University of Venda

A study of land use conflicts in Mapungubwe area

By

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ABSTRACT

This study uses lens to understand conflict over the use of land and its resources in the Mapungubwe area. The main underlying assumption of the study is that various land use activities that are not compatible with each other lead to land use conflict. The aim of the study is to assess land use conflict in the Mapungubwe area. In particular, the study intends to find out the historical and contemporary land-use conflict, compare and contrast the historical conservation objectives with the current conservation objectives in the Mapungubwe area, find out the reasons that made farmers to oppose conservation objectives now and in the 1940s and to investigate the effects of historical and contemporary land use conflict in the Mapungubwe area. In order to achieve these objectives, primary and secondary data were collected. Secondary data that was used included historical documents about Mapungubwe, Hansards or House of Assembly debates of South Africa from 1940 to 1948, newspapers articles, books and journal articles. Secondary data were used to find out the historical land use conflict that took place in the Mapungubwe area. Primary data were collected through semi-structured interviews with private game farmers, commercial irrigation farmers, farm workers (former and current), Mapungubwe National Park officials and land claimants. Field observations were used to corroborate information collected through interviews. Primary data were collected in order to find out the contemporary land use conflict taking place in the Mapungubwe area.

The main findings of this study are that land use conflict in Mapungubwe area is not new; rather it started in the 1940s when the United Party government intended to establish the Dongola Wildlife Sanctuary. However, the idea of a wildlife sanctuary led to land use conflict, particularly between farmers and the ruling United Party government. In other words, land use conflict was mainly among conservationists (who were members of United Party) and farmers. Unfortunately, the idea of a wildlife sanctuary in the Mapungubwe area was caught up in political battles between the governing United Party and the opposition National Party that eventually led to its abandonment following the electoral victory of the National Party in the general elections of 1948. The study also found that the contemporary Mapungubwe is also affected by land use conflict. The conflict is mainly because of various land use activities including irrigation farming, game farming, mining, settlement, and land claims that are not compatible with conservation. Land use activities including irrigation and

game farming, settlement and mining are happening within and around Mapungubwe National Park. This has made it difficult to consolidate the core area of Mapungubwe National Park. As a result, although Mapungubwe National Park has been established in 1995, the park remains fragmented. This study has used Mapungubwe as a case study to demonstrate that the interest over land and its resources in an area by various stakeholders create land use conflict.

Key words: Land use conflict, human wildlife conflict, protected areas, wildlife conservation, private land ownership.

DECLARATION

I, **Tshimangadzo Ratshivhadelo** declare that this work is my own original work in design and execution; it has not been previously submitted for a degree or any other qualification at this university or any other institution. All the sources I have used or quoted have been indicated and duly acknowledged.

Signed**.....**

Date**.....**

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DEDICATION

This project is dedicated to my late mother **Mrs. Mavis Ratshivhadelo.** I was blessed to have her as a mother. She constantly encouraged me to pursue my studies. May her soul rest in peace.

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LIST OF ACRONYMS

ASAPA - Association of Southern African Professional Archaeologists

BLSA - Bird Life South Africa

DMR - Department of Mineral Resources

EIA - Environmental Impact Assessment

EWT - Endangered Wildlife Trust

FMD - Foot and Mouth Disease

GCA - Game Controlled Area

GLTFCA - Greater Limpopo Transfrontier Conservation Area

GLTP - Greater Limpopo Transfrontier Park

GOI - Government of India

HWC - Human Wildlife Conflict

KNP - Kruger National Park

LNP - Limpopo National Park

LUC - land use conflict

MAG - Mapungubwe Action Group

MER - Maputo Elephant Reserve

MNP - Mapungubwe National Park

MoU - Memorandum of Understanding

NBSAP - National Biodiversity Support Action Programme

PA's - Protected areas

PPF - Peace Parks Foundation

SANParks - South African National Parks

TFCA's - Transfrontier Conservation Areas

UNESCO - United Nations Educational, Scientific and Cultural Organization

WFSA - Wilderness Foundation South Africa

WHS - World Heritage Site

WWFNSA - World Wide Fund for Nature South Africa

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CHAPTER ONE: INTRODUCTION

1.1 Introduction

1.2 Background of the research study

The term land use conflict is not plainly defined. However, according to Bengston *et al.* (2004), land use conflict occurs whenever land use stakeholders (conflict parties) have incompatible interests regarding certain land use units. Some scholars have defined land use conflict as a social fact in which at least two parties with different interests over the property rights to land are involved, conflicting over: the rights to use the land, managing the land, generating income from the land, excluding others from the land, transferring it and the right to compensation for it (Von Der Dunk et *al.* 2011). Therefore, land-use conflict can be understood as a misuse of land or dispute over property rights to the land (Wehrmann 2005). This may result in extensive negative effects on economic, social, spatial and ecological development.

Land use conflict between wildlife conservation and human activities are becoming increasingly apparent, particularly in densely settled agricultural land abuts protected areas (Naughton-Treves 1997, Hoare 1999, Young *et al.* 2005, Pinter-Wollman 2012, Guinness and Taylor 2014). In many parts of Africa, wildlife has been in conflict with agricultural activities for centuries. Land use conflict between wildlife and human activities, particularly agriculture has grown into a serious local political issue and a continental conservation problem in recent years (Hoare 1999). This is because wildlife extends their range into human settlement, commonly to feed on a wide variety of cultivated food, yet in most cases damaging food stores, water installations, fences or barriers and occasionally injuring or killing people (Hoare 1999, Metcalfe and Kepe 2008, Guinness and Taylor 2014).

Conservationists have also recognized the need to work beyond protected areas if they are to sustain viable populations of wildlife (Metcalfe and Kepe 2008, Pinter-Wollman 2012). This is done through conservation corridors meant to connect protected areas divided by political boundaries. However, the creation of conservation corridors particularly in human dominated landscapes have led to land use conflicts, which leave devastating effects on local communities (Metcalfe and Kepe 2008). Guinness and Taylor (2014) have identified crop raiding by wildlife as a key form of land use conflict and it is the most significantly perceived

disadvantage of farming close to protected areas. In regions where large or dangerous animals are prominent, an entire season's production may be lost in a single night and farmers risks their lives in defending crops or livestock (Naughton-Treves 1997). A wide range of animals have been implicated, particularly large mammals destroying crops and agricultural infrastructure (Naughton-Treves 1998, Hoare 1999, Metcalfe and Kepe 2008). Crop raiding by wildlife results in reduced food security for local communities (Barua *et al.* 2013). The conflict has already created some antagonism towards wildlife from local people (Naughton-Treves 1997).

There are a number of land use activities which include commercial agriculture, game farming, settlement, wildlife conservation and mining activities in Mapungubwe. Each one of these stakeholders has their own views regarding Mapungubwe area. Conservationists are of the view that conservation is the most suitable land use for Mapungubwe area, while commercial irrigation farmers opine that the area is mostly appropriate for agricultural purposes. Furthermore, game farmers argue that the area is apt for game farming, whereas mining companies regard Mapungubwe as good land for mining because of the mineral profusion in the area (Sinthumule 2014).

Consequently, there are a number of commercial irrigation and game farms within Mapungubwe National Park; however, they are not part of the park. In addition, there is a remarkable area of privately owned land around Mapungubwe National Park whose interests are not on conservation, but mining. These aspects will be discussed in chapter five. Literature shows that conflicts over land use in Mapungubwe is not a new phenomenon, because it started in the 1940s when conservationists intended to establish Dongola Wildlife Sanctuary which was to be shared by South Africa, Botswana and Zimbabwe (Carruthers 2002, Union of South Africa 1945). However, this did not materialize because of political differences between then ruling United Party and the National Party. As a result, the idea of a wildlife sanctuary abandoned will be discussed in chapter four. Thus, study investigated the historical and contemporary land use conflict in Mapungubwe. The main objectives of the study comprised of an investigation of the factors behind land use conflicts, role players involved and the implications of these conflicts on the conservation of biodiversity.

1.3 Statement of the research problem

There are a number of land use activities taking place in Mapungubwe. These activities included conservation of biodiversity, game and irrigation farming, settlements by land claimants and farm workers as well as coal and diamond mining. All these activities are happening in and around Mapungubwe National Park. Activities such as settlement, farming and mining are not attuned to the conservation of biodiversity, although it is the main land use activity in Mapungubwe National Park. As a result there are conflicts over the use of land in the area. It is noteworthy to apprise that all these activities (wildlife conservation, settlement, game farming, irrigation farming and mining) require water and Limpopo River is the main source of water in Mapungubwe. As a result, there is an ongoing competition over access to the scarce water between local people, mining companies, conservationists and farmers. However, these conflicts are not new to Mapungubwe; literature traces the phenomenon back to the 1940s, where conflict over the land use between farmers and conservationists stemmed from the idea of establishing a wildlife sanctuary in the area. Nonetheless, the idea did not materialise because of political differences between the United Party and the National Party (Union of South Africa 1945). Therefore, this study investigated the historical conflict that happened in Mapungubwe and the reasons that made farmers to oppose the 1940s conservation ideas. This study also explored the contemporary land use conflict and the reasons behind the resistance from private land owners including farmers, mining companies and land claimants against conservation in the area.

1.4 Main objective

The main objective of the study is to investigate the land-use conflict in Mapungubwe area.

1.5 Specific objectives

These are the study's specific objectives:

- To establish the historical and contemporary land-use conflict in Mapungubwe area.
- To compare and contrast the current and the 1940s conservation objectives in Mapungubwe.
- To determine the factors influencing the resistance from private land owners against both the contemporary and in the 1940s conservation objectives.
- To investigate the effects of historical and contemporary land use conflict in the Mapungubwe area.

1.6 Research questions

These research questions were formulated to assist in achieving the research objectives:

- What were the historical land use conflicts and what are the contemporary land use conflicts in Mapungubwe?
- What were the conservation objectives in the 1940s and what are the current conservation objectives in Mapungubwe?
- Why did farmers oppose conservation objectives in the 1940s and why are farmers currently challenging the conservation objectives in Mapungubwe?
- What are the effects of historical and contemporary land use conflict in Mapungubwe?

1.7 Research assumption and operational definitions

The assumptions behind the study are: the attempt to change land use from farming into a wildlife sanctuary in the 1940s mainly intensified land use conflict in Mapungubwe. The cluster of land use activities in one area (farming (irrigation and game) practices, settlement, wildlife conservation and mining) is also assumed to be one of the major factor behind the contemporary land use conflict in Mapungubwe.

1.7.1 Operational definitions

- **Land use conflict** is defined as a social fact in which at least two parties are involved, with different interests over the property rights to land: rights to use the land, to manage the land, to generate income from the land, to exclude others from the land, to transfer it and the right to compensation for it (Von Der Dunk *et al.* 2011).
- **Human wildlife conflict** is a widespread phenomenon which occurs when there is a conflict involving people and wildlife, in the form of crop raiding, livestock depredation, killing of people and retaliation of wildlife (Thirgood *et al.* 2005).
- **Private land ownership** is a land which is being owned by a private individual or organization, rather than by the state or a public body (Bonti-Ankomah and Fox 2000).
- **Wildlife conservation** is the practice of protecting wild plant and animal species as well as their habitats to ensure that nature is utilized in a sustainable manner (Yarrow 2009).
- Protected area is clearly defined as a geographical space, recognised, dedicated and managed through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values (Dudley 2008).

1.8 Justification of the research project

Mapungubwe is an important area locally and internationally because the Park was designated as a World Heritage Site by the United Nations Educational, Scientific and Cultural Organization (UNESCO). Since Mapungubwe National Park was designated as a World Heritage Site in March 2003, extensive research has been done in the area. Most of the research that has been conducted in Mapungubwe mainly focused on the history of the area (Carruthers 2006), vegetation (Götze *et al.* 2008), bordering (Sinthumule and Ramutsindela 2014), tourism (Sinthumule 2015), and archaeology of the area (Kuman *et al.* 2005; Huffman 2008). Literature established that no study has focused on the land use conflict in Mapungubwe. As a result, this was study essentially developed to investigate the causes and impacts of land use conflict in the study area. The study specifically explored the historical land use conflict that happened in the 1940s between conservationists and farmers; the contemporary land use conflict between conservation, irrigation and game farming, as well as land claims and mining activities in the area.

1.9 Study area

Mapungubwe National Park (MNP) is situated in the Vhembe District of Limpopo Province in South Africa. The primary core area of the park extends from Pontdrift border gate in the west to Weipe farm in the east, incorporating 20 properties of varying ownership status, with a total ecological land area of 19 810 ha. The park was established in South Africa, in 1995 and is situated on the confluence of the Limpopo and Shashi Rivers (Figure 1.1). It lies on the international borders between Botswana, Zimbabwe and South Africa (Robinson 1996).

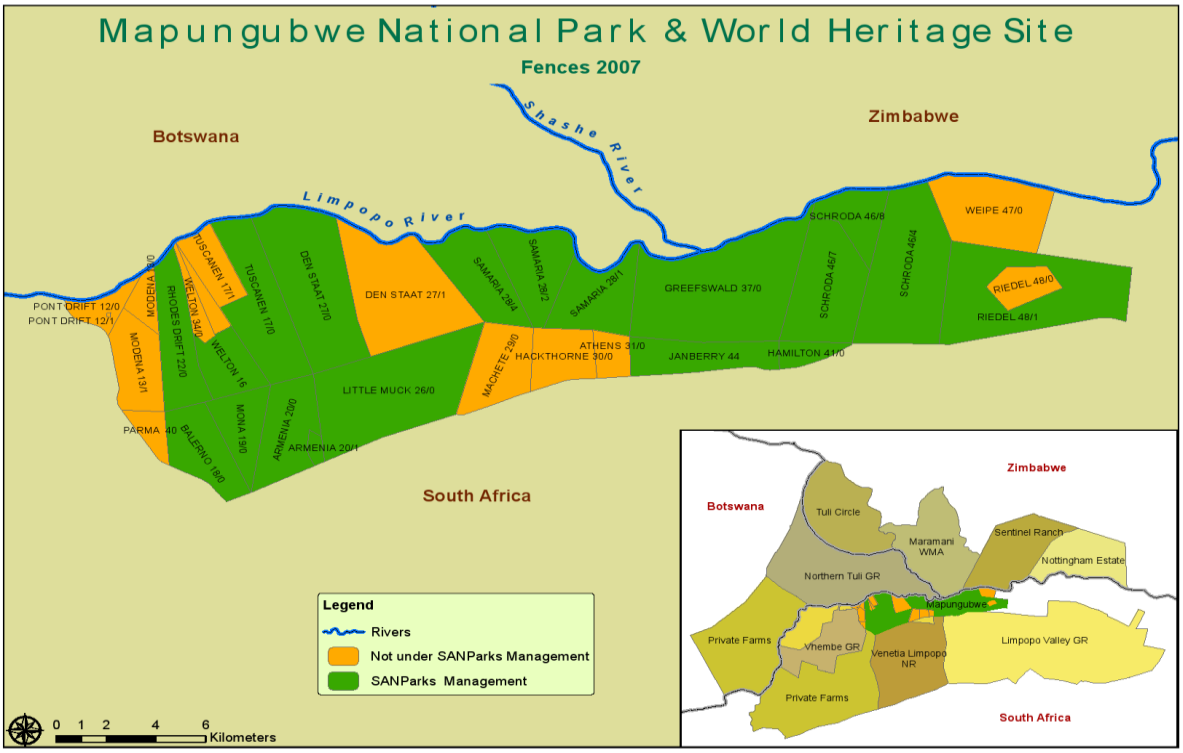

Figure 1:1 Location of the study area. (Source: SANParks 2010a)

The park lies roughly halfway between the towns of Musina and Alldays, along the R572 regional road. The area constituting MNP includes land owned by SANParks as well as a number of contractual private lands (SANParks 2010a). According to Carruthers (2006), the park constitutes a key cultural holding of South African National Parks (SANParks), forming the core area of the Mapungubwe Cultural Landscape which was added to the list of the UNESCO World Heritage sites in July 2003.

According to Huffman (2005), Mapungubwe is an attractive semi-arid landscape with varied geology, including extremely old Archean rocks, metamorphic of intermediate age, Karoo sandstone/conglomerate uplands of about 200 million years ago. It is characterised by sandy, lime-rich soils generally deeper than 750 mm and other areas are characterized by brown to dark brown clays with high silt content (Götze 2002, Robinson 1996). Land usage within the confines of the park is mainly commercial farming, although some farms are used for wildlife ranching. Mucina and Rutherford (2006), indicated that the Mapungubwe area receives a mean annual rainfall of 419 mm per annum, and the rainfall is highly variable and usually falls during summer, between October and March. The mean annual temperature of the region is 21.6 °C, with summer temperatures often reaching 45 °C (Robinson 1996). Winter

is generally mild, with the mean annual frost days amounting to a maximum of 4 days per year. The vegetation is mostly low, open mopane veld (*Colophospermum mopane*), with *Commiphora* and *Combretum* species. Very attractive *Acacia* woodlands occur on riparian fringes and areas of alluvial soils (Sinthumule 2014).

1.10 Structure of the dissertation

The dissertation consists of six chapters. Chapter one gives the background of the study, research statement, objectives, research questions and the motivation of the study, the location and biophysical characteristics of the study area.

Chapter two presents literature review related to the topic under investigation. This entails an overview of land use conflict, causes of land use conflict and the management strategies that are used in other parts of the world to manage land use conflict.

Chapter three imparts the methodology of the study. The chapter describes the methods employed and the actual steps followed in collecting and analysing data. The chapter gives an outline of the sampling method employed and highlights the sources of primary and secondary data used in this study.

Chapter four presents the 1940s historical land use conflict that happened in Mapungubwe. Historical documents, Hansards or parliamentary debates of the Republic of South Africa, books and journal articles have been used to explain the historical land use conflict.

Chapter five presents the contemporary land use conflict. In other words, this chapter provide narratives of the respondents from Mapungubwe. The chapter also relate the narratives to the broader literature in order to highlight the significance of this study within the broader literature.

Chapter six presents the summary, conclusion and answers to research questions. The chapter also presents some recommendations.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter gives an overview of land use conflict in general and the disputes that occur amongst the land use stakeholders within and around protected areas. Simultaneously, it discusses the socio-economic impacts of land use activities to all the land use practitioners that are located adjacent or within the protected areas. The chapter also discusses the management strategies implemented to minimize such impacts.

2.2 An overview of land use conflict (LUC)

Land refers to all that nature has created on the earth, above the earth and below the earth's surface. Kim and Dorjderem (2012), similarly defined land as the most precious property of any nation that represents the principal form of wealth which exhibits source of economic and political power, and it is also the most valuable natural resource of a country. All human livelihoods and their activities such as agriculture, forestry, conservation, mining and settlement are directly or indirectly dependent on land at varying thresholds (Adisa 2011).

Everywhere people continuously contest for land in order to ensure and sustain their livelihoods (Buckles 2000). According to Wehrmann (2008), competition over land can stimulate disagreements, especially when the object contested or competed for and the parties involved belong to different groups and have different interests. Consequently, competing demand over the land often directly leads to conflicts (Huggins 2000). Throughout the history of mankind, various stakeholders have fought over land use, and there have always been rising disputes which have brought negative effects on economic, social, spatial, and ecological development (Kim and Dorjderem 2012). Subsequently, fighting over land brought about land use conflict (LUC). Wehrmann (2005, 2008) defined LUC as a social fact in which at least two parties are involved in a dispute emanating from different interests over the property rights to land. LUC is as a widespread phenomenon which occurs at any time or any place.

There are agencies who manage wildlife and its habitat in zones known as the protected areas across the world. Simultaneously, there are various groups of land use acquaintances such as human settlement, mining and farming practices within or adjacent to protected areas. All

these stakeholders find the area beneficial to their activities. Nonetheless, when all these stakeholders interact, they eventually invade each other's territory, and subsequently cause disputes amongst each other. Thus, disputes over land use are typically associated with opposing interests over the form of land use, limited access and rights over the land, indistinct ownership and property rights. This study attempted to address LUC between wildlife conservation and its accompanying land use factors such as various farming practices, mining and land claims within and adjacent to protected areas. In this regard, it is therefore important to comprehend the main factors behind the causes of LUC within and/or adjacent to protected areas which is foci of the next section.

2.3 Causes of land use conflict

2.3.1 The creation of protected areas (PA's)

Dudley (2008), defined protected area as geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature, with associated ecosystem services and cultural values. These areas are perceived in biological or ecological terms, characterised by valuable features that are also significant to human livelihood (Tomicevic *et al.* 2010). According to Stevens (1997), most of these areas were established in areas which were homelands to indigenous people for centuries. Therefore, the formation of these areas is of a huge concern to these people, because conservation planning seems to threaten and cost them their lands and ways of life.

The formation of protected areas in most parts of southern and east African regions became sites of disputes and contests between local people, protected areas management and the law enforcers (Hutton *et al.* 2005, Brockington 2004). Most of the disputes emanated from the issue of land use on the village-park boundaries, which ultimately caused a tense relationship between the local communities and the park management authorities. Munthali (2007) highlighted that some of the land use conflict between the village-park boundaries are associated with the dispossession of local communities and restriction of rights over the use of natural resources from their indigenous land. Nepal (2002) alternatively indicated that the exclusion of local communities from protected areas has increased illegal hunting, habitat encroachment and destruction, violence, and poverty amongst indigenous communities. It has also ultimately caused the land use conflict between local communities and wildlife conservation.

Local communities particularly those located in zones surrounding national parks and other protected areas are primarily depended on the use of the available local resources for their livelihood and spiritual needs (Gadgil 1990, Saberwal *et al.* 1994, Nepal and Weber 1995, Maikhuri *et al.* 2001). Ramutsindela (2004) emphasized that most of Africa's protected areas are surrounded by people who live in poverty; as a result they depend on natural resources as a source of sustainable livelihoods. Many of those local communities earned their economies from the subsistence use of natural resources, agriculture, fishing, hunting, and collecting wild plants. Hence, the idea of establishing protected areas sustained the negative perceptions from local communities and other stakeholders who were anxious of losing their rights to land and natural resources (Brechin *et al.* 2003).

During the formation of protected areas, the proponents of protected areas developed policies or regulations which exclusively support and stimulate the future of conservations and protected areas (Naughton-Treves 1998, Stræde and Helles 2000, Wang and Macdonald 2006). However, these policies undermined local communities and their forms of land use. Cultivation bans and grazing restrictions in areas within and adjacent to the boundaries of protected areas are results of the regulations, and have been another form of land use conflict, which made it difficult for pastoralists to get their necessities of life. For instance, a study of land use conflicts over protected areas in Kenya discovered that, national parks and reserves under the management of Kenya Wildlife Services carved out the lands which were previously used by traditional pastoral people (Sindinga 1995). The people involved were also denied invaluable herding and agricultural resources and in some cases fishing rights. All these issues created land use conflicts between wildlife tourism and the wellbeing of Kenyan locals.

Similarly, the establishment of Serengeti National Park in 1959 resulted in a restricted access to pastures for the Ololosokwan pastoralists in Tanzania (Olenasha *et al.* 2001). This idea did not only frustrate pastoralists; it also enflamed land use conflicts between the pastoralists and park authorities. Nepal and Weber (1995) noted that the Royal Chitwan National Park regulations gave local people restrained access to the natural resources within the park. However, the Tharu native ethnic group and the early in-migrants were using those natural resources to meet their various requirements long before the establishment of this park. Hence the local communities strongly resented and even violated the policies and regulations through wildlife poaching, logging, and sabotaging park properties, which led to conflicts

between local people and park authorities (Nepal and Weber 1995). In Bhutan, the Jigme Singye Wangchuck National Park conservation policies allowed farmers to remain in protected areas. However, there were restrictions on traditional resource uses, bans on shifting cultivation and hunting, enforced restrictions on the extraction of timber and non-timber forest products as well as constraints on grazing in community and reserve forests (RGoB 1995, MoA 2000). In southern Africa, the study of natural resource use, crop damage and attitudes of rural people in the vicinity of the Maputo Elephant Reserve (MER), concluded that the laws and regulations of the reserve prohibited the local communities from exploiting plant and animal resources within the reserve (de Boer and Baquete 1998). Therefore, the establishment of protected areas has substantial negative impacts on local communities.

2.3.2 The formation of transfrontier conservation areas (TFCA's) in human dominated landscapes

TFCAs also known as peace parks are described as relatively large areas incorporating one or more protected areas which connects frontiers between one or more countries (Sandwith *et al.* 2001). Straddling boundaries of two or more countries in order to create an enormous single conservation area has been the most indomitable way considered in the formation of TFCA's. The formation of TFCA's symbolises the integration of conservation and development principles (Ramutsindela 2007). According to Griffin *et al.* (1999), the formation of TFCA's was recommended by SADC members of states to address the support and contribution to local economic development between the joint countries. However, Fakir (2000) argued that TFCA's initiatives increase land use conflict if the resources and economic benefits are inequitably shared among participating countries.

Many conservation areas whether newly designed or not, have people living in them who depends on the natural resources of the area for their livelihoods (Cernea and Schmidt-Soltau 2006). Yet, the formations of TFCAs are seen as a threat to local livelihoods and human free movement (Dzingirai 2004, Spierenburg *et al.* 2006). As a result, local people seem to resist and contest the formation of TFCAs. Koch (1998) noted that the establishment of TFCA's refurbish pre and post-colonial conflicts in southern Africa. Wolmer (2003) confirms that these approaches cause interstate disputes more than they can mitigate them. The contradictions on the creation of TFCAs were in the interest of local people, although their

lives and livelihoods are still affected. Van Riet (2003) however, highlighted that the role of local people is usually not taken into consideration in the formation of TFCA's. Schoon (2008) acknowledges that, unfortunately, local communities are often not consulted in the formation of TFCA's; conservation processes are generally in line with government plans and other conservation Non-Governmental Organisation (NGOs). In this regard, the benefits of local community livelihoods within these areas (TFCA's) are not guaranteed and disregarding local people appears to be deceitful (Holmes 2013).

Sekhar (2003) emphasised where TFCA's are formed, local people lose access to resources such as fuel wood, fodder and other natural products which include medicinal plants among others. For instance, the local community members surrounding the Greater Limpopo Transfrontier Park (GLTP) were excluded from using resources such as thatching grass and collecting mopane worms or fishing within the boundaries of the park (Whande 2007). However, before the formation of the park, local communities used to access and benefit from the natural resources in this area. Although the local communities in the GLTP were acclaimed as the key stakeholders and primary beneficiaries of this initiative; they do not benefit from this TFCA. There have been contests over community needs in regard to resource governance and the enhancement of their livelihoods through access and ownership of natural resources from the inception of GTLP. As a result, this has created land use disputes between community members and the management of this park.

The formations of most TFCA's were made possible through the combination of private, communal and state lands. Adams and Mulligan (2003) indicated that despite the constrained access to natural resources, formation of TFCA's leads to the dispossession and resettlement of local people, because large tracts of their lands is set aside for wildlife conservation. For instance, the poor community members on the Mozambican side of GLTP were ordered to resettle in areas outside the park. Milgroom and Spierenburg (2008) indicated that this community did not want to leave the park; however, they faced profound challenges from the land use conflicts which emanated from the removal of border fences for the formation of transfrontier conservation area between South Africa, Zimbabwe and Mozambique. These communities increasingly suffered from crop damages by elephants and livestock depredation from lions, and this ultimately caused conflict between the community and park management. The management of the park notified the community of the inappropriate human settlement

in the area each time they receive reports on wildlife damages to crops and livestock; hence there were no compensations for wildlife damages (Spierenburg *et al.* 2006).

The establishment of conservation areas throughout Africa followed the distinct pattern of prioritizing the needs of the colonial powers and wildlife, without considering the welfare of local people such as farmers. Land use activities such as livestock farming are usually shifted and replaced by wildlife ranching in the establishment of TFCAs', and this even struck some of the large scale private farms. According to Impacto (2005), farmers within the GLTP on the Mozambican side were prohibited from clearing new farming lands for crop rotation in their pursuit for fertile soil, because the land was set aside for wildlife conservation. In other cases, local people also suffered from wildlife crop raiding, which ultimately created human wildlife conflict.

2.3.3 Displacement, land grabs and conflicts over the access to natural resources

Land, territories and natural resources have specific cultural and spiritual reputation or value for indigenous people. These factors constitute the basis for the continued existence of various societies; however, these factors tend to lose value in local people due to the process of land grabbing. Matondi *et al.* (2011) defined land grabbing as mistreatment, negotiations and acquisition or leasing of land resources with the purpose of acquiring energy and food security through export to investors, countries and other markets. Transferring land from the public domain into private or state ownership delineates the diverse process of land grabbing. Violent evictions on local inhabitants and constrained rights or access to their lands are perceived as the main elements in the process of land grabbing (Borras and Franco 2010, Schneider 2011). Based on the above emphasis; land grabbing is associated with negative implications and irregularities of power between those gaining control over land and other parties involved (Margulis *et al.* 2013).

Historically, many indigenous people remained extremely vulnerable to land grabbing, forced displacement, and involuntary settlement in the contexts where the habitual practices, tenure systems and use of ecosystems and biodiversity were not yet acquaint with discriminatory laws and regulations or prohibition. Governments have long dispossessed rural communities' particularly indigenous people off their land and resources to create conservation areas in the name of sustainable resource management (Brockington and Igoe 2006, Kelly 2011). These

practices were widespread during the colonial and apartheid eras in South Africa (Ramutsindela 2003). Many local residents were removed from their land in order to create the corridors for wildlife conservation. Carruthers (1995) emphasised that the creation of protected areas frequently involved forced relocation on local people who were residents in those areas for many years, and the restrictions of nearby people's from accesses to resources in these areas, which ultimately led to land use conflict. For instance, Makuleke community members were forced out of their ancestral land in the 1960's when their land was to be incorporated into Kruger National Park (KNP) (Andersson *et al.* 2013). The eviction of the Makuleke community could not last forever because the community lodged for land restitution and got their land back (de Villiers, 1999). However, the community were not allowed to live on, mine or cultivate the soil in the area (de Villiers 1999, Spierenburg *et al*. 2009).

Milgroom and Spierenburg (2008) acknowledged the issue of land grabbing for Limpopo National Park (LNP), which forms part of the Greater Limpopo Transfrontier Conservation Area (GLTFCA). They indicated that the park boundaries were inhabited by 27000 people who claimed the land to be their home. These people used to have access to land resources within the park, however, in 2003, the park manager decided to resettle approximately 7000 people who were residing in the park along Shingwedzi River, in order to create space for wildlife conservation. This led to human wildlife conflict, which sprang from elephant crop raids (Spierenburg *et al.* 2009).

Land use conflict with local people is the most frequent and most immediate impact of restricted access and control over land resources. In a socio-ecological study of land grabbing for nature conservation on pastoral communities indicated that the Ololoswokwan pastoral community in the northern part of Tanzania were affected by land grabs. The land was grabbed for the establishment of Loliondo Game Controlled Area (GCA) which is adjacent to Serengeti National Park (Bartels 2013). One of six villages in Ololoswokan lost more than a half of their land to the establishment of Loliondo GCA. The process used to acquire the land utilised for GCA was described as land grabbing for conservation (Benjaminsen *et al.* 2011, Ngoitiko *et al.* 2010, Igoe and Croucher 2007). The legislative amendment of 2009 banned human activities such as agriculture and grazing within GCA, and this has eventually led to land use conflict between the communities and GCA management (United Republic of Tanzania 2009b).

Many people lose land without formal confiscation for land grabbing (Cotula 2014). The disregard of local people in land issues is undeniably one of the major issues that cause land use conflict (Vermeulen and Cotula 2010). In most land deals, affected communities complained over the disregard or inadequate involvement in the decision making of land issues which either directly or indirectly affect them. For example, Magome and Murombedzi (2003) stated that the preparation and signing of Memorandum of Understanding (MoU) between the affected governments transpired without in disregard of the aspirations and concern of local people from South Africa, Mozambique and Zimbabwe surrounding the Greater Limpopo Transfrontier Park (GTLP). In this regard, land grabbing or acquisitions for the conservation of biodiversity is often considered problematic, undermining local sovereignty and power to rule. However, this process allows the foreign superiors to attain the benefits of land resources, while depriving local communities their land (Benjaminsen and Bryceson 2012).

2.3.4 Human wildlife conflict (HWC)

Human wildlife conflict is a worldwide issue afflicting both developed and developing countries. It has been understood as misbehaviour and clashes between humans and wildlife over space, life and other vital resource use (Treves 2009). As a result, the conflict mainly occurs when humans or wildlife harm or threaten one another in the circumstances of pursuing their needs or interests. Madden (2004, 2008) corroborates that conflicts typically happen in a manner that the requirements and behaviour of wildlife negatively impact on the goals of humans, or when the goals of humans negatively impact the requirements of wildlife. Considering the fact that humans and wildlife have a long history of cohabitation, the frequency of HWC has increased in recent decades (Decker et *al.* 2006, Graham *et al.* 2005). Therefore, the conflicts are most widely perceived in communities adjacent to protected areas, where wildlife is abundant and often turns in nearby cultivated land or grazing areas (Distefano 2005). Literature indicated that the conflict between people and wildlife takes different forms, including predation upon livestock's and game species, attacks, injuries or killing of humans, damage to crops or property, disease transmission, competition for forage resources and poaching of wild animals which is the focus of the next section (Conover 2002, Knight 2000, Kruuk 2002, Sillero'Zubiri *et al.* 2007, Thirgood *et al.* 2005).

2.3.4.1Crop raiding

Crop raiding has been identified as one of the major forms of HWC, and the most devastating drawback on farming close to protected areas (Archabald and Naughton-Treves 2001). According to Naughton-Treves (1998), most of the communities residing in close proximities to the borders of protected areas are more vulnerable to the repercussions of HWC, particularly crop damage. A wide range of species that are responsible for crop damage include primates, rodents, bush-pigs, and elephants (Hill 2000, Naughton-Treves 1998). Newmark *et al.* (1994) conducted a survey of crop damages caused by wildlife on local people living adjacent to six protected areas in Tanzania, and about 86% of the people complained about the crop damages caused by wildlife. Matiyane villagers close to Kruger National Park, also suffer from elephants causing damage to crops. de Garine-Wichatitsky *et al.* (2013) indicated that elephants go outside the park to get marula fruits and where they also damage the crops grown by the local communities. Lahm (1996) alternatively highlighted that crop raiding by elephants mostly occurs during the wet season and it is also a nocturnal activity (Hillman-Smith *et al.* 1995, Hoare 1995). Out of these problems, wildlife crop-damage is often the major cause of human-wildlife conflict, particularly in situations where agriculturalist borders protected areas.

2.3.4.2 Livestock depredation

In many parts of the world, predation of livestock by large carnivores causes considerable conflicts between people and wildlife (Newmark *et al.* 1993). Livestock predation can jeopardise farming livelihoods and agricultural production (Graham *et al.* 2005, Treves and Karanth 2003, Woodroffe *et al.* 2007). Mostly, large carnivore species are responsible for livestock depredation globally. Species such as lions, cheetahs, and hyenas have been reported in killing livestock in areas where they co-occur in close proximities (Schaller and Crawshaw 1980). Livestock are the pillar of economic value in the farming industry and make a substantial income to farmers. As a result, predation of livestock has been reported to be the most significant cause of economic losses among pastoralists. Jackson *et al.* (1996) discovered that in Nepal most of the farmers reported that approximately 63% of all stock deaths were due to predators.

2.3.4.3 Human attacks

Carnivores and mega-herbivores are most likely to pose threat to humans, and will probably continue to do so as long as humans and wildlife co-exist in the same area. Wildlife attacks

upon humans have significant impacts in causing intense conflicts (Quigley and Herrero 2005). For instance, Williams (2002) reported that 11 people were attacked and injured by elephants near Rajaji National Park between 1993 and1999, and this caused an intense conflict between people and wildlife conservation. Government of India (GOI) (2001) documented 18 cases of people attacked and injured by elephants, tigers, bears, and leopards between 1994 and 1999 in and around Corbett National Park. Human attacks by wildlife may not only cause injuries, but might sometimes lead to the death of the people attacked. According to National Biodiversity Support Action Programme (NBSAP) (2002) leopards attacked and caused the death of over 140 people in the Pauri district of Uttarakhand India between 1998 and 2000. Elephants were also reported to be responsible for 100–200 human deaths annually (Thirgood *et al*. 2005, Rangarajan *et al.* 2010).

One of SANParks employee in Kruger National Park South Africa was trampled to death by an elephant and a woman was injured when a group of employees was attacked by a herd of elephants in the Mooiplass section of Kruger National Park near Mopani camp (Heraldlive 2017). Samu (2010) reported cases of HWC in Hwange and Mbire districts of Mozambique, where local communities were attacked while watch over their crops during the night. Official records showed that, in Mozambique wildlife killed about 265 people in 27 months (July 2006 to September 2008) (Dunham *et al.* 2010). Wildlife such as Crocodile *Crocodylus niloticus*, lion *Panthera leo*, elephant *Loxodonta africana* and hippopotamus *Hippopotamus amphibius* caused most deaths, but crocodiles were responsible for about 66% of the deaths. In Tanzania, lions killed more than 560 people and injured at least 308 people from the 1990's, with the annual rate of attacks markedly increasing over time (Packer *et al.* 2005).

2.3.4.4 Disease transmission

Disease transmission is one of the major HWC where local communities and livestock are particularly at risk of being infected if they inhabit in the periphery of wildlife conservations (Lamarque *et al.* 2009). It has been confirmed that wildlife is a major source of emerging diseases, mainly contagious diseases such as rinderpest, foot and mouth disease (FMD) and the highly pathogenic H5N1 which have resulted in pandemics during the last decades (Hudson *et al.* 2002). In southern Africa, particularly in Zambia, buffalos constitute the greatest risk in disease transmission to domestic livestock. This is because buffalos carry several diseases that affect livestock, including FMD, corridor disease, bovine tuberculosis and brucellosis (Bengis *et al*. 2002). Foot and mouth disease (FMD) is considered one of the

most devastating infectious animal diseases in the world, mainly because it inflicts severe economic losses due to the trade restrictions of livestock and its products within infected countries (Thompson *et al.* 2002). Most of these disease vectors infect the local communities and livestock because fences were removed in the process of forming TFCAs. Bengis (2005) indicated that fencing has been a method of reducing disease transmission because it restricted the movement of wildlife from one area to another.

2.3.5 Competition over resource use

People everywhere have a strong emotional and symbolic attachment to land and its accompanying resources which eventually is the cause of conflicts over it. Apparently, due to the upswing in population growth rate multiple purpose land is becoming scanty. The increase in population growth rate has continued to exert great pressure on available land resources with varying environmental and socio-economic implications (Fiki and Lee 2004). For this reason, land has been considered a natural resource which holds high economic value to various stakeholders (Buckles and Rusnak 1999). According to Anderson *et al.* (1998), people have been continuously competing for the land in order to withstand their livelihoods. As a result, competition and conflict over the use of land seems to be everywhere, especially in most of African protected areas and it impaired the mankind for centuries ago. Mbaiwa (1999) further highlighted that competition over the use of land resource emerge when various user groups or stakeholders in the same area or territory use land differently. Subsequently, wildlife conservation has been perceived as competing with rural indigenous communities for the use of land, water and forests (Chellan 2008). On the other hand, non-agricultural user groups usually compete with agricultural user groups. Farmer-herdsmen conflict is also one of the most dominant resource use competition in most of the African countries.

According to Campbell *et al*. (2000) the ongoing land use conflict in south-eastern Kajiado district in Kenya was caused by the competition over the access to land and water resources between herding, farming and wildlife. All these land use stakeholders were dependent upon access to wetter margins. Apparently, farmers are accusing herders for destroying their crops when their animals search for water, while herders accuse farmers for consuming water for their animals. Both groups (farmers and herders) were also competing with wildlife over the use of resources; hence wildlife becomes a problem in the area. Livestock compete with wild

animals for water and grazing. With rapid the population growth enhanced by immigrants from other parts of Kenya, farming has extended into the wetter margins of the rangelands, along rivers, and around swamps. As a result, this has reduced the grazing areas, while exerting on the access to water for both livestock and wildlife and this have also been a source of land use conflict.

Land resources are limited with an increasing substantial demand. Mbaiwa (2009) noted that land resources such as the wetland in Botswana's Okavango Delta attracts different land users with different land use interests, demanding to use resources found within the wetland contrariwise. The use of the resources within the wetland has always led to competition and conflicts which involves several interest groups. On one hand wildlife and tourism sectors want to conserve the wetland as a wilderness area for wildlife management and tourism purposes, whereas pastoralists and the livestock industry need to use the area for farming purposes, because the area has permanent water resources. Then again, local and traditional groups desire to hunt wildlife and collect veld products from the wetland. All these stakeholders are interested in using the same resources from the wetland which eventually led to competition and conflict over the land. Mbaiwa (2002) indicated that over 95% of local communities bordering Botswana's Okovango Delta wetland directly or indirectly depended on the resources found in the wetland to sustain their livelihoods because of its rich wildlife diversity, wilderness nature, permanent water resources, rich grasslands and forests. Conflicts over natural resources such as land, water and forests are ubiquitous throughout the world.

2.4 Management strategies

Considering the population growth rate of humans, increasing demand for natural resources and the growing pressure for access to land, it is clear that the land use conflict will not be exterminated in the near future. However there are management strategies that can be employed to deal with the problem.

2.4.1 Artificial and natural barriers (physical and biological)

Barriers have the function of preventing spatial overlapping among wild animals and local communities. They are usually man-made, but natural barriers such as rivers, coasts or mountain ranges may occur along protected area boundaries. Most of the farmers or private land owners use physical barriers such as fences, walls, and ditches in order to limit disease

transmission by restricting contact between wildlife and livestock, whilst also protecting crops from wildlife destruction (Hockings 2009). The use of physical barriers specifically electric fencing strictly controls the movement of wildlife and livestock, and on the other hand it allows farmers and wildlife to share the land without human wildlife conflict problems (Hoare 2001). Newmark (2008) noted that only in southern Africa, particularly in South Africa, fencing play a large role in the wildlife and conservation industry. For example, African buffalos are managed within the fence to reduce the likelihood of transferring foot and mouth disease to pastoralist livestock's within the borders of Kruger National Park (Caron *et al.* 2003). Similarly, fencing was used to prohibit lions and leopards from straying out of the eastern boundary of Gir National Park in Gujarat, India.

2.4.2 Guarding

Guarding has been adopted in order to minimize wildlife damage to crops, livestock's and property. According to Naughton-Treves (1998), active guarding has widely been used and this includes the use of domesticated animals. Treves and Karanth (2003) further elaborated that some farmers used domesticated dogs to guard their fields, and this method have also appeared to be a successful strategy for managing predation risk from coyotes, black bears, and cheetahs. Children and women are usually given the task of guarding cultivated crops in the farming fields (Ogra 2008). A study conducted at Sariska Tiger Reserve in India demonstrated that majority of farmers in the area ranked guarding as the most efficient and common measure to protect their crops (Sekhar 1998). Farmers in Uganda also use intensive guarding as to chase away wild-animals and it was found effective because it prevents primates from raiding farms (Naughton-Treves *et al.* 2001).

2.4.3 Traditional methods

Traditional methods have been employed by local farmers to protect their farms from wildlife damage (Hoare 2001). These methods vary from beating drums, lighting fire, burning tires, setting up scarecrows, or using carbide as explosive devices for bamboo guns at wild animal's entry points into the fields (Nelson *et al.* 2003). In a study conducted at Bia Conservation Area in Ghana, almost all farmers combined various traditional methods to keep wildlife off or chase them away from their farms (Harich *et al.* 2013). Beating drums or making any kind of noise was one of the most common strategies used to chase wild animals away from the fields. This method was also implemented by farmers around the Maputo

Elephant Reserve to frighten off elephants, and 52% of farmers confirmed that is an effective method (De Boer and Ntumi 2001). Whip-cracking to imitate gunfire was also used in both Africa and Asia (Hart and O'Connell 1998, Hoare 1995, Nyhus *et al.* 2000). Communities in and around the Dzanga-Sangha Reserve in the Central African Republic burn bamboo, which makes it explode (Kamiss and Turkalo 1999). In Zimbabwe, they burn briquettes of elephant dung mixed with ground chillies as a method of reducing the movement of wild animals (Hoare 2001, Osborn and Rasmussen 1995).

2.4.4 Public-private partnership or co-management

Most of the local/indigenous communities are usually left out in the planning and implementation process of the conservation areas. Public-private partnerships can be an alternative approach whereby rural communities are given ownership rights or custodianship and management responsibilities for land resources within the protected areas. The fundamental concept with this partnership was to guarantee that the rural communities who have been alienated from the land resource should rightfully control, manage and benefit thereof. However, according to Matose (2006), the initiatives of these approaches do not necessarily solve problems in state-community conflicts within protected areas. This is generally because such issues lock into complex socio-political dynamics revolving around interaction on unequal terms by different stakeholders within protected areas. This form of partnership assists local communities in reiterating rights over land within the conservation areas. Ramutsindela (2004) emphasized that public-private partnerships are seen as the main vehicle of economic development in most countries. According to Rao and Giesler (1990), the key objective for state-community partnership is to develop strategies to ensure the collaboration of park management and local people. This collaboration allow local community members to reap certain benefits including employment, eco-tourism activities for the community and the region at large, sustainable utilisation of resources as the additional forms of income for the community and the others living near the park.

Spenceley *et al.* (2008) also noted that the partnerships formed between local communities and park officials within conservation areas allow revenue returns to the stakeholders involved. For instance, members of the Makuleke community who were forcibly removed by the state from their 24 000 hector (ha) land in the northern part of Kruger National Park, signed a 25-year agreement contract with SANParks for the land to be used for wildlife

conservation (Steenkamp and Grossman 2001). Such a contract which governs the incorporation of the Makuleke land in the KNP enables the community to make sustainable use of specified natural resources. Trophy hunting was also a way of making quick revenues for local people when tourist lodges and camps were being built.

2.5 Conclusion

Literature related to land use conflict was reviewed in this chapter. The chapter gave an overview of land use conflict and the causes of land use conflict. Among the causes of land use conflict discussed in this chapter include: the creation of protected areas, the formation of transfrontier conservation areas (TFCAs) in human dominated landscapes, displacement, land grabs, conflicts over the access to natural resources, human wildlife conflict and competition over resources. Management strategies that are used in other parts of the world to manage land use conflict were also reviewed in this chapter. The next chapter presents the methodology of the research.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methods employed and the steps followed in collecting and analysing data.

3.2 Research design

Research design is a plan for collecting and analysing the data, which will make it possible for a researcher to answer whatever questions he or she has posed (Flick 2009). Research design impacts almost all aspects of a research; from the details of data collection to the selection of data analysis techniques. Therefore, research design determines the data required, methods to be used in collecting and analysing data, and how the research questions are answered. According to Baines and Chansarkar (2002), every research project is unique and has its own objectives which can be tackled in different ways, but, the best and suitable research methods should be utilised to achieve its objectives.

As a result, there are three research approaches: qualitative, quantitative, and mixed methods. This study was designed to investigate the causes and implications of land use conflict in the Mapungubwe area. In order to respond to the research questions of the project under study, a qualitative research approach was adopted. According to Smith (2015), qualitative approaches are generally used to explore, describe and interpret personal and social experiences of the participants under study. Unlike the quantitative approach which is associated with the gathering, analysis, interpretation, and presentation of numerical data; qualitative research involves the collection of a variety of empirical material varying from interviews, observation, historical documents and visual texts (Denzin and Lincoln 2011). A qualitative approach can capture perspectives better and give interpretations that are not often depicted by a quantitative research approach. Table 3.1 indicates and justify the elements of qualitative research approach.

The basis of qualitative research lies in the interpretive approach to social inquiry and in the description of the lived experiences of human beings. Interpretive approach was adopted for this research because it involves a detailed examination of the participant's life-world in order to uncover deeper perspectives, feelings, and experiences regarding the phenomenon under study. This approach builds its premises on inductive, rather than deductive reasoning.

Therefore, there are five research approaches which are built on inductive reasoning, and these are: ethnography, phenomenological, historical, grounded theory, and content analysis studies (Leedy and Ormrod 2001).

Table 3.1 Elements of qualitative research process

Source: **Author, 2018**

Theoretical Perspective	Interpretive
Epistemology	Constructivism
Research approach	Inductive
Research methodology	Phenomenology Grounded theory
Data collection Methods	Semi-structured Interviews Field observation Historical Documents

This study adopted the grounded theory states that the collection and analysis of data is done at the same time. Grounded theory method was developed by Glaser and Strauss (1967), with both an inductive and a deductive approach to theory development. In grounded theory, data collection primarily consists of observation and interviews, as well as the use of other sources such as government documents, video tapes, newspapers, letters, and books or anything that may shed light on the questions under study (Strauss and Corbin 1994). According to Glaser and Strauss (1967), all these other sources of data are coded in the same way as interviews or observations to assure credibility. As a result, data collection and analysis are interrelated processes, and analysis is always necessary from the beginning because it gives new direction

to the following interviews and observations of the project under study. Open coding, axial coding and selective coding are the three grounded theory coding procedures formulated by Strauss and Corbin (1990). In addition to grounded theory, a phenomenological study was used to examine human lived experiences through the descriptions provided by the people involved (van Manen 2016). Phenomenological study was used because collection and analysis of data also occur simultaneously.

3.3 Sources of data collection

Data collection is an important aspect of conducting any type of research study. However, inaccurate data collected can impact the results of a study and eventually lead to invalid results. As a result, there are two main sources of data collection: primary and secondary. Primary data sources are areas or participants from which information collected directly and for the first time; this happen to be original in character (Kothari 2004). There are several methods of collecting primary data, and the important ones are: observational method, interview method, questionnaires, and surveys (Kothari 2004). Secondary sources of data are information that was previously collected for different purposes and can be re-used again for other research purposes (Hox and Boeije 2005). Such type of data can be gathered from a number of sources including written documents, records, diaries, internet among others. Primary data for this study were collected in September 2016 through the use of interviews and field observation from private land owners, farm workers (current and former farm workers) farm managers, SANParks officials and land claimants beneficiaries. Secondary data were obtained from historical documents.

3.4 Techniques used for data collection

Techniques for data collection include: interviews, observation, questionnaires, satellite pictures, and existing documents. However, to accomplish and fulfil the research objectives and research questions, the study used interviews, field observation and historical documents for data collection

3.4.1 Interviews

An interview is a substantial data gathering technique involving verbal communication between two or more people (Potter 1996). Fontana and Frey (2005) defined interview as a

widely used tool for asking quantitative or qualitative questions orally to access people's experiences, inner perceptions, attitudes, and feelings. Saunders (2007) emphasised that, an interview is always the best technique of obtaining comprehensive primary data that can be directly analysed. Most of the researchers regarded an interview as the best method, because it allows researchers and participants to engage in a dialogue. It is from these dialogues where initial questions are modified from the participants' responses and the researcher can probe interesting and important areas which arise (Frey et *al.* 2000). Subsequently, data generated through the use of interviews is quite considerable compared to data obtained through the use of questionnaires or satellite pictures. In a study focusing on land use change and bordering, Sinthumule (2014) noted that aerial photographs solely concentrate on capturing the topographical features without giving details on the insights of the people under study.

Questionnaire's on the other hand typically focused on closed-ended questions and does not give much detail on the phenomena under study. The problem with using questionnaires is that questions are not presented to the participants face-to-face, hence respondents may have different interpretations of the questions and there is always a risk that some of the questions will not be answered. There are also possibilities that respondents may not be hundred percent truthful with their answers. As a result, the study adopted interviews because they have a potential of disclosing feelings and perception of people under investigation. There are three convincing reasons for using interviewing as the primary source of data for this study. The first one was to understand the lived experiences of people and the meaning they make of their experiences (Seidman 2006). The second one was to find out what is in and on the participants' mind. This was done in order to investigate the phenomena that cannot be observed (Frey et *al.* 2000). Thirdly, interviews result in thick descriptions of the subject under study, and that enable readers to make decisions about transferability of study results (Merriam 2002).

Interviews are subdivided into three categories namely; structured, unstructured and semi-structured (Esterberg 2002, Dunn 2005). Unstructured interview intends to make the interviewee feel relaxed and unassessed and the conversations in this type of interview are actually directed by the informant rather than by a set of questions (Hannabuss 1996, Dunn 2005). Structured interviews are planned and standardised in advance, where pre-coded categories are used for responses, and the interview does not attempt to go to any great depth (Punch 2013). Semi-structured interviews ensure some flexibility in a manner that the

participant can address issues in the area under study (Dunn 2005). Fox (2000) added that a semi-structured interview allows the researcher to explain the purpose of the interview and encourage potential respondents to co-operate. The researcher can also clarify questions, correct misunderstandings, offer prompts, probe responses and follow up on new ideas in a way that is not possible with other methods.

As a result, semi-structured interview method was adopted following Kvale and Brinkmann (2009), who argued that a semi-structured interview is capable of disclosing important and often hidden facets of human and organizational behaviour; the researcher can also prompt and probe deeper into a given situation. Employing semi-structured interviews was also influenced by the fact that they give participants ample time and scope to express their diverse views, while the researcher is allowed to react, follow up on emerging ideas and unfolding events (Nohl 2009). The results gathered through the use of semi-structured interviews can be compared because all participants are required to express their views. Semi-structured interviews do not only assess the participants' opinions, statements and convictions, they also elicit narratives on personal experiences (Nohl 2009). Guide-list of open-ended questions allows the participants to freely voice their experiences.

Interviews have a wide variety of forms and multiple uses. The most common types of interviewing includes: individual face-to-face verbal interchange, emails or self-administered questionnaires, and telephone surveys (Fontana and Frey 1994). Face to face interview has been considered as a superior data collection technique from time immemorial, because of its flexibility and great potential. It has been assumed that in face to face interviews, researchers can obtain higher response rates compared to other forms of interviewing. Novick (2008) argued that, telephone surveys as can weaken the quality of interviews due to call drops or poor sound quality. Seidman (1998) similarly added that the only reason for using the telephone is to set up a time to meet face-to-face with respondents. In order to circumvent complication and risks from telephone interviews, face to face interviews were found to be substantial in this research project.

Consequently, face to face interviews were conducted with the key participants such as private land owners, park officials, land claimants, farm managers and farm workers (current and former farm workers) in Mapungubwe. This was done in order to obtain feelings, experiences, thoughts, and perception regarding the causes and implications of land use

conflict in the area. Informants were interviewed until the point of data saturation. The key informants were interviewed from September 21st to September 26th 2016. Interviews with private land owners, farm managers and farm workers, were held within the farms. Interviews for park officials were held at their offices and for former farm workers interviews were conducted at their homes in Alldays. Throughout the period of face to face interviews, permission to take notes and tape record the interview in order to preserve and secure the entire verbal part of the interview for later analysis was sought from the participants. Recordings were done and handwritten notes during each interview were taken with the idea to track key points to highlight ideas of particular interest or importance with the participants' approval. Prepared guideline list of open-ended questions was used (see Appendix two). Participants were interviewed according to the list of questions, though the orders of questions were changed depending on the direction of the interview and additional questions were asked according to the participants' responses. Interviews lasted for about 40 to 50 minutes depending on the respondent's ability to respond to the questions. Interviews were conducted in order to obtain data on the types of land use activities in Mapungubwe. Causes and implication of land use conflict, land ownership, management strategies to deal with conflicts in the area and the kind of conflict taking place in Mapungubwe.

3.4.2 Field observation

Many important features of the environment and behaviour are taken for granted by participants during the period of interviews, as a result, it may therefore, become difficult for participants to describe them. However, researchers are able to see and identify things that participants cannot see through field observation. Potter (1996) defined field observation as a technique of gathering data through direct contact with an object, either from human behaviour, or natural/physical setting of an area under study. According to Sapsford and Jupp (2006), field observation enables a researcher to get information about the physical environment and human behaviour under study, and the data obtained can be recorded directly, without relying on retrospective accounts from others. DeWalt and DeWalt (2002) highlighted that this technique improves the quality of data collected and facilitates the development of new research questions. This study adopted this method in order to supplement, compare and elucidate data obtained from interviews. The advantages of using field observation include the fact that, it provides direct access to the phenomena under study and provides good opportunities for identifying unanticipated outcomes (Taylor and Stelle

1996). During the period of field observation, it is important for a researcher to note down what he/she sees on the ground, which makes the data more accurate. This could be a useful check on and supplement to the information obtained from other sources (Sapsford and Jupp 2006).

Field observation was done throughout the period of interviews in all the areas that were visited for the study. It was also done concurrently, while driving from one farm to another. Throughout the observation, field notes and pictures of the objects under study were taken. Movement of wild animals near the fences of farming practices were also observed. All these were done in order to identify the main cause behind land use conflict in the area. Types of land use activities varying from wildlife conservation, farming practices and human settlement were observed. Names of all the visited farms within and around Mapungubwe National Park and the GPS co-ordinates of the location of the farms were recorded with the idea of locating them on the map.

3.4.3 Historical documents

Although the study used interviews and field observation as the primary method of data collection, historical documents on the land use conflict in Mapungubwe were also collected and reviewed. According to Hox and Boeijie (2005), historical documents are documents which gives good source of background information, because they provide issues that may not be directly observable. These sources include; diaries, video recordings, and transcripts of interviews and focus groups. These documents are used to clarify or substantiate participant's statements and to provide comprehensive descriptions of the phenomena under study (Esterberg 2002, Merriam 2002). Such documents also relate to the present and the future, because without the past, there is no meaning to the present (Leininger 1985). The following documents were reviewed: government reports about the land claims in the Mapungubwe area obtained from the Department of Rural Development and Land Reform, Hansards documents and SANParks reports were reviewed in order to develop an understanding, discover insights and to uncover land use conflict that happened in the past.

3.5 Sampling methods

Data is important in any research project, irrespective of whether the investigation is quantitative or qualitative in nature. As a result, when researchers are supposed to collect

data, they identify the population under investigation, and arrange access to such population using an accurate sampling frame. Burges (1982) indicated that it does not matter whether the study involves a very small population or single case study, because sampling is still required in order to make a decision on people, settings or actions. The same applies in ethnographic or field studies; sampling is required, because the researcher cannot observe or record everything that transpires (Burgess 1982, Hammersley and Atkinson 2007). As a result, in most cases sampling is required in order to record or observe the object under study. When sampling strategies in qualitative and quantitative research are described, a key distinction is made between probability and non-probability sampling (Arber 2001, Bryman 2001, Greenfield 1996). Probability sampling is typically used in quantitative research. It involves the selection of a representative sample from the population using a non-random procedure to ensure objectivity in selecting the sample. The findings from the sample data can be generalized to the population with a specific degree of accuracy (Doherty 1994). Non probability sampling is typically used in qualitative research. Judgement is used to select a sample in a qualitative research. Findings from this sampling method could be used to describe, discover and develop a theory under investigation.

The goal behind the research determines the choice of sampling, which can either be probability or non-probability sampling. MacNealy (1999) argued that when a researcher needs to have a certain level of confidence in data collection, probability sampling should be used. Whereas Frey *et al*. (2000) argued that the two sampling methods differ in terms of how confident the researcher is about the ability to select a sample to represent the population from which it is drawn. Henry (1990) alternatively highlighted that probability samples can be thoroughly analysed to determine possible bias and errors. Whereas non-probability sampling does not determine the bias and possible errors, however, it is important for qualitative researchers to accomplish specific objectives of the research project. Due to the nature and objectives of the study, non-probability sampling which is usually used for qualitative research was selected for the study.

Purposive sampling is a qualitative sampling technique which does not use probability in selecting objects to make up a sample (Tashakkori and Teddlie 2003). Thus, the researcher selects the sample based on the objects or people who will provide the most information or details for the research. In purposive sampling, the researcher goes to the field to find people who can and are willing to provide the information by virtue of knowledge or experience

(Bernard 2002, Lewis and Sheppard 2006). Unlike snowball sampling where researchers obtain data through asking an informant to suggest another informant (Brown 2007). Purposive sampling does not necessarily use informant as the source of informants (Bernard 2002). Purposive sampling was used for this study to select a population with knowledge and experience on the issues of land use conflict happening in mapungubwe. As a result, private land owners, farm managers, farm workers (current and former workers), land claimants and Park officials in Mapungubwe National Park were purposefully selected.

3.6 Types of data collected

3.6.1 Data on the type of land use activities

This data was collected in order to find out the main types of land use activities and the distribution of land use activities in Mapungubwe.

3.6.2 Data on the causes and implications of land use conflict

This data was collected to examine the main causes of land use conflict and their impacts on land and other resources in the area.

3.6.3 Data on the ownership of the land

Data was collected to investigate the ownership of the land and how it contributes to land use conflict in Mapungubwe. The idea was to determine if the land is communal, private or state land.

3.6.4 Data on the kind of conflict taking place in the study area.

Data was collected to assess the kind of conflict happening among land use stakeholders in Mapungubwe.

3.6.5 Data on the management strategies used to deal with the conflict

This data was collected to examine the current management strategies that are used by both private land owners and the park to minimise the impact of land use conflict in Mapungubwe.

3.7 Data analysis

Marshall and Rossman (1999) described data analysis as the process of bringing order, structure and meaning to the mass of the data collected. Bogdan and Biklen (1982) emphasised that analysis of data involves working with data; organizing and breaking it into manageable components, making it and searching for patterns in order to discover what is

important and what is to be learned, and then subsequently decides what to analyse. Therefore, one could assume that data analysis requires some sort or form of logic applied to research. As a result, analysis of data characterises the application of deductive and inductive logic to the research. Data can either be quantitatively or qualitatively analysed, depending on the methods of data collection.

According to Rhodes (2014), quantitative analysis focuses on quantifying problems by generating numerical data or information that can be transformed into practical statistics. In contrast qualitative data analysis can be described as the process of making sense from research participants' views and opinions of situations, corresponding patterns, themes, categories and regular similarities (Cohen *et al.* 2007). Typically, this type of data analysis focus on responsible presentations of data findings making sense of relevant data obtained from interviews, field observations, and documents (Caudle 2004). Qualitative data analysis was employed for this research project, because the information gathered was in a form of notes or words, not numbers. Most qualitative research studies involve a continuous interplay between data collection and data analysis (Strauss and Corbin 1994). Researchers usually begin data analysis after the first interviews and observation to identify patterns, and to facilitate subsequent data collection (Strauss and Corbin 1998). Male (2016) confirms that in a qualitative research, data analysis effectively begins at the same time with data collection. Following Strauss and Corbin (1998) and Male (2016) recommendations, data was collected and analysed simultaneously.

This study adopted and followed six steps during data analysis as suggested by Creswell (2009). Step 1: Organize and prepare the data for analysis. Audio recordings from interviews were transcribed to word document transcripts. Step 2: Read through the data. This was done to familiarise with the collected data, and get a general sense of the information and ideas conveyed. Step 3: Started the detailed analysis with the coding process. Material was organised into segments by fragmenting sentences into categories, and label the categories with terms from the actual language used by participants. Step 4: Generate a description of the setting or people and identify themes from the coding. Search for theme connections. Step 5: Present the data in a research report. Step 6: Interpret the meaning of the data.

3.8 Ethical issues

Throughout the interviews, identifying me to all the participants was very much significant. As the researcher, I shared my biographical information with the participants to establish the trust and relationship necessary for conversations. I stated my name, institution, where I come from, and research project name. Participants were also highlighted on the purpose of the study, research procedures, expected benefits and protection of confidentiality. Student identity card was produced as a form of identification from the University of Venda. All interviews were conducted face to face, because it was recommended to be the best method of collecting data. During the interviews, participants were asked if they should be recorded and if their name should be kept anonymous or not.

3.9 Challenges and constraints

Interviewing all the private land owners was not an easy task. Nevertheless, some of the private land owners granted interviews and the information required. However, some of the private land owners refused to do interviews. When I visited the South African National Archives for historical documents, there were technological challenges which made access to the documents retarding.

3.10 Conclusion

This chapter has presented the research methodology and the techniques that were employed to collect data. A synopsis of the sampling method employed was discussed and the chapter also highlighted primary and secondary data sources used for this study. The chapter has also presented the types of data collected and how it was analysed. Ethical issues, challenges and constrains were also presented. The next section uses historical material to present the historical land conflict in the study area.

CHAPTER FOUR: HISTORICAL LAND USE CONFLICT

4.1 Introduction

This chapter discusses the historical land use conflict that has happened in Mapungubwe. The chapter specifically explain the root cause of land use conflict and its implications on the establishment of wildlife sanctuary in Dongola. The chapter gives background information on the government establishment of Dongola Wildlife Sanctuary, and how private land owners or farmers opposed the idea of turning the region into a sanctuary. Details of the conflict regarding the establishment of a wildlife sanctuary between United Party and National Party are also discussed.

4.2 Background

In 1922, the South African government under the ruling party of General Jan Smuts set aside a block of nine farms named Dongola Botanical Reserve (Robinson 1996, Carruthers 1992). The main objective for establishing Dongola Botanical Reserve was to make a scientific study of vegetation, to map it and to assess its agricultural and pastoral value using experimental methods of evaluation (Carruthers 1992). The reserve was under the supervision of Dr I.B Pole Evans (then state botanist), and the names of farms forming the reserve were Goeree, Sharlee, Rosslynlee, Giesdendam, Dunsappie, Bruntsfield, Moerdyk, Vernon and Shelton Hall (Hansard 1945). In order to increase the size of the reserve, more farms were acquired and assimilated into the botanical reserve (Carruthers 1992). For instance, in 1933, farm Greefswald in which Mapungubwe hill is situated was purchased and carved into the reserve (Union of South Africa 1945).

In the early 1940's, Andrew Conroy (then Minister of lands) used his power to expropriate more farms and incorporate them into the reserve. Expropriation of those farms caused land use conflict between the farm owners and the Minister of lands. Land use conflict in the area emerged when private land owners argued that it was unnecessary to expropriate private lands, or evict people from the land they occupied for centuries and the land was fertile for farming practices. Conversely, the cohorts of the reserve suggested that the area was inapt for human settlement and agricultural purposes, because the area was rich in biodiversity and archaeology, which should be protected (Union of South Africa 1945, Robison 1996). Consequently, in 1941 Erfrust, Amersham and Chatsworth farms were acquired and

incorporated into the reserve through eviction (Carruthers 1992). In 1943, Newmark and Hartjesveld farms were also blend into the reserve. Conroy further arranged for the purchase of 11 farms which were incorporated into the reserve. Conroy then approached the National Parks Board (now SANParks); with the idea of expanding the Botanical Reserve into a National Park, however, the board rejected his idea (Berry and Cadman 2007). In addition to the farms purchased, other four farms (Skutwater, Alyth, Semple and Almond), which were registered under the name of Augustus Bachelder Emery were expropriated and assimilated into the reserve (Union of South Africa 1945). Mr Emery's farms were along the Limpopo River banks, and did not want them to be incorporated into the reserve because they were used for hunting and cattle breeding (Carruthers 1992). There were more farms along the banks of Limpopo River, which were imperilled by land use conflict and these, include Tuscanen, Denstaat, and Samaria farms. Land owners for these farms were not interested in the reserves because the area was acclaimed for the high phosphate, potash and lime, which were considered to have a high percentage of mineral plant nutrients. In addition, moisture availability and climatic condition of the area were considered to be the topmost requirements of crop cultivation in the northern Transvaal (SAB URU: 2487/ 409 1945).

In 1944, Dongola Botanical Reserve had grown from a small block of nine farms to an extensive area of 27 farms with a total area of 60 000 hectare (Union of South Africa 1945). It was at this time that an idea of outspreading Dongola Botanical Reserve into a wildlife sanctuary emerged, after it was realised that the area was not suitable for human habitation (Hall-Martin *et al.* 1994). The idea of a wildlife sanctuary was made on the basis that the land could not carry livestock. Therefore, the government was to create a sanctuary for wildlife with the objective of bringing back the area to nature and restore the land to its position in which it was before settlement (Union of South Africa 1945, 1946, Robinson 1996). The other reasons behind the establishment of the wildlife sanctuary include the fact that the area was a desert and the rainfall was very low and erratic. The area was also covered with sparse grasses which were thin. As a result, human habitation and farmsteads led to grass ill-growth. Furthermore, the narrow strip fertile and beautiful land on the banks of the river was subjected to flooding every year. In that sense, it was impossible to irrigate a morgen of land or even building a dam because the land was a narrow strip (Union of South Africa 1945). The conditions given above suggested that the area was more suitable for wildlife sanctuary than it was for farming.

The proposed Sanctuary was to be extended from the farm Ratho in the west, where the Motloutse river (Bechuanaland) entered the Limpopo, almost to Messina in the east where the Umzingwani river (Rhodesia) joined the Limpopo, a distance of about 100km which covered an area of 240 000 ha (Union of South Africa 1945). The proposal was to include a total of 123 farms, 27 of which were crowned land (Government) and 96 privately owned. It was at this time that the possibility of linking the sanctuary with conservation areas in Botswana and Zimbabwe was initially considered (Carruthers 1992). The concept of a wildlife sanctuary was passionately debated in both the parliament and the press (Hall-Martin *et al*. 1994, Robinson 1996). Details of the debates in press and in parliament are explained in the next section.

4.3 Conflict between government and private land owners

Due to the fact that the private lands had to be expropriated for the extension of the sanctuary, conflict over the use of land intensified. Various farmers surrounding the Dongola area planned and drafted a petition against the proposed wildlife sanctuary at the confluence of Limpopo and Shashe rivers (Sunday Tribune 1987). The petitions opposing the establishment of a sanctuary in the area were coming from various associations including the Transvaal land ownership association, Transvaal Agricultural Union, Messina Dorsland Farmer's Association and Zoutpansberg Farmer's Union. All those unions united with the purpose of protecting the rights and interests of farmers in the Dongola region and they disputed against the formation of the wildlife sanctuary in the area (Union of South Africa 1945, SAB TES: 2628/f10/407 1945). Arguments on the petition were articulating that there was no reason for constituting another game reserve, because Kruger National Park (KNP) was partly in the district of Zoutpansberg and less than 100 miles from the Dongola area. This ground afforded sufficient facilities for the protection of all types of animals and plant life found in the Dongola reserve (Union of South Africa 1945). It was further indicated that Dongola area had no source of attraction to compete with the attractions in KNP, hence it will add unnecessary burden on the taxpayers of the Union of South Africa. Another objection stated that game conservation was detrimental for farmers adjoining the reserve because it would lead to human wildlife conflict (Union of South Africa 1945, SAB TES: 2628/F10/407 1945). As a result, the farmers bordering the proposed wildlife sanctuary were being placed in an extremely difficult position of human wildlife conflict (Union of South Africa 1949). Farming next to the reserve or wildlife sanctuary where lions, leopards, elephants and all sort

of wild animals protected would bring the likelihood of disease transmission, crop raiding, livestock depredation, human attacks and damage to property (Union of South Africa 1945, 1949). As a result, most farmers would suffer a great deal of damage if wild animals escaped from the reserve. For instance, Mr Emery who was a private land owner in the region complained about the herds of elephants pulling down thousands of trees on his farms. Similarly, other farmers on the banks of Limpopo River reported serious stock loses caused by lions and leopards. Moreover, the formation of game reserve in the area would create danger to stock farmers because wild animals are known for carrying and spreading infectious and contagious diseases. For example foot and mouth diseases outbreak from southern Rhodesia (Union of South Africa 1945, 1946). Foot and mouth is a highly contagious viral disease and it spreads quickly through herds of domestic stocks when animals come into close contact with each other. Farmers were also frightened that the concentration of large herds of big games in the area would tend to create problems of soil erosion, not only in the contemplated reserve but also on the farms adjoining the close vicinity of the said reserve (Union of South Africa 1945). In addition, the proposal did not make adequate provision for the protection of owners and leases of the property in the said area, and the repercussions of the sanctuary was unnecessarily harsh and unjust (Union of South Africa 1945).

Rejection of the proposed wildlife sanctuary was also on the basis that it had nothing to do with the recovery of the soil; rather it exclusively deals with driving people off the ground on which food can be produced and that the farms were being expropriated in order to create a space for wild animals. This was supported by a document entitled “Homesteads or Wild Animals” compiled by the Zoutpansberg farmers union (Anon 1944). The document accused Pole Evans, Smuts and Conroy of resentment towards white farmers, and that they primarily preferred and supported wild animals over humans and their livestock (Hansard 1945). The document indicated that in the middle of winter, Dongola area produced delicious fruits and vegetables cultivated from the area. The document showed that the area was also suitable for dairy ranching. For instance, during the good seasons of the year, substantial quantities of cream were sent by road motor service to Waterpoort or Messina, while a very considerable number of slaughter stock were brought to market (Anon 1944). As a result, farmers did not want to surrender their farms to the park because most of them were making a huge success from farming.

The document further indicated that the area was suitable for the production of prime cattle and sheep, which could be marketed off the grass in August, September, October and November (Union of South Africa 1945). In view of the shortage of meat in South Africa at the time, the document indicated that the area had never been out of production. President of Transvaal Agricultural Union also supported the idea of farming in the area, indicating that the livestock in the area were exclusively leaf-eaters and get exceptional amount of nutrient from the bushes and trees (Union of South Africa 1945). The officials from the Department of agriculture, and soil conservation also supported the claim that Dongola area was suitable for farming (Union of South Africa 1949). Table 4.1 justify that the Dongola area was more suitable for farming than wildlife conservation.

Table 4.1 illustrates the number of livestock supported by Dongola region

Source: Adapted from (SAB URU: 2487/409 1945).

Name of the farm	No of cattle	No of goats	No of sheep
Coila	207	400	325
Ratho	43	212	39
Heidelberg	112	293	49
Moulton	136	81	54
Schietfontein	130	201	279
Rosentawhich	310	180	8
Pontdrift	160	39	45
Luben	800	150	405
Neanderhohle	140	126	343
Wimpsh	143	130	186
Total	**2181**	**3162**	**1733**

Table 4.1 indicates the number of cattle, goats and sheep that were supported by the Dongola region. Dongola was one of the areas in the Transvaal capable of producing the best and very fine livestock. The area was successfully proved to be the first-class region for the right

breeds of cattle, sheep and goats (Union of South Africa 1946). Consequently, the statistics given above proved that the area was more suitable for farming than wildlife conservation.

Land use dispute over the proposed Dongola wildlife sanctuary did not end with the private land owners; rather, the matter was further discussed in the parliament of South Africa to the extent that it became known as the "Battle of Dongola" (Hall-Martin *et al.* 1994, Carruthers 1992, 2006). The battle of Dongola became the subject of party political acrimony, with the Smuts government (United party) in favour of the reserve and the opposition party (National party) against it (Hall-Martin *et al*. 1994). The section below gives details about the battle of Dongola in parliament.

4.4 The battle of Dongola in Parliament

In order for the wildlife sanctuary to be implemented, there was need for a Bill. The Bill was drafted and sent to parliament for discussion and approval. On 20th February 1945, Minister of Lands introduced the Dongola Wildlife Sanctuary Bill for the first time in parliament (Union of South Africa 1945). The Minister indicated that the Bill should be treated as a Hybrid Bill, because people were going to be affected. On Wednesday 4th April 1945, Dongola Wildlife Sanctuary Bill was read in parliament for the second time by the Minister of lands. The objective of the Bill was stated as: "to provide for the establishment of a nature sanctuary in the valley of the crocodile or Limpopo River in the province of the Transvaal; for the protection and preservation, in the national interest, of the land comprised therein, of its natural vegetation, wildlife and of objects of geological, ethnological, historical or other scientific interest therein, and certain matters incidental thereto" (Union of South Africa 1945). Furthermore, the Bill stated that:, "to reclaim the land which never was intended and never was suited for European settlement and which has been badly misused or abused by human habitation, and to protect and preserve it and put it to wise land usage" (Union of South Africa 1945). The idea was to create a national sanctuary rather than a national park. The sanctuary was to starts two miles west of the Messina Bridge on the Limpopo River, and runs in a line to a few miles above the junction of the Matloutsi and Limpopo Rivers. In terms of the size, the proposed Dongola Wildlife Sanctuary will include 39 farms of 79 000 morgen and an additional 123 farms with a total area of 240 000 morgen (Union of South Africa 1945).

After the Bill was introduced by the Minister of lands, it was objected by the opposition party (National Party). The opposition fought the proposed Dongola Bill from the beginning. The parliamentary debate was extremely acrimonious, with the National Party against the idea of a Sanctuary and United party in favour of the Bill. The biggest concern by United Party in rejecting the Bill was because, well-established farmers' land was to be expropriated, which was about to deprive them of their belongings, and the vast potential production of food was going to be sealed down forever and the money which was invested throughout the farming practices was also going to be lost (Union of South Africa 1946). The conflict over the Dongola Wildlife Bill also intensified from the rumours that the sanctuary was to be named after Smuts. The National Party and the farmers or private land owners in the Dongola region carried the same sentiments on the Bill. These sentiments include: the land in question was good for farming; South Africa had bigger National Parks and the country can afford more protection for game than any other country, hence creating a Sanctuary for wildlife would endanger livestock farming in the area, and most importantly, the bill deprives private individuals of their rights.

The opposition party constantly made reference to a document entitled "Homesteads or wild animals" in the arguments against the formation of a wildlife sanctuary (Union of South Africa 1945). The proposed Dongola wildlife Bill was discussed from 1945 to 1947, with the United Party parliamentarians in favour of the Bill and the opposition against it. As noted, the Dongola Bill was a "hybrid bill," because private farms were to be expropriated and the farmers were going to be seriously affected. In other words, Dongola Bill had an impact on lives of many people in the Mapungubwe area. As a result, a parliamentary Select Committee was established in 1945 to gather evidence from all the interested and affected parties, for an informed decision to be made. Details of the Select Committee and their findings are discussed in the following section.

4.5 Parliamentary select committee report and its findings

The committee comprised of seven members of parliament including D. Jackson (chairperson), G. Henny, J. G. Carinus, H. J. Cilliers, Dr. H. O. Eksteen, G. P. Steyn, and J. F. Potgieter (Union of South Africa 1945, 1946). The opposition welcomed the idea of a Select committee, and indicated that the committee should be given an opportunity to visit the Dongola area and gather evidence from the interested and affected parties. In that regard, it was noted that the Select Committee would come to a fair and sound decision regarding the

Bill and the establishment of the wildlife sanctuary. The committee began its hearings in May 1945, after the second reading of the bill and it investigated the matter for two years (1945 and 1946). After the Select Committee inspected the Dongola area, and after they heard all the evidence from witnesses and arguments that were adduced in the House of Assembly, they came to a compromise with the Minister of lands. He did not get all he asked for, but only a small slice of the big cake he wanted. The Minister of lands asked for 240 000 morgens which embraced 122 farms, the Select Committee reduced the size of the reserve to 94 765 morgens, which comprised of only 39 farms, or roughly a third of what was proposed (Union of South Africa 1947).

Although the members of United Party had a majority in the Select Committee, they voted in favour of a smaller reserve by 3 to 2 votes. It is important to note that even though the size of the sanctuary was reduced, the objective of the Dongola Wildlife Sanctuary "remains the protection and preservation, in the national interest, of the land comprised therein, its natural vegetation, wildlife and objects of geological, ethnological, historical or other scientific interest therein, and certain matters incidental thereto" (Union of South Africa 1946, 1947). The Select Committee brought the findings and recommendations before the House on the 4th of February 1947 and it was debated by parliamentarians. In February 1947, Dongola Bill was further debated in parliament, with United Party in favour of the Bill and National Party against the Bill. In the end, Dongola Wildlife Sanctuary Bill was approved by 63 votes to 29 and the Bill was known as Dongola Wildlife Sanctuary Act No. 6 of 1947. The Dongola Wildlife Sanctuary Act was published in the Government Gazette on 28 March 1947 (Union of South Africa 1947). The Act was called Dongola Wildlife Sanctuary Act No. 6 of 1947 and it became a law on 1 November of that year (Berry and Cadman 2007).

4.6 The battle to repeal Dongola Wildlife Sanctuary Bill

On May 1948, General Smuts United Party lost the South African general election. The United Party tally was only 65 seats. The National Party won 70 seats and in coalition with Afrikaner Party which won 9 sits made it 79 seats. The 1948 results changed the situation regarding the Dongola Bill and the establishment of the wildlife sanctuary at the confluence of Limpopo and Shashe River. This is because the United Party changed from being a ruling party to an opposition party in parliament. In 1949, a new debate begun in parliament to repeal the Dongola Wildlife Sanctuary Bill. On 9th of June 1949, the Minister of lands (Hon. J.G Strydom) introduced the Dongola Wildlife Sanctuary Repeal Bill. The Bill was brought

up and read for the first time and the second reading was scheduled for the 14th of March 1949 (Union of South Africa 1949). The debate became acrimonious, with the National Party in favour of repealing the Bill and the opposition against the idea of abolishing the Bill. The majority of the National Party in parliament quickly abolished the Bill and the idea of a wildlife sanctuary.

This was what the party promised its supporters (Carruthers 1992, 2006, 2009). The Dongola Wildlife Sanctuary Act was repealed in 1949, and all the money that was raised by United Party for the establishment of the sanctuary was paid back to the donors. All the farms which were incorporated into the sanctuary were returned to the owners, and the farms comprising the Dongola Botanical Reserve were allocated to white farmers by the National Party government (Union of South Africa 1949). The new government immediately cut off all the funding towards the Sanctuary and announced the obliteration. Dongola Wildlife Sanctuary was abolished in terms of Act 29 of 1949 (Berry and Cadman 2007, Union of South Africa 1949). In other words, the idea of a wildlife sanctuary at the confluence of Limpopo and Shashe River was obliterated because of the conflict between various stakeholders. However, the Sanctuary formally existed a little more than a year and half.

4.7 Conclusion

This chapter explained the historical land use conflict in Mapungubwe region. The conflict which was known as the "battle of Dongola" intensified when private land owners in Mapungubwe opposed the idea of a wildlife sanctuary. The idea of a wildlife sanctuary became a political issue, with the ruling United Party supporting the idea of a sanctuary, whereas the opposition National Party was against the idea. The chapter demonstrated that the idea of a wildlife sanctuary was eventually abandoned because of political conflicts between the ruling and the opposition party. The next chapter presents the narratives from the respondents in Mapungubwe which represents the contemporary land use conflict in the study area.

CHAPTER FIVE: CONTEMPORARY LAND USE CONFLICT

5. 1 Introduction

This Chapter presents the current land use conflicts in Mapungubwe region. The Chapter gives the demography of respondents, current types of land use activities and how such activities contribute to land use conflict in the area. Details of how land-use conflict between farming and conservation, mining and conservation, and farming and mining are also given. Information obtained from literature including books and journals was used in the discussion of the findings.

5. 2 Profile of the respondent's

Amongst the total of 40 people interviewed during the field survey, 75% of the respondents were males, whereas 25% were females (see Appendix one). Respondents who granted interviews include farm workers (former and current), farm manager, private land owners and park officials. Current farm workers who granted interviews reside in the farms with their families, whereas the former farm workers reside outside Mapungubwe area. The level of education varied, 25% had no education, 12.5% obtained primary education, 42.5% had secondary education and 20% acquired a tertiary qualification. Regardless of their educational level, all respondents were concerned about the land use conflict in Mapungubwe region.

5. 3 Current land use activities in Mapungubwe area

There are a number of land use activities in Mapungubwe and this include livestock farming, commercial irrigation farming, game farming, mining, residential area, and photographic tourism. Photographic tourism is the most dominant land use activity in Mapungubwe National Park and private game reserves within and around the park. Irrigation farming is dominant along the Limpopo River. It is important to note that, irrigation farming is taking place in privately owned farms within and around Mapungubwe National Park. Game farming is taking place on private game farms that are within Mapungubwe National Park, but not part of the park. Livestock farming is practiced within Mapungubwe National Park on the farm acquired by land claimants; and coal and diamond mining are on private land around Mapungubwe National Park. All these land use activities are taking place within and around Mapungubwe National Park. In addition to the activities, the whole of Mapungubwe area

(including private and government land) has been claimed by Machete, Lishiba, Musholommbi and Tshivhula clans. The issue of land claims in the area also intensify land use conflicts in the area. All these issues have created a land use conflict because; farming, mining and settlement are in contrary with conservation. Details of how land use conflict unfolds in the Mapungubwe are detailed below.

5. 4 Land use conflict between farming and wildlife conservation

The main conservation area is Mapungubwe National Park, which is under the ownership of SANParks. The park was established in 1995, to protect the cultural landscape and to conserve biodiversity. The park was formed through buying of land from private land owners and contractual agreement. Over the last two decades, conservationists have been at the forefront of converting the whole of Mapungubwe into a National Park, and transfrontier conservation area[1]. So far, a number of farms have been purchased whereas some farms were leased to SANParks. However, there has been resistance from private land owners particularly irrigation farmers against selling their property to SANParks (Sinthumule 2017). As a result, the current Mapungubwe National Park is a fragmented park with a total of 13 commercial irrigation farms that are within and around the borders of the park, but not part of the park (Table5.1).

[1] Interview with park manager, 23 September 2016 in Mapungubwe

5.1 Irrigation farms within and around Mapungubwe National Park

Source: Author, 2018

Name of the farm	Size/ha	Type of farming
Tuscanen	875.71	Vegetables
Parma	138	Vegetables & crocodiles
Modena	216.35	Citrus
Welton	186.44	Vegetables
Ratho Limpopo citrus	1300	Vegetables & citrus
Samaria	250	Vegetables & citrus
Denstaat	1835.91	Vegetables & livestock's
Weipe 7	700	Vegetables
Weipe 5	100	Vegetables
Skutwater	400	Vegetables
Depo weipe	1340	Citrus
Haneline Boerdery	1340	Vegetables
Noordgrens landgoed	2000	Vegetables & citrus

The main land use activities are farming which include citrus and crops. The main crops that are planted include beans, sweet potato, cabbage, tomatoes, butternuts, green papers, water melons and maize[2]. Irrigation farming and conservation are two types of land use activities that are not compatible. Thus, Wehrmann (2005, 2008) who defined land use conflict as a social fact in which at least two parties are involved the roots of which are different interests over the property rights to land. There is a conflict between conservationists and commercial irrigation farmers in Mapungubwe. The conflict is because of elephants causing damage to irrigation farms[3]. Mapungubwe is a semi-arid area and receives less than 500mm of rainfall per year. In addition to that, the area is very dry; and farmers rely on Limpopo River for irrigation. The study found that the elephants from Mapungubwe National Park are attracted to irrigation farms, because they are always green (Plate 5.1). Although irrigation farms are surrounded by an electric fence (Plate 5.2), it was found that elephants are the biggest threat in the area[4]. It was indicated that elephants regularly destroy the fence and get into the farms,

[2] Observation in Mapungubwe, 22-26 September 2016; Interviews with various farmers in Mapungubwe
[3] Interviews with various farmers, 22-26 September 2016 in Mapungubwe
[4] Interviews with various farmers, 22-26 September 2016 in Mapungubwe

where they harvest the fruits and crops on behalf of the farmers. One respondent commented: *Elephants comes and destroy our crops and fruits on a regular basis. They eat whatever they want at any time. When we report the matter to Department of Environmental Affairs and SANParks management, they only come and take pictures without compensating us*[5].

Plate 5.1 Tomatoes in irrigation farm in Mapungubwe

Photo taken by Author, 22 September 2016

Plate 5.2 Citrus farm surrounded by electric fence in Mapungubwe

Photo taken by Author, 23 September 2016

[5] Interviews with a farmer, 23 September 2016 in Mapungubwe

The destruction of crops by elephants is not a unique phenomenon to Mapungubwe National Park. Rather, similar land use conflicts involving elephants were reported in Limpopo National Park, in Mozambique (Spierenburg 2006, Milgroom and Spierenburg 2008 Witter 2013) and Gonarezhou National Park, in Zimbabwe (Gandiwa *et al. 2013*). The destruction caused by elephants in irrigation farms in Mapungubwe results in economic losses. It was estimated that the losses in irrigation farms caused by elephants range from R30 000 to R50 000 per year, if they are found before causing serious damage. In other cases, farmers indicated that the losses account to more than R100 000 per year, particularly if elephants find their way into irrigation farms in the evening[6]. Irrigation farmers also complained that, ever since the idea of Transfrontier conservation emerged in Mapungubwe region, SANParks is reluctant to maintain their fence. This is in line with the idea of creating a borderless landscape to allow free movement of wildlife. Irrigation farmers noted that the idea of transfrontier conservation in Mapungubwe region has worsened conflict in the area, with more wildlife finding their way into irrigation farms leaving devastating effects on farmers[7]. Similarly, land use conflict was found to be biggest threat in Coutada 16, Mozambique during the creation of Great Limpopo Transfrontier conservation area (Milgroom and Spierenburg 2008), Kgalagadi Transfrontier Park (Moswete *et al.* 2012) and Kavango-Zambezi (KAZA) Transfrontier conservation area (Metcalfe and Kepe 2008).

Other small to medium bodied wildlife such as baboons, bush pigs, vervet monkeys, warthog, water buck and bush buck were also reported to cause serious damages in irrigation farms in Mapungubwe[8]. These results confirm Hill (2000) and Archabald and Naughton-Treves (2001) who reported that a wide range of species from protected areas that are responsible for crop damage include primates, rodents, and bush-pig. In Mapungubwe, it was reported that baboons and monkeys found their way into irrigation farms by climbing the trees near the fence and jump into the farms, whereas warthogs and bush pigs create pathways under the fence which allow them access into the farms. Fieldwork evidence suggests that the damage caused by baboons and monkeys occurs during the day, whereas the damage caused by bush pigs happens in the evening. Baboons and monkey were reported to cause significant damage in irrigation farms. Warthog and bush pig were reported to cause medium damage, whereas

[6] Interview with a farmer, 24 September 2016 in Mapungubwe
[7] Interviews with various farmers, 22-26 September 2016 in Mapungubwe
[8] Interviews with various farmers, 22-26 September 2016 in Mapungubwe

the intensity of damage caused by bush buck, kudu and water buck were reported to be low[9] (see table 5. 2).

Table 5.2 Small to Medium bodied wildlife responsible for causing damage in irrigation farms in Mapungubwe.
Source: Author 2018.

Wildlife species	Scientific name	Intensity of Damage
Water buck	*Kobus Ellipsiprymbus*	Low
Bush buck	*Tragelaphus Scriptus*	Low
Kudu	*Tragelaphus Strepsiceros*	Low
Bush pig	*Potamochoerus porcus*	Medium
Warthog	*Phacochoerus africanus*	Medium
Vervet Monkey	*Cercopithecus aethiops*	High
Baboons	*Papio Anubis*	High

The conflict between livestock and wildlife conservation is controversial because the whole of Mapungubwe National Park including the surrounding private land have been claimed. Former residents of Mapungubwe who were forcibly removed of the area because of racial discriminating laws took advantage and used Restitution of Land Rights Act 22 of 1994, to reclaim their land which they lost during the apartheid era. According to Ralushai (2002), the former residents who were forcibly removed from Mapungubwe include the Machete, Lishiba, Musholommbi and Tshivhula. At the time of this study, only one land claim of Den Staat farm, which was owned privately, was resolved in favour of Machete and Sematla and the farm was used by land claimants for farming (livestock and irrigation) and settlement[10]; the rest of land claims in the Mapungubwe area were not yet resolved. In other words, the land claim has allowed the Machete and Sematla clan to move back into Den Staat farm. However, in other protected areas, land claimants were not allowed to move back into the land, but the land claim beneficiaries of Mapungubwe moved back, despite the fact that the

[9] Interviews with various farmers, 22-26 September 2016 in Mapungubwe
[10] Interview with land claimant, 23 September 2016 in Mapungubwe

area is within a conservation area. It is important to note that Den Staat farm is within the borders of Mapungubwe National Park, but is not part of the park.

The Sematla clan moved back into the farm in 2009, and they are using the farm for residential purposes. Up to so far, no human attacks have been reported particularly in Den Staat farm where the land claim beneficiaries located in. It is unlike the other conservation areas where incidences of human attacks by wildlife were reported (Williams 2002, Packer *et al.* 2005, Dunham *et al.* 2010, Rangarajan *et al.* 2010). The land claimants came back to Den Staat farm with all their belongings, including livestock. The livestock found in the farm include cows, goats and sheep. The farm is used as a grazing land for livestock and livestock serve as a source of income for land claimants[11]. The presence of livestock within a conservation area has created land use conflict. It was reported that wildlife particularly lions, leopard, jackals and hyena hunt the livestock in Den staat farm[12]. These results are not unique to Mapungubwe; species such as lion, cheetah, and hyena have been reported to kill livestock in villages close to protected areas (Schaller and Crawshaw 1980, Graham *et al.* 2005, Woodroffe *et al.* 2007). In Mapungubwe, a number of incidences of wildlife killing livestock in Den Staat farm have already been reported to SANParks. However, no compensation has been received, and this has devastating effects on the lives and livelihoods of land claimants[13]. These results are similar to Sinthumule (2014), who reported that wildlife from Tuli Circle Safari Area kill livestock in communal areas of Zimbabwe without compensation. This was reported to have devastating effects on local communities.

The killing of livestock by wildlife in Mapungubwe has already created hatred towards wildlife because livestock serve as an important source of income to land claimants. Furthermore, the land claimants are of the view that they have property rights over their land and its resources. In other words, land claimants feel that they have full rights to use the claimed land and its resources as they wish[14]. It is for this reason that in 2015, one of the land claimants killed a rhino in Den Staat farm without a hunting license. As a result, a case was

[11] Interview with land claimant, 23 September 2016 in Mapungubwe
[12] Interview with land claimant, 23 September 2016 in Mapungubwe
[13] Interview with land claimant, 23 September 2016 in Mapungubwe
[14] Interview with land claimant, 23 September 2016 in Mapungubwe

opened with the police and he was arrested and charged for killing wildlife without a hunting permit[15]. This has intensified the conflict between land claimants and park officials.

Den Staat farm is also used by beneficiaries for irrigation farming. The main crops at the farm include water melons, butter-nuts, maize, ground nuts, potatoes, sweet potatoes and green paper[16]. The study also found that, just like other farmers that are within the borders of Mapungubwe National Park but not part of the park, land claimants in Den Staat farm also suffer economic losses. This is because wildlife frequently enters and cause serious damage in their farm[17]. Whilst land claimants suffer from damages caused by wildlife, SANParks is also worried about increased number of people in Den Staat farm and other privately-owned irrigation farms who work as farm workers. It was reported that more snares are found on a regular basis particularly near Den Staat farm, as well as near irrigation farms with high population of farm workers[18]. In other words, SANParks is concerned about high level of poaching because of settlement and irrigation farming within and around Mapungubwe National Park. SANParks is also of the view that there is harvesting of resources within the park which include fuel-wood and fish. As a result, SANParks maintain that the conservation of biodiversity is compromised, because of the presence of people within the National Park. In addition to that, SANParks is also finding it difficult to consolidate Mapungubwe National Park into a contiguous habitat. As a result, Mapungubwe National Park remains a fragmented landscape[19].

There are 10 game farmers within Mapungubwe National Park. This included Pont Drift 12/0, Pont Drift 12/1, Modena 13, Parma 40, Samaria 28/1, Samaria 28/2, Koaxa bush camp, Hackthorne 30, Athens 31, and Riedel 48[20]. Although these farms are within the borders of Mapungubwe National Park, however, they are not part of Mapungubwe National Park. The private game farmers interviewed were of the view that they have property rights over their land and its resources; as a result, they should be allowed to use the land as they wish. At the time of this study, it was found that game farmers use their land for hunting purposes which

[15] Interview with park manager, 24 September 2016 in Mapungubwe; Interview with a farmer, 23 September 2016 in Mapungubwe
[16] Observation, 23-26 September 2016
[17] Interview with land claimant, 23 September 2016 in Mapungubwe
[18] Interview with park manager, 24 September 2016 in Mapungubwe
[19] Interview with park manager, 24 September 2016 in Mapungubwe
[20] Observation, 23-26 September 2016

is a lucrative business particularly in southern Africa[21]. However, there is conflict between game farmers and SANParks because wildlife freely moves from the park into game farms and verse versa. While game farmers regard game farming as the best land use option in the area, SANParks is of the view that hunting within a conservation area is unacceptable. As a result, SANParks is of the opinion that the area should be used for wildlife conservation. This has intensified the conflict between game farmers and SANParks.

The 1940s land use conflict between farmers and conservationists in Mapungubwe is sustained. The 1940s conservationists were convinced that the area was suitable for the conservation of biodiversity. However, the dream of transforming the area into a conservation area did not materialise because farmers were of the view that farming was the best land use option in the area. It is important to note that land ownership in Mapungubwe has changed over years. However, the current land owners particularly farmers maintain the view that Mapungubwe region is good for farming. This is because the area has abundant water from Limpopo River and the climate is conducive for farming. The area does notsuffer from frost which makes it ideal for crop farming particularly tomatoes. Farmers claim that the citrus fruits and crops that are produced in Mapungubwe are of great quality. Hence, they maintain that the area should be used for farming. They also argue that land is a sign of wealth, meaning that when one has land, he/she can never sleep hungry. One farmer commented:
I've been farming on this land for 38 years. Wealth comes from the soil. This land is big enough to make a living for me and my family. I have no intentions of selling it to anyone[22].

On the other hand, conservationists still insist that the area is good for conservation purposes. It is for this reason that the idea of a National Park and a Transfrontier Conservation Areas between South Africa, Botswana and Zimbabwe has been proposed, with the signing of memorandum of understanding in 2006. As demonstrated in the study, the use of the area for farming and conservation has created land use conflict with devastating effects on the lives and livelihoods of farmers.

[21] Interview with a game farmer, 25 September 2016
[22] Interview with commercial irrigation farmer, 22 September 2016 in Mapungubwe

5. 5 Land use conflict between conservation and mining

Robinson (1996) noted that Mapungubwe has got a number of important mineral deposits that include calcite, granite, copper, marble, asbestos, diamond and coal. However, most of the minerals in the region are relatively low-priced and have not been exploited. It is only in Venetia Limpopo Nature Reserve where there is a Venetia diamond mine. Furthermore, there is also an abundance of coal deposits which is associated with the Volksrust shale formation that occurs north of Alldays in the Pontdrift area. About 10-15 km south of the confluence of the Limpopo and Shashe Rivers, there is a mineable coal zone situated on the northern margins. The feasibility of mining these coal deposits just east of Pontdrift was evaluated by Southern Sphere in 1983, but to date no exploitation has taken place (Sinthumule 2014). In recent years, another coal deposit worthy to be exploited has been discovered by Coal of Africa east of Mapungubwe National Park. In 2010, Limpopo coal, a subsidiary of the Australian company Coal of Africa Limited was granted mineral rights by the South African Department of Mineral Resources (DMR) to mine coal 5.6km from Mapungubwe National Park (Mail and Guardian, 5/08/2010). Coal of Africa intended to extract up to 5 million tons of coal each year, through underground and opencast (strip) mining for at least thirty years by removing and processing large quantities of soil. The company also wanted to extract up to 5,000 cubic meters of water per day from the Limpopo River and aquifer. Following Coal of Africa authorisation to commence mining at Vele colliery, local activists formed the Mapungubwe Action Group known as Save Mapungubwe Coalition to campaign against the mining operation near a national park, and the World Heritage Site. The group comprised of the Endangered Wildlife Trust (EWT), the Association of Southern African Professional Archaeologists (ASAPA), Peace Parks Foundation (PPF), World Wide Fund for Nature South Africa (WWFNSA), BirdLife South Africa (BLSA) and the Wilderness Foundation South Africa (WFSA) (Turner, 2016).

The main reason behind the formation of Mapungubwe Action group was to stop mining operation near a national park and the World Heritage Site. This Action group was of the view that mining and related operations will impact on the unique and sensitive landscape. The Mapungubwe Action group partners led the bureaucratic and legal struggle against the mine, because they argued that the environment and national heritage was at risk. Coalition members appealed the issuance of mining rights and the environmental management program, seeking immediate suspension of the mining right, challenging the process through which these approvals were granted, and elaborating upon the mine's substantial adverse

effects on the environment (Turner 2016). UNESCO also expressed concern on the granting of mining license to Coal of Africa in an area that had been proposed as a buffer zone of the proposed transfrontier conservation area shared by South Africa, Zimbabwe and Botswana (UNESCO 2012). Authorisation was also objected on the basis of poor consultation with interested and affected parties, water licence has not been approved, lack of integrated regional plan, and the Environmental Impact Assessment (EIA) process on access and fuel storage was still under way (Peace Parks Foundation 2010).

Despite all these efforts by Mapungubwe Action Group and conservationists to stop mining in the Mapungubwe area, in 2011; Department of Mineral Resources gave authorisation to Australian Coal of Africa to carry on with the Vele coal mine near Mapungubwe National Park. At the time of this study, conservationists were of the view that, ever since mining started, there was too much dust which is contributing to water pollution in the Limpopo River. This has implications on the quality of water consumed by wildlife[23]. The conservationists are of the opinion that the mining company should monitor dust coming from the mining area. They were also worried about noise and too much traffic from the mining area. Conservationists regard mining as a threat to the potential tourism area. Environmentalists are also worried about too many people in the area which has increased the level of poaching particularly on the eastern side of the park[24].

5. 6 Land use conflict between farming and mining

Irrigation farmers have always been against the idea of mining in Mapungubwe. Commercial irrigation farmers are against mining, because it is believed that dust from coal mine will adversely affect the growth of citrus fruits and crops in the area. Essentially, it is believed that dust from mining will reduce production which will significantly jeopardised the food security and the jobs of thousands of farm workers who are currently employed in the area[25]. It is also important to note that irrigation farming is effective in Mapungubwe because of the access to water from Limpopo River. All irrigation farms in Mapungubwe depend entirely on the water from Limpopo River for irrigation purposes. This results in overutilisation of groundwater in the area[26]. About 150 million cubic meters of ground water is extracted

[23] Interview with park manager, 24 September 2016 in Mapungubwe
[24] Interview with park officials, 24 September 2016 in Mapungubwe
[25] Interview with various commercial farmers, 22-26 September 2016 in Mapungubwe
[26] Interview with various commercial farmers, 22-26 September 2016 in Mapungubwe

annually for irrigation purposes through boreholes between Pontdrift and Beit Bridge. This figure does not include water used for mining operation, conservation, settlement and other land use activities in the area. Water extraction is a serious threat to the survival of the floodplain vegetation and the permanent pools that are important habitats for fish, crocodiles, hippo and other aquatic living organism (Hall-Martin *et al*. 1994). Commercial irrigation farmers are already worried that there is too much competition on water among farmers in the area. As a result, farmers are concerned that mining is making the situation worse, because more water is required both in Venetia diamond mine and Vele coal mine. Farmers indicated that they are already experiencing problems of water shortages, and at times they pump salty water and it has devastating effects on the crops[27].

Game farmers, particularly those who have lodges and guest houses are of the view that mining is unacceptable in Mapungubwe. They regard mining as a threat to tourism, which is their source of income. Like irrigation farmers, game farmers are also worried about the quality of water for wildlife and tourists visiting the area[28]. Too much dust coming from coal mine is also one of the main causes of concern for game farmers. They are worried that too much dust will affect the growth of plants which will have negative implications on game in the long run. This will significantly jeopardise the game farming business which may also affect the economy of the area in the long run[29].

5.7 Conclusion

The contemporary land use conflict was presented in this chapter. The chapter has provided the narratives from respondents in Mapungubwe area. Furthermore, the chapter also related the narratives from the respondents to the broader literature in order to highlight the significance of this study within the broader literature. The discussion around the experiences of some stakeholders in Mapungubwe has shed some light on how land use conflict has manifested in the study area. The next section presents the summary, conclusion and the recommendations of the study.

[27] Interview with various commercial farmers, 22-26 September 2016 in Mapungubwe
[28] Interview with various game farmers, 22-26 September 2016 in Mapungubwe
[29] Interview with various game farmers, 22-26 September 2016 in Mapungubwe

CHAPTER SIX: SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This chapter summarizes the research project from objectives, methodology and findings of the study. The deductive conclusions are drawn from the information that has been presented in the preceding chapters. The chapter is divided into three broad sections which are: summary of the research, conclusion and a reflection on the research questions posed in this dissertation, as well as the proposed recommendations to minimize the problems of land use conflict in the study area.

6.2 Summary

This is a study on land use conflicts in Mapungubwe area. The aim of the study was to assess historical and contemporary land use conflict between agriculture and conservation in Mapungubwe. The study particularly intended to investigate the historical and contemporary land-use conflict, compare and contrast the current conservation objectives with the 1940's conservation objectives in Mapungubwe, to examine the reasons that influenced farmers to resist conservation objectives in both the 1940s and the contemporary, as well to investigate the effects of historical and contemporary land use conflict in Mapungubwe. In order to achieve these objectives, documents such as Hansards or House of Assembly debates of South Africa from 1940s, historical documents about Mapungubwe, newspapers articles, books and journal articles were used in investigating the historical land use conflict that took place in Mapungubwe. Semi-structured interviews and field observations were conducted with private game farmers, commercial irrigation farmers, farm workers (former and current), Mapungubwe National Park officials and land claimants. This was done in order to find out the contemporary land use conflict taking place in Mapungubwe.

The study established that, land use conflict in Mapungubwe is not new; rather it started in the 1940s when the United Party government intended to establish Dongola Wildlife Sanctuary. However, the idea of a wildlife sanctuary led to a land use conflict particularly between irrigation farmers and the ruling United Party government. Unfortunately, in the end, the idea of a wildlife sanctuary was caught up in political battles between United Party and the opposition National Party, which eventually led to its abandonment after the electoral victory of the National Party in the general elections of 1948. The contemporary

Mapungubwe is also affected by land use conflict. The conflict is mainly because of other land use activities including irrigation farming, game farming, mining, settlement, and land claims that are not compatible with conservation. Land use activities like irrigation farming, game farming, settlement and land claims are happening within the borders of Mapungubwe National Park. This has made it difficult to consolidate the core area of Mapungubwe National Park. As a result, Mapungubwe National Park remains fragmented.

6.3 Conclusion

The study sought to understand land use conflict, using the Mapungubwe area as a detailed case study. The study has demonstrated that land use conflict in Mapungubwe is a reality and has a long history that dates back to the 1940s. Despite the change in land ownership in Mapungubwe over the years, land use conflict has always been about conservation and farming. Ecologists or conservationists maintain that the area is more suitable for conservation, while, farmers (irrigation and game) regard farming as the best land use option for the area. Contemporary mining and land claims add another layer of conflict that did not exist in the 1940s. As a result, contemporary land use conflict is between conservation and farming, conservation and land claims, conservation and mining, as well as farming and mining. In other words, farming, mining and land claims are incompatible with conservation and this has resulted in land use conflict in the study area. In the 1940s, the idea of a wildlife sanctuary was abandoned because of land use conflict between farmers and conservationists, whereas currently, despite the establishment of the Mapungubwe National Park and the Transfrontier Conservation Area, the existence of private farms (game, irrigation) mining and land claims within and around the conservation area has resulted in land-use conflicts and habitat fragmentation.

6.4 Answers to research questions

Answers to the research questions posed in chapter 1 determine if the study has achieved the aims and objectives of the study. Details of the answers are given in this section. The first research question is: *What were the historical land use conflicts and what are the contemporary land use conflicts in Mapungubwe?* The study has demonstrated that the historical land use conflict was between conservation and farming. Whilst conservationists were pushing for the idea of a wildlife sanctuary in the area, farmers were promoting the idea of farming in the area in order to supply food to the nation. The contemporary land use

conflict is more complicated because, in addition to farming and conservation, there are mining and land claim beneficiaries who are competing for land and water resources in the Mapungubwe area. This has intensified land use conflict in the area.

The second research question is: *What were the conservation objectives in the 1940s and what are the current conservation objectives in Mapungubwe?* This study has shown that the conservation objectives in the 1940s were to change land use from farming to conservation. In other words, the dominant land use activity was both irrigation farming and game farming. The change in land use from farming to conservation was proposed by conservationists and ecologists at the time because the area was considered to be rich in biodiversity, scenic beauty and, most importantly, it was home to the archaeological treasures of Mapungubwe. Furthermore, the supporters of conservation had the idea that the area was not suitable for human settlement and agricultural purposes. This necessitated the need for expanding Dongola Botanical Reserve into a Wildlife Sanctuary. The idea was to create a wildlife sanctuary or a Transfrontier Conservation Area to be shared by South Africa, Botswana and Zimbabwe. However, the idea of creating a wildlife sanctuary in Mapungubwe led to the land use conflict between conservationist (who were mostly government officials) and livestock and irrigation farmers.

Similarly, the contemporary conservation objectives include establishing a protected area and a Transfrontier Conservation Area to be shared by three participating countries (Botswana, South Africa and Zimbabwe). Mapungubwe supports populations of big game, which include elephants and rhinos and all major predators including lions and leopards. According to Mapungubwe National Park Management plan, the area offers the potential for the development of a viable, consumptive and non-consumptive tourism industry. The contemporary conservation objective includes preserving the archaeological treasure of Mapungubwe. The similarity of ivory objects, pottery remains and imported glass beads excavated at different sites that spread across the modern international boundaries of Botswana, South Africa and Zimbabwe, attests to the cultural affinity of the people who lived in the region during the Iron Age period (GMTFCA TTC 2010). Furthermore, the conservationists and ecologists still maintain that Mapungubwe is not suitable for human settlement and farming. As a result, the variety of biodiversity and archaeology of Mapungubwe necessitated the need for changing land use from farming to conservation. This

essentially led to land use conflict between conservationists, irrigation farmers, game farmers, land claimants and those who are supporting mining activities in the area.

The third research question is: *Why did farmers oppose conservation objectives in the 1940's and why are farmers' currently objecting conservation objectives in Mapungubwe?* This study has indicated that farmers opposed conservation in the 1940s in Mapungubwe, because they were against the idea of land expropriation for conservation purposes. Another objection was made on the basis that wildlife conservation would negatively impact on farmers adjoining the reserve, which would lead to human wildlife conflict. Thus, most farmers were worried about the possible economic losses from wildlife damages on their farms which may jeopardise food security. Farmers were also worried that the concentration of large herds of big games like elephants in the area would tend to create problems of soil erosion. This problem was not only going to affect the contemplated wildlife reserve, but also on the farms adjoining the close vicinity of the said reserve. Farmers were also worried about the risk of disease transmission between wildlife and livestock. In the end, the opposition of conservation led to conflict between farmers and conservationists. This also ended up in parliament with the National Party opposing the idea of a conservation area and the United Party supporting the idea.

The contemporary farmers are opposing the idea of transforming Mapungubwe into a conservation area, because they regard farming as the best land use option in the area. For instance, irrigation farmers considered Mapungubwe region to be the best area for farming because the area has abundant water from Limpopo River. The area is also hot and dry, hence it does not suffer from frost, which makes the area good for farming, particularly vegetables and citrus. Farmers also regard the crops and citrus produced in Mapungubwe as of the best quality because of these conditions. On the other hand, game farmers are of the view that, game farming is the best land use option for the area. Farmers opposed the idea of conservation in the area because conservation of biodiversity does not offer any tangible benefits to them. Whilst farmers (irrigation and game farmers) consider Mapungubwe as the best for farming, conservationists or ecologists are regard the area as more suitable for conservation. Hence, they are pushing for the idea of establishing a Transfrontier Conservation Area in the region. These differences in opinions regarding the best land use option in Mapungubwe have led to a land use conflict between farming and conservation.

The fourth research question is: *What are the effects of historical and contemporary land use conflict in Mapungubwe?* The implication of land use conflict that happened in the 1940s in Mapungubwe between farmers and conservationists is that, the idea of a wildlife sanctuary was dissolved. In other words, the idea of a wildlife sanctuary in Mapungubwe region was abandoned following the electoral victory of the National Party in the general elections of 1948. The politics between the National Party and the United Party has made it impossible to proceed with the idea of a conservation area at the time when wildlife sanctuary was established. Unlike the historical land use conflict that made it impossible to establish the conservation area in Mapungubwe, the contemporary land use conflict exists because of a number of land use activities that are not compatible with conservation. In other words, conservationists or ecologists were successful to establish Mapungubwe National Park, however, the existence of irrigation farmers and game farmers within and around the park has fragmented habitat. Mapungubwe National Park is a fragmented habitat with private irrigation and game farms within the Park. Essentially, this has intensified the land use conflict in the area. The land claimants who are staying within the borders of Mapungubwe National Park, and the mining activities around the park also threaten the existence of Mapungubwe as a Park. For instance, the availability of large numbers of people within a conservation area has compromised Mapungubwe as a National Park.

6.5 Recommendations

6.5.1 Promotion of dialogue and cooperation among various interest groups

One of the key aspects of protected area management is to understand the synergies and conflicts between the wants and needs of various interest groups. The success of wildlife conservation and conflict reduction largely depends on the ability of conservationists to incorporate various interest groups to participate on the management of protected areas (Messmer, 2000). Dialogues and cooperation between various interest groups encourage the partnerships and collaboration for mutual assistance which strengthens the possibility of resolving the issue of land use conflict (BorriniFeyerabend and Hamerlynck 2010). Dialogues must begin as soon as possible before any decisions are made. The dialogue should be on how all stakeholders work together to avoid land use conflict that currently should exist in the area. It should also be on the possible strategies on how to use the water from Limpopo River in a sustainable way. It is essential to ensure that all options remain open when the dialogue starts, and that the possible scenarios for the future management of the area are not fixed.

This study also recommends that during the preparation and revision of protected area management plan, SANParks management authority should consult local communities such as land claimants, farm workers, private land owners and other interested and affected parties. The reason for collaborating with communities is to ensure that they participate in the management plan decision making and get better clarification on conflict resolution.

6.5.2 Maintenance of fence

Fencing is increasingly used as a conservation tool to mitigate human wildlife conflict worldwide. However, knowledge of its effectiveness and its impacts on different land users is still very limited. Poor fence maintenance along the borders of protected areas often directly results in an increased permeability of fences and therefore, intensifies human-wildlife conflict and negative attitudes towards wildlife in the adjacent farming areas (Chaminuka 2010). Farm owners who are within the borders of Mapungubwe region complained about wildlife causing damage to their farms because of poor maintenance of fence by SANParks. Therefore, it is important that Mapungubwe border fence should be regularly maintained by SANParks in order to minimize the damage caused by wildlife on farms. Farmers who are within the borders of Mapungubwe National Park should ensure that they also maintain their fences to ensure that they are not affected by wildlife coming from protected areas. This can minimize the impacts of land use conflict that exist in the area.

6.5.3 Compensation

Damage to agricultural crops by wildlife in the vicinity of protected areas is always significant, but it is an undervalued problem. Since the measures to protect crops are generally met with limited success in areas with high animal density; compensation for the damage to crops is necessary to avoid resentment towards conservation by local people and farmers. Compensation is a measure which aims to alleviate conflict by reimbursing people for their losses. There are different ways this can be done. This includes giving out monetary payments in areas where wildlife caused damage. In Mapungubwe, the irrigation farmers who are within the borders of Mapungubwe National Park should be compensated by SANParks whenever their crops or citrus fruits are damaged by wildlife. In a way, this will compensate for the damage cause by wildlife and may lessen the conflict that currently exists in the area.

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LIST OF APPENDICES

Appendix one

List of participants who granted interviews

No.	Name	Institution and position held	Date and place of interview
1.	Mr. Carel Boshoff	Parma farm, Private land owner	21/09/2016, Parma
2.	Mrs. Ina Boshoff	Parm farm, Co-private land owner	21/09/2016 Parma
3.	Anonymous	Parm farm, Farm worker	21/09/2016, Parma
4.	Anonymous	Parma farm, Farm worker	21/09/2016, Parma
5.	Mr. Tapson Chauke	Modena farm, Farm manager	21/09/2016, Modena
6.	Anonymous	Kaoxa bush camp, Manager	21/09/2016, Kaoxa bush camp
7.	Mr. Pieter Boshoff	Welton farm, Private land owner	21/09/2016, Welton
8.	Anonymous	Welton farm, Farm worker	21/09/2016, Welton Farm
9.	Anonymous	Hack thorne, Private land owner	21/09/2016, Hack thorne
10.	Anonymous	Welton farm, Farm worker	21/09/2016, Welton
11.	Mr. Zain langman	Ratho Limpopo citrus, farm owner	22/09/2016, Ratho Limpopo citrus
12.	Mr. Ruan Gown	Samaria farm, Farm owner	22/09/2016, Samaria
13.	Anonymous	Samaria farm, Farm worker	22/09/2016, Samaria
14.	Anonymous	Samaria farm, Farm worker	22/09/2016, Samaria
15.	Mr. Conrad Strauss	Mapungubwe National Park, Park Manager	22/09/2016, Mapungubwe National Park
16.	Mr. Johaness Masalesa	Mapungubwe National Park, Park official	22/09/2016, Mapungubwe National Park
17.	Anonymoys	Mapungubwe National Park, Park official	22/09/2016, Mapungubwe National Park
18.	Mrs. Sophie Sematla	Denstaat farm, land claimant	23/09/2016, Denstaat
19.	Anonymous	Denstaat farm, Farm worker	23/09/2016, Denstaat
20.	Mr. Fanus Van Staden	Weipe 7, Private land owner	23/09/2016, Weipe 7

21.	Anonymous	Weipe 7, Farm worker	23/09/2016, Weipe 7
22.	Anonymous	Weipe 7, Farm worker	23/09/2016, Weipe 7
23.	Mr. Piet Esterhyse	Skutwater, Private land owner	24/09/2016, Skutwater
24.	Mr. Gert Redelinghuyh	ZZ2, Farm mmanager	24/09/2016, ZZ2 Farm
25.	Mr. Matevhu Sithole	ZZ2, Farm worker	24/09/2016, ZZ2 Farm
26.	Mr. Daniel Mbedzi	ZZ2, Farm worker	24/09/2016, ZZ2 Farm
27.	Mr. Piet Esterhyse Junior	Weipe 5, Private land owner	24/09/2017, Weipe 5
28.	Mr. Daniel Erasmus	Depo Weipe, Private land owner	24/09/2016, Depo Weipe
29.	Anonymous	Depo Weipe, Farm manager	24/09/2016, Depo Weipe
30.	Anonymous	Athens 31, Private land owner	25/09/2016, Athens farm
31.	Anonymous	Riedel 48, Private land owner	25/09/2016, Riedel farm
32.	Anonymous	Pont Drift 12/0, Private land owner	25/09/2016, Pont Drift farm
33.	Anonymous	Pont Drift 12/1, Private land owner	25/09/2016, Pont Drift farm
34.	Anonymous	Modena 13, Private land owner	25/09/2016, Modena 13
35.	Mr. Wellington Chamboko	Haneline Boerdery, Farm manager	26/09/2016, Haneline boerdery
36.	Mr. Adrian Coetzer Rood	Noodgrens landgoed, Farm manager	26/09/2016, Noodgrens landgoed
37.	Anonymous	Rhodes Drift farm, Former farm worker	26/09/2016, Noodgrens landgoed
38.	Anonymous	Noodgrens landgoed, Farm worker	26/09/2016, Noodgrens landgoed
39.	Mrs. Sophie Mbadaliga	Rhodes Drift farm, Former farm worker	26/09/2016, All-days
40.	Mr. Hezekiel Mathatha	Rhodes Drift farm, Former farm worker	26/09/2016, All-days

Stakeholders who granted interviews

Source: Author, 2016

Appendix two: Semi structured guiding questions for stakeholders interviewed

Semi-structured guiding questions for private land owners

1. How big is this area?
2. What makes this area so special to you?
3. What are the main land use activities in this area?
4. What are the problems you experience in this area?
5. What is your opinion regarding the issue of wildlife conservation in the area?
6. How have you been consulted regarding the establishment of TFCA?
7. What are the animals causing damage to your farm and how do you deal with them?
8. How many farm workers have you employed?
9. What is your opinion regarding the issue of mining in the area?
10. What is your opinion regarding the issue of land claims?

Semi-structured guiding questions for land claimants

1. What makes you claim this land?
2. How many farms have you claimed so far?
3. How many farms are successfully claimed?
4. When did you get back your farm?
5. When did you come back stay on this farm?
6. What makes you come back to stay on this farm?
7. What are the current land use activities on this farm?
8. What are your feelings regarding the issue of wildlife conservation and the establishment of TFCA?
9. What is your opining regarding mining in the Mapungubwe area?
10. What are the challenges of living in a conservation area?
11. Which animals cause damage to your farm?
12. What are your future plans regarding this piece of land you have acquired and other lands that have been claimed?

Semi structured guiding questions for SANParks officials

1. How big is Mapungubwe National Park?
2. What was the process followed to acquire private lands in order to incorporate them into the park?

3. How many farms have been acquired at the moment and how many of them are under the management of SANParks?
4. How do you solve the problem of wildlife causing damage to commercial irrigation farms?
5. What is your opinion regarding the issue of land claims in the region?
6. What are the challenges you are faced with the land claimant's beneficiaries?
7. How do you deal with the local communities that are poaching animals?
8. What is your opinion regarding farming in the conservation area?
9. How are you currently managing Biodiversity in Mapungubwe National Park?
10. How will GMTFCA improve biodiversity of the area and the livelihood of local communities?
11. How do you deal with the issue of mining in Mapungubwe region?
12. What are the challenges you are faced with in general?

Semi-structured guiding questions for current farm workers

1. How long have you been working on this farm?
2. How do you feel about the issue of land use conflict between farming and conservation?
3. What is your opinion regarding the establishment of TFCA?
4. What are your job descriptions at this farm?

Semi-structured guiding questions for the former farm workers

1. How did it happen when you lose your job?
2. How did you feel after losing your job?
3. When did you start working on the farm and when did you stop working on the farm?
4. What was your job description?
5. What happened to you and the rest of the other farm workers who lost their job?
6. Where you given notice to leave the area?
7. Where did you go after leaving the farm?
8. What is your feeling towards conservation and the establishment of TFCA?

Semi structured guiding questions for stakeholders interviewed

Source: Author, 2016