Overall, the majority of the community members do not hunt wild animals. In tally with the findings, Barnhardt & Kawagley, (2005) affirmed that indigenous knowledge supported sustainable hunting of reindeers to avoid the extinction of this species since it was a vital resource to the community.

##### 4.10.1. Level of Reliance by Households on the Use of Wildlife

This section of the analysis delved into the level of reliance by the household on the use of wildlife. Table 4.0-8, illustrates the findings. As evidenced in the table, 42% (37) of the community members noted that the traditional use of animal body parts was extremely low (mean = 1.76, SD = 0.74). Besides, 50% (44) of them stated that cultural uses of wildlife are low (mean = 2.00, SD = 0.80). As well, 39.8% (35) of the community members thought that the reliance on wildlife for food and nutritional value is low (mean = 2.22, SD = 0.94). Further, 47.7% (42) of them noted that they lowly

rely on wildlife for medicinal value (mean = 1.93, SD = 1.12). Moreover, 39.8% (35) of the community members stipulated that their reliance on wildlife for aesthetics is extremely low (mean = 2.08, SD = 1.06). Additionally, 43.2% (38) of them noted that the sale of animal body parts as a source of income is extremely low. In a nutshell, the level of reliance on traditional use of animal body parts, use of wildlife for food and nutritional value, medicinal value, aesthetic, and selling animal body parts as a source of income is low. Consistent with the findings, Phondani, Maikhuri, and Bishtui (2013) elucidated that indigenous knowledge of the communities in Binsar Wildlife Sanctuary in India made it possible for them to utilize the conservancy to get medicine.

Table 4.0:6. Level of Reliance by Households on the Use of Wildlife

|                      |       | Extremely |      | Moderate | High | Extremely |      | Std. |
|----------------------|-------|-----------|------|----------|------|-----------|------|------|
|                      |       | Low       | Low  |          |      | High      | High |      |
| Traditional use of   |       |           |      |          |      |           |      |      |
| animal body parts    | Freq. | 37        | 35   | 16       | 0    | 0         | 1.76 | 0.74 |
|                      | %     | 42        | 39.8 | 18.2     | 0    | 0         |      |      |
| Cultural uses        |       |           |      |          |      |           |      |      |
|                      | Freq. | 24        | 44   | 16       | 4    | 0         | 2.00 | 0.80 |
|                      | %     | 27.3      | 50   | 18.2     | 4.5  | 0         |      |      |
| Food and nutritional |       |           |      |          |      |           |      |      |
| value                | Freq. | 21        | 35   | 26       | 4    | 2         | 2.22 | 0.94 |
|                      | %     | 23.9      | 39.8 | 29.5     | 4.5  | 2.3       |      |      |
| Medicinal value      |       |           |      |          |      |           |      |      |
|                      | Freq. | 42        | 22   | 16       | 4    | 4         | 1.93 | 1.12 |
|                      | %     | 47.7      | 25   | 18.2     | 4.5  | 4.5       |      |      |
| Aesthetic            |       |           |      |          |      |           |      |      |
|                      | Freq. | 35        | 22   | 20       | 11   | 0         | 2.08 | 1.06 |
|                      | %     | 39.8      | 25   | 22.7     | 12.5 | 0         |      |      |
| Selling animal body  |       |           |      |          |      |           |      |      |
| parts as a source of |       |           |      |          |      |           |      |      |
| income               | Freq. | 38        | 33   | 4        | 13   | 0         | 1.91 | 1.04 |
|                      | %     | 43.2      | 37.5 | 4.5      | 14.8 | 0         |      |      |

#### 4.10.2. The extent to which the quality of wildlife has changed in the last 15 years.

The study enquired from the respondents the extent to which the quality of wildlife has changed in the last 15 years. From the findings in Table 4.0-9, 46.6% (41) of the respondents confirmed that the quality of wildlife has slightly improved in the past 15 years. As well, 27.3% of them believed there

is a significant improvement while 15.9% noted that the quality of wildlife has significantly reduced in the last 15 years.

Table 4.0:7. The extent to which the quality of wildlife has changed in the last 15 years.

|                        | Frequency | Per cent   |
|------------------------|-----------|------------|
| significantly reduced  | 14        | 15.9       |
| slightly reduced       | 6         | 6.8        |
| remained the same      | 3         | 3.4        |
| slightly improved      | 41        | 46.6       |
| significantly improved | 24        | 27.3       |
| <b>Total</b>           | <b>88</b> | <b>100</b> |

#### 4.11. Relationship between the Need for Human Survival and Community Wildlife Conservation

*H<sub>02</sub>: Human survival needs do not affect Community wildlife conservation in and around Shompole wildlife conservancy.*

By evaluating the correlation coefficients, the study attempted to determine the nature of the links that existed between the independent factors and the dependent variable. As a result, a correlation study of the independent factors (human survival requirement) and the dependent component (community wildlife protection) was performed, and the results were compiled and shown in Table 4.0-10. According to the data, the link between human survival needs and animal conservation is negative and significant, = -0.420, p-value = 0.000. The hypothesis that the needs for human survival do not affect community wildlife conservation was therefore rejected. Contrary to the results, (Tabuti & Van Damme, (2012) stipulated that indigenous knowledge was instrumental in Uganda that contributed to the social and economic needs and facilitating the sustainability of the community.

Table 4.0:8. Relationship between the need for human survival and community wildlife conservation

|                   |                          |                         | wildlife<br>conservation | Human survival<br>needs |
|-------------------|--------------------------|-------------------------|--------------------------|-------------------------|
| Spearman's<br>rho | wildlife<br>conservation | Correlation Coefficient | 1                        | -0.111                  |
|                   |                          | Sig. (2-tailed)         | .                        | 0.302                   |
|                   |                          | N                       | 88                       | 88                      |
|                   | Human survival<br>needs  | Correlation Coefficient | -0.311*                  | 1                       |
|                   |                          | Sig. (2-tailed)         | 0.002                    | .                       |
|                   |                          | N                       | 88                       | 88                      |

\* Correlation is significant at the 0.05 level (2-tailed).



## CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSION, AND RECOMMENDATIONS

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### 5.0. Introduction

This chapter presents a summary of the study, conclusions, recommendations, and suggestions for further research. They are based on research findings of the study, as presented in chapter four

### 5.1. Summary of Findings

The main objective of the study was to establish the significance of the existing IKs (indigenous knowledge systems) of the Maasai people in wildlife conservation and management. The following research questions guided the study:

- i. *What are the existing indigenous knowledge systems for wildlife conservation among the Maasai community living around Shompole wildlife conservancy?*
- ii. *How do the existing IKs (indigenous knowledge systems) correlate with wildlife conservation at Shompole conservancy?*
- iii. *What is the effect of human survival on community wildlife conservation at Shompole conservancy?*

The following hypotheses were tested;

*H<sub>01</sub>: There is no significant relationship between indigenous knowledge systems and wildlife conservation among the Maasai community living in and around Shompole wildlife conservancy*

*H<sub>02</sub>: Human survival needs do not affect Community wildlife conservation in and around Shompole wildlife conservancy.*

The collected data was analyzed using both qualitative and quantitative techniques. The results from the qualitative data were analyzed by gathering the relevant themes in line with the research questions. On the other hand, quantitative data were analyzed with descriptive statistics, precisely frequencies mean and standard deviation. Correlation analysis was used to establish the relationship between indigenous knowledge systems and wildlife conservation among the Maasai community living in and around the Shompole wildlife conservancy. Also, the correlation analysis ascertained if

the needs for human survival affected community wildlife conservation in and around Shompole wildlife conservancy.

### **5.1.1. Existing indigenous knowledge systems for wildlife conservation in Shompole wildlife conservancy**

The community members around the Shompole wildlife conservancy are aware of practices that can protect wildlife. As such, they create awareness of the importance of wildlife and teach the community the importance of conservation. Some of the members live away from the animal habitat while others fence their premises to prevent human-wildlife conflict. As well, they avoid poaching and protect the environment. Besides, most of the community members are of the view that closed ranches are very important.

The findings on indigenous knowledge in cultural and social norms indicated that the community member's culture does not allow the killing of wild animals for commercial purposes. Besides, their culture does not allow hunting and killing of wild animals for fun, especially non-edible wild animals. Similarly, their culture does not allow killing an animal found giving birth or the killing of rare species of wild animals. There are however limited efforts by the community towards restricting hunting of certain species to specific seasons to allow breeding. Further, they do not kill young, pregnant, or lactating animals. Moreover, their culture does not allow killing wild animals indiscriminately. They set free wild animals found trapped. Also, their community restricts the hunting of some species unless a special permit is obtained from the tribal chief. As well, there are hefty fines on anyone found setting fires. In a similar vein, the community limits firewood collection for cooking and heating. However, some of them use wild meat at weddings and rituals.

The results on indigenous knowledge in religious practices revealed that the community members only kill one animal for rituals or sacrifice. Some noted that eating wild animals is prohibited in their religion. However, they were in disagreement that their religion does not allow the killing of sacred animals and that killing wild animals is prohibited in their religion.

Findings on indigenous knowledge in economic practices indicated that the community members share wild meat amongst themselves to keep the number of hunters in the society at low levels. However, there are limited efforts towards the protection of wildlife as a tourism attraction site and encouraging farming to reduce dependency on wild animals' meat.

### **5.1.2. The relationship between indigenous knowledge systems and wildlife conservation**

Results of the correlation analysis indicated a positive and significant relationship between indigenous knowledge and wildlife conservation. Similarly, the relationship between indigenous knowledge in cultural and social norms and wildlife conservation was found to be positive and significant. Besides, there is a positive correlation between indigenous knowledge in religious practices and wildlife conservation although the relationship is insignificant. However, there is no significant correlation between indigenous knowledge in economic practice and wildlife conservation.

### **5.1.3. Influence of the needs for human survival on community wildlife conservation**

The findings on how the need for human survival affects community wildlife conservation indicated that some of the community members hunt/kill wildlife for food. Further, the level of reliance on traditional use of animal body parts, use of wildlife for food and nutritional value, medicinal value, aesthetic, and selling animal body parts as a source of income is low. Overall, there was a negative and significant relationship between the human need for survival and wildlife conservation.

## **5.2. Conclusion**

Indigenous knowledge systems are predominant among members of the community around Shompole wildlife conservancy. Notably, indigenous knowledge in cultural and social norms has raised awareness of the importance of wildlife. Not only have the community members peacefully co-existed with the wild animals, but they have gone a step further towards protecting the wildlife from harm. Their culture has deterred the killing of wild animals and promoted wildlife conservation practices such as setting free wild animals and limited firewood collection. On the other hand, religious practices have restricted the eating of wild animals. In instances whereby the animals are used for rituals, it is only one wild animal that is killed. Besides, their economic practices dictate that wild meat is shared to discourage the hunting of wild animals. In a way, the indigenous knowledge systems (cultural and social norms, religious practices, and economic practices) are essential in wildlife conservation.

The relationship between cultural and social norms and wildlife conservation was positive and significant. The implication is that cultural and social norms have contributed significantly to wildlife conservation. As such, there are several facets of cultural and social norms that support the community's peaceful co-existence with wildlife. These indigenous knowledge systems are

instrumental in wildlife conservation within Shompole wildlife conservancy. Nevertheless, religious and economic practices did not significantly influence wildlife conservation. It could mean that these practices are not firmly embedded within the community hence they do not contribute to wildlife conservation.

The need for human survival negatively impacted community wildlife conservation. There is a possibility that human needs supersede that of wildlife. Consequently, despite indigenous knowledge systems discouraging the hunting/killing of wild animals, there are still community members that utilize the wildlife in a counterproductive way. Even though there are measures that discourage the killing of wild animals, there are still community members that go against these indigenous knowledge systems. Balancing the needs for human survival and promoting indigenous knowledge systems among the community members appears to be the path towards enhancing the conservation of wildlife.

### **5.3. Recommendations**

#### **5.3.1. Recommendations for policy makers, KWS and Local Communities.**

Evidence from the study suggests that the indigenous knowledge systems among members of the community around Shompole wildlife conservancy encourage wildlife conservation. There is thus a need for concerted efforts by the ministry of tourism and the county government to work towards mainstreaming indigenous knowledge systems with the potential of enhancing wildlife conservation. Besides, it is necessary to actively involve the local elders in sensitizing community members on cultural and social norms together with religious practices that encourage wildlife conservation. Such practices need to be documented so that future generations can easily access them.

The study has established the existing relationship between indigenous knowledge systems and wildlife conservation. It is therefore vital for Kenya Wildlife Service (KWS) to validate and strengthen cultural and social norms since they significantly contributed to wildlife conservation. As well, the county government needs to put in place modalities for the young members of the community to learn of their cultural and social norms so that they can appreciate their cultural heritage that values wildlife conservation. To further strengthen cultural practices that enhance wildlife conservation, the community elders need to emphasize restricted hunting of rare species of wild animals and discourage the use of wild meat in weddings and rituals.

Finally, the need for human survival influenced wildlife conservation negatively. It is therefore essential for the county government in collaboration with KWS to actively involve the community members in the conservation of the wildlife and ensuring that they equally benefit from the wildlife resource. In that way, the community members would be discouraged from hunting the wild animals but shift their focus on conserving the wildlife so that they can earn an income from selling ornamentals to tourists who visit the conservancy. Further, the county government could liaise with community elders to discourage community members from heavily relying on animal body parts for rituals and the sale of animal body parts to earn an income. In so doing, wildlife conservation will be enhanced.

### **5.3.2. Areas for Further Research**

The study examined the significance of the existing IKs (indigenous knowledge systems) of the Maasai people in wildlife conservation and management. There are gaps in the study that offer great prospects for further studies. First, the study targeted members of the community around the Shompole wildlife conservancy. Therefore, future scholars need to enquire from tourist service providers such as rangers and guides as they will give more in-depth information on how the needs for human survival affect wildlife conservation in Shompole wildlife conservancy. Secondly, there is a need for a study to analyze how indigenous knowledge systems could be integrated with scientific conservation practices. Finally, future scholars could examine the most effective approaches of documenting indigenous knowledge to ensure that knowledge targeted at conserving wildlife is not forgotten or lost.

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## APPENDICES

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This part contains the tools needed for the execution of the survey. They include interview schedules for the household survey and key informants, Workplan, and the research budget.

### APPENDIX I: QUESTIONNAIRE

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Dear Respondent,

I am a student from the University of Nairobi, undertaking a Master of Arts degree in Environmental Planning and Management. I am conducting a study on **ANALYSIS OF INDIGENOUS KNOWLEDGE IN WILDLIFE CONSERVATION: A CASE STUDY OF THE SHOMPOLE CONSERVANCY, KENYA.** I humbly request you to fill this questionnaire; any Information provided will be of great value to this study and will be treated with confidentiality.

Thank you.

#### SECTION A:

#### BACKGROUND INFORMATION

**Please tick where appropriate;**

1. Gender. Male  Female
2. Kindly indicate your age bracket.  
18-23 years  24-29 years  30-35years  36-41years  42-47years  48-53 years   
 54-59 years  60 and above
3. Kindly indicate your marital status.  
Single  Married  Separated  Divorced  Widowed
4. What is your occupation?  
Employed  Unemployed  Self-employed

#### SECTION B:

#### INDIGENOUS KNOWLEDGE

5. Do you know any practice that can protect wildlife? Yes  No

If yes please list them below

.....  
.....  
.....

6. Do you think closed ranches are important in protecting wildlife in your area?

Very Important [ ] Important [ ] Less Important [ ] Not important at all [ ]

7. Do you think the open field is important in protecting wildlife in your area?

Very Important [ ] Important [ ] Less Important [ ] Not Important At All [ ]

8. On a scale of 1-5, express your opinion in culture, social norms, religion, and economics ways of protecting wildlife were; 1. SA = Strongly Agree, 2. A = Agree, 3. N = Not sure, 4. D=Disagree, While 5. SD= strongly disagree. Please tick (√) in the most appropriate box.

|      | <b>Cultural and social norms</b>   | <b>SA</b> | <b>A</b> | <b>NS</b> | <b>D</b> | <b>SD</b> |
|------|--|-----------|----------|-----------|----------|-----------|
| i    | Our culture does not allow the killing of wild animals for commercial purposes   |           |          |           |          |           |
| ii   | Our culture does not allow hunting and killing of wild animals for fun especially non-edible wild animal                             |           |          |           |          |           |
| iii  | Our culture does not allow killing an animal found giving birth  |           |          |           |          |           |
| iv   | Our culture does not allow killing rare species  |           |          |           |          |           |
| v    | We don't kill the young, pregnant, or lactating animal   |           |          |           |          |           |
| vi   | We use wild meat in wedding, rituals and by mothering women  |           |          |           |          |           |
| vii  | Our culture does not allow killing wild animals indiscriminately (those going against this will remain poor and never own livestock) |           |          |           |          |           |
| viii | We set free wild animals found trapped   |           |          |           |          |           |
| ix   | Our community restricts hunting of some species unless a special permit obtained from the tribal chief                               |           |          |           |          |           |
| x    | Our community restricts hunting of certain species to specific seasons to allow breeding   |           |          |           |          |           |
| xi   | Our community has heavy fines on anyone found setting fires  |           |          |           |          |           |
| xii  | Our community limits firewood collection for cooking and heating to dead trees   |           |          |           |          |           |
|      |  |           |          |           |          |           |
|      | <b>Religious practice</b>  | <b>SA</b> | <b>A</b> | <b>NS</b> | <b>D</b> | <b>SD</b> |
| i    | Our religion does not allow the killing of sacred animals  |           |          |           |          |           |
| ii   | We only kill one animal for rituals or sacrifice   |           |          |           |          |           |
| iii  | Eating of wild animals is prohibited in our religion   |           |          |           |          |           |
| iv   | The killing of wild animals is prohibited in our religion  |           |          |           |          |           |

|     | <b>Economic practices</b>   | <b>SA</b> | <b>A</b> | <b>NS</b> | <b>D</b> | <b>SD</b> |
|-----|---|-----------|----------|-----------|----------|-----------|
| i   | We share wild meat among members of the community to keep the number of hunters in society at low levels) |           |          |           |          |           |
| ii  | Our community encourages farming to reduce dependency on wild animals (wild meat)                         |           |          |           |          |           |
| iii | Our community encourages the protection of wildlife as a tourism attraction site                          |           |          |           |          |           |

9. Please list any culture, religion, and economic practice your community use to protect wildlife in your area

.....

.....

.....

**SECTION C:**

**HUMAN BEHAVIOR SURVIVAL NEEDS**

10. Do you kill or hunt wildlife for any use? Yes [ ] No [ ]

11. If yes briefly explain how the use of wildlife you kill

.....

.....

.....

12. In the Likert scale below, indicate the level of reliance your household has on the use of wildlife for each of the items indicated.

| <b>Wildlife use</b>                  | <b>Extremely low</b> | <b>Low</b> | <b>Moderate</b> | <b>High</b> | <b>Extremely High</b> |
|--------------------------------------|----------------------|------------|-----------------|-------------|-----------------------|
| Traditional use of animal body parts |                      |            |                 |             |                       |
| Cultural uses                        |                      |            |                 |             |                       |
| Food and nutritional value           |                      |            |                 |             |                       |
| Medicinal value                      |                      |            |                 |             |                       |
| Aesthetic                            |                      |            |                 |             |                       |

|   |  |  |  |  |  |
|---|--|--|--|--|--|
| Selling animal body parts as a source of income |  |  |  |  |  |
|---|--|--|--|--|--|

13. Using the Likert scale below, indicate how the quality of wildlife has changed in the last 15 years.

|                              |                         |                          |                          |                               |
|------------------------------|-------------------------|--------------------------|--------------------------|-------------------------------|
| <b>Significantly reduced</b> | <b>Slightly reduced</b> | <b>Remained the same</b> | <b>Slightly improved</b> | <b>Significantly improved</b> |
|                              |                         |                          |                          |                               |

**SECTION D:  
WILDLIFE CONSERVATION**

14. To what extent do you value wildlife?  
 To a very great extent [ ] To a great extent [ ] To a moderate extent [ ]  
 To some extent [ ] To a small extent [ ] Not at all [ ]
15. On a scale of 1-5, express your opinion on wildlife conservation. where; 1. SA = Strongly Agree, 2. A = Agree, 3. N = Not sure, 4. D=Disagree, While 5. SD= strongly disagree. Please tick (√) in the most appropriate box.

|  | SA | A | NS | D | SD |
|--|----|---|----|---|----|
| We report any illegal hunting or killing of wild animal                    |    |   |    |   |    |
| I prefer using gas rather than collecting firewood in the forest           |    |   |    |   |    |
| It is important to protect plants and trees in the conservancy             |    |   |    |   |    |
| I would be happy to see more different types of animals                    |    |   |    |   |    |
| It is important to protect wild animal species in the Shompole conservancy |    |   |    |   |    |
| I would be happy if my children worked in the Shompole conservancy         |    |   |    |   |    |
| People who poach should be punished  |    |   |    |   |    |
| Tourism benefits the whole community                                       |    |   |    |   |    |
| I would be happy to see an increase in wild animals in the conservancy     |    |   |    |   |    |

|   |  |  |  |  |  |
|---|--|--|--|--|--|
| My family has more money because of tourism   |  |  |  |  |  |
| I think Shompole conservancy was created for the betterment of the community                          |  |  |  |  |  |
| I am happy that my village borders Shompole conservancy   |  |  |  |  |  |
| Tourism offers financial opportunities for me that have adequately offset my losses from conservation |  |  |  |  |  |

16. How do you pass knowledge about wildlife conservation to your children/siblings?

.....

.....

.....

\*\*\*\*\*

## **APPENDIX 2: INTERVIEW SCHEDULE FOR KEY INFORMANT**

---

*This interview scheduled is designed for subject matter experts and individuals considered to hold key evidence that is pertinent to the scope of the study. They include conservation agencies, administrative leaders, archaeologists, historians, religious leaders, educators, and other individuals.*

My name is David Sakwa. I am an MA student in the Department of Geography, and Environmental Studies at the University of Nairobi. I am researching to analyze the significance and contribution of indigenous knowledge in community wildlife conservation in your village and would like to get your views. It should take no more than 25 minutes. Is that okay? I wish to emphasize that all the data collected shall be treated with the utmost confidentiality that it deserves and that it shall not be used for any other purpose other than this survey.

1. Does the community have culture and social practices that protect wildlife? Briefly explain.

.....  
.....  
.....

2. Does the community have religious practices that protect wildlife? Briefly explain.

.....  
.....  
.....

3. Does the community have economic practices that protect wildlife? Briefly explain.

.....  
.....  
.....

4. How does the community use wildlife for their survival? Briefly explain.

.....  
.....  
.....

5. Indigenous knowledge is typically transferred from one person to the other through word of mouth. What are the potential challenges associated with documenting indigenous knowledge?

.....  
.....  
.....



6. Do you think indigenous Knowledge among communities' members has contributed to the conservation of wildlife? Kindly explain

.....  
.....  
.....

7. How does the community manage to co-exist peacefully with wildlife? Please Explain.

.....  
.....  
.....

8. What Motivates the community to embrace peaceful co-existence with wildlife? Please explain.

.....  
.....  
.....

9. In your view what are some of the beneficial products and services the community draws from wildlife that is necessary for human existence?

.....  
.....  
.....

10. What measures would you recommend to promote the integration of indigenous knowledge in wildlife conservation?

.....  
.....  
.....

## APPENDIX 3: OUTPUT

### Appendix 3.0:1: Indigenous Knowledge in Cultural and Socials Norms for Wildlife Conservation

|  |      | SD   | D    | NS   | A    | SA   | Mean | Std. Dev |
|--|------|------|------|------|------|------|------|----------|
| Our culture does not allow the killing of wild animals for commercial purposes   | Freq | 6    | 12   | 17   | 36   | 17   | 3.52 | 1.15     |
|  | %    | 6.8  | 13.6 | 19.3 | 40.9 | 19.3 |      |          |
| Our culture does not allow hunting and killing of wild animals for fun especially non-edible wild animal                                 | Freq | 14   | 6    | 5    | 29   | 34   | 3.72 | 1.45     |
|  | %    | 15.9 | 6.8  | 5.7  | 33   | 38.6 |      |          |
| Our culture does not allow killing an animal found giving birth  | Freq | 12   | 11   | 5    | 7    | 53   | 3.89 | 1.55     |
|  | %    | 13.6 | 12.5 | 5.7  | 8    | 60.2 |      |          |
| Our culture does not allow killing rare species  | Freq | 8    |      | 17   | 44   | 19   | 3.75 | 1.09     |
|  | %    | 9.1  |      | 19.3 | 50   | 21.6 |      |          |
| We don't kill the young, pregnant, or lactating animal   | Freq | 9    | 24   |      | 55   |      | 4.32 | 1.21     |
|  | %    | 10.2 | 27.3 |      | 62.5 |      |      |          |
| We use wild meat in wedding, rituals and by mothering women  | Freq | 53   | 5    | 12   |      | 18   | 2.15 | 1.61     |
|  | %    | 60.2 | 5.7  | 13.6 |      | 20.5 |      |          |
| Our culture does not allow killing wild animals<br>*indiscriminately (those going against this will remain poor and never own livestock) | Freq | 20   |      | 5    | 29   | 34   | 3.88 | 1.16     |
|  | %    | 22.7 |      | 5.7  | 33   | 38.6 |      |          |
| We set free wild animals found trapped   | Freq |      |      | 20   | 47   | 21   | 3.78 | 1.06     |
|  | %    |      |      | 22.7 | 53.4 | 23.9 |      |          |
| Our community restricts hunting of some species unless a special permit obtained from the tribal chief                                   | Freq | 20   | 5    |      | 45   | 18   | 3.41 | 1.47     |
|  | %    | 22.7 | 5.7  |      | 51.1 | 20.5 |      |          |
| Our community restricts hunting of certain species to specific seasons to allow breeding   | Freq | 12   | 33   | 12   | 10   | 21   | 2.94 | 1.42     |
|  | %    | 13.6 | 37.5 | 13.6 | 11.4 | 23.9 |      |          |
| Our community has heavy fines on anyone found setting fires  | Freq | 10   | 12   | 5    |      | 61   | 4.02 | 1.53     |
|  | %    | 11.4 | 13.6 | 5.7  |      | 69.3 |      |          |
| Our community limits firewood collection for cooking and heating to dead trees   | Freq | 8    | 26   | 5    | 29   | 20   | 3.31 | 1.35     |

Appendix 3.0:2: Wildlife Conservation Practices

|  |      | SD   | D    | NS   | A    | SA   | Mean | Std. Dev |
|--|------|------|------|------|------|------|------|----------|
| We report any illegal hunting or killing of wild animal                    | Freq | 12   | 3    | 11   | 25   | 37   | 3.82 | 1.38     |
|  | %    | 13.6 | 3.4  | 12.5 | 28.4 | 42   |      |          |
| I prefer using gas rather than collecting firewood in the forest           | Freq | 11   | 12   | 3    | 50   | 12   | 3.45 | 1.25     |
|  | %    | 12.5 | 13.6 | 3.4  | 56.8 | 13.6 |      |          |
| It is important to protect plants and trees in the conservancy             | Freq | 5    | 3    | 7    | 25   | 48   | 4.23 | 1.11     |
|  | %    | 5.7  | 3.4  | 8    | 28.4 | 54.5 |      |          |
| I would be happy to see more different types of animals                    | Freq | 7    | 5    |      | 30   | 46   | 4.17 | 1.21     |
|  | %    | 8    | 5.7  |      | 34.1 | 52.3 |      |          |
| It is important to protect wild animal species in the Shompole conservancy | Freq | 5    | 5    | 3    | 30   | 45   | 4.19 | 1.12     |
|  | %    | 5.7  | 5.7  | 3.4  | 34.1 | 51.1 |      |          |
| I would be happy if my children worked in the Shompole conservancy         | Freq | 4    | 11   | 7    | 25   | 41   | 4.00 | 1.21     |
|  | %    | 4.5  | 12.5 | 8    | 28.4 | 46.6 |      |          |
| People who poach should be punished  | Freq | 5    | 3    | 7    | 43   | 30   | 4.02 | 1.04     |
|  | %    | 5.7  | 3.4  | 8    | 48.9 | 34.1 |      |          |
| Tourism benefits the whole community                                       | Freq | 7    | 13   | 5    | 50   | 13   | 3.56 | 1.15     |
|  | %    | 8    | 14.8 | 5.7  | 56.8 | 14.8 |      |          |
| I would be happy to see an increase in wild animals in the conservancy     | Freq | 4    | 7    | 5    | 45   | 27   | 3.95 | 1.05     |
|  | %    | 4.5  | 8    | 5.7  | 51.1 | 30.7 |      |          |
| My family has more money because of tourism                                | Freq | 7    | 30   | 10   | 38   | 3    | 3.00 | 1.11     |
|  | %    | 8    | 34.1 | 11.4 | 43.2 | 3.4  |      |          |

|   |      |     |      |      |      |      |             |             |
|---|------|-----|------|------|------|------|-------------|-------------|
| I think Shompole conservancy was created for the betterment of the community                          | Freq | 3   | 5    | 11   | 32   | 37   | 4.08        | 1.04        |
|   | %    | 3.4 | 5.7  | 12.5 | 36.4 | 42   |             |             |
| I am happy that my village borders Shompole conservancy   | Freq | 5   | 17   |      | 32   | 34   | 3.83        | 1.29        |
|   | %    | 5.7 | 19.3 |      | 36.4 | 38.6 |             |             |
| Tourism offers financial opportunities for me that have adequately offset my losses from conservation | Freq | 5   | 11   | 25   | 24   | 23   | 3.56        | 1.17        |
|   | %    | 5.7 | 12.5 | 28.4 | 27.3 | 26.1 |             |             |
| <b>Wildlife Conservation</b>  |      |     |      |      |      |      | <b>3.84</b> | <b>0.49</b> |

---

**APPENDIX 4: PHOTOS FROM FIELD**

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Photo 1: Entrance to Shompole wildlife conservancy



Photo 2: Household interview session at Mbakasi village



Photo 3: Key informant interview session at Mbakasi village.



Photo 4: Key informant interview session at Shompole village



Photo 5: Household interview session at Shompole village



Photo 6: Household interview session at Kirimatian village

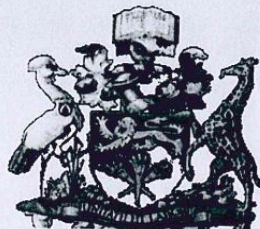


Photo 7: Household interview session at Oloika village



**APPENDIX 5: UNIVERSITY OF NAIROBI CONFIRMATION LETTER.**

---



**UNIVERSITY OF NAIROBI**  
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13<sup>th</sup> August 2020

The Director  
National Commission for Science, Technology & Innovation  
NACOSTI Building, Off Waiyaki Way  
P.O. Box 30623-00100  
NAIROBI, KENYA.

**RESEARCH PERMIT: DAVID SAKWA ABWALABA – C50/11374/2018**

This is to confirm that the above named is a Masters student at the Department of Geography and Environmental Studies, University of Nairobi. He is pursuing Master of Arts in Environmental Planning and Management.

He is currently undertaking a research project titled: “**Analysis of indigenous knowledge in community wildlife conservation and management. A case study of the Shampole conservancy in Magadi, Kenya**”

Any assistance accorded to him will be highly appreciated.


  
CHAIRMAN  
Department Of Geography  
and Environmental Studies  
UNIVERSITY OF NAIROBI  
**Dr. Boniface Wambua**  
Chair, Dept. of Geography and Environmental Studies

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