

Multiple-land use practices in transfrontier conservation areas: the case of Greater Mapungubwe straddling parts of Botswana, South Africa and Zimbabwe

Ndidzulafhi Innocent Sinthumule^{CFMR}

University of Venda, School of Environmental Sciences, Department of Ecology and Resource Management; Private Bag X 5050, Thohoyandou, 0950, South Africa; e-mail: innocent.sinthumule@univen.ac.za

How to cite:

Sinthumule, N.I., 2016: Multiple-land use practices in transfrontier conservation areas: the case of Greater Mapungubwe straddling Botswana, South Africa and Zimbabwe. In: Szymañska, D. and Biegańska, J. editors, *Bulletin of Geography. Socio-economic Series*, No. 34, Toruń: Nicolaus Copernicus University, pp. 103–115. DOI: <http://dx.doi.org/10.1515/bog-2016-0038>

Abstract. Transfrontier Conservation Areas (TFCAs) have recently emerged as the 21st century approach to managing protected areas in southern Africa. Unlike national parks and other protected areas that place emphasis only on the protection of plant and animal species within their borders, transfrontier conservation areas promote conservation beyond the borders of protected areas. Consequently, this mega-conservation initiative encourage multiple land-use practices with the purpose of improving rural livelihoods whilst promoting biodiversity conservation. Thus, land parcels under different forms of tenure are brought together into a common nature conservation project. This study argues that the integration of various land-use practices within one area benefits conservation goals at the expense of local communities and irrigation farmers. To substantiate this argument, the study draws on fieldwork material collected in the Greater Mapungubwe Transfrontier Conservation Area spanning parts of Botswana, South Africa and Zimbabwe. The study concludes that multiple-land use practices in transfrontier conservation areas is only promoted by wildlife managers to gain access to extra land.

Article details:

Received: 06 March 2015
Revised: 30 September 2015
Accepted: 02 November 2015

Key words:

transfrontier conservation,
communal land,
land-use conflict,
Mapungubwe,
farming.

© 2016 Nicolaus Copernicus University. All rights reserved.

Contents:

1. Introduction	104
2. Synopsis of transfrontier conservation areas in southern Africa	105
3. Study area and methods.	106
4. Mapungubwe experience	108
5. Conclusion	113
Acknowledgements.	113
References	114

1. Introduction

Historically, the conservation of biodiversity has been practiced in the form of national parks and nature reserves. The common traditional methods used in the management of national parks and protected areas followed the ‘fence and fines’ approach underpinned by ideals of *in-situ* conservation (Barrett, Arcese, 1995; Hansen, DeFries, 2007; Muchapondwa et al., 2009). The ‘fence and fines’ approach to conservation focused exclusively on the preservation of wilderness areas, maintenance of ecosystem and ecological processes, conservation of native flora and fauna and providing public enjoyment within the borders of protected areas (Heydenrych et al., 1999). Thus, areas surrounding protected areas were not under any form of conservation or protection. However, it has been argued that the system of national parks and nature reserves comprises a disparate and disconnected chain of habitat islands which has blocked the natural migration patterns of wildlife and threatened species at risk due to lack of genetic mixing (Schroder, 1999; Hanks, 2003). Furthermore, there has been a growing concern by conservation biologists that although national parks and protected areas are significant for the maintenance of the biodiversity of any country, they are not a sufficient solution for biodiversity conservation despite adequate management within their borders (Miller, 1996; Trisurat, 2006; Hilty et al., 2006; Hansen, DeFries, 2007; Muchapondwa et al., 2009) because individual protected areas lack collaboration beyond the legal boundaries (Trisurat, 2006). It is also argued that changes in land use outside protected areas can alter ecological functions inside the protected areas and result in biodiversity loss, given that protected areas are almost always parts of larger ecosystems (Hansen, DeFries, 2007). These weaknesses of national parks and protected areas form a persuasive argument for a much more comprehensive approach to protect biodiversity even beyond protected areas. Transfrontier Conservation Areas (TFCAs) that straddle the political boundaries between two or more countries, and cover ‘natural systems’ that include one or more protected areas (Sandwith et al., 2001) have emerged as an alternative approach to conservation. Over the past three

decades, interest in conservation has rapidly rallied around the concept of TFCAs because they incorporate protected and non-protected areas and integrate them across international borders. Thus, the concept of TFCAs recognizes that sustainable wildlife conservation goes beyond the borders of protected areas (Griffin et al., 1999; De Villiers, 1999; Van der Linde et al., 2001; Hanks, 2003; Peace Parks Foundation, 2013). This argument of promoting conservation beyond borders of protected areas is in support of Ohmae (1993) ‘borderless world’ thesis in which investments, industry, information flow and individuals move relatively unimpeded across national borders. The borderless thesis suggests that a nation state has become an unnatural and dysfunctional unit for organizing human activities. In other words, state borders no longer make a difference in the borderless world. Essentially, conservation beyond the borders of protected areas that transcends multiple land owners including communal, state and private land encourages multiple land use practices (Ferreira, 2006; Munthali, 2007). The goal of multiple-land use practices is to improve rural livelihoods whilst promoting biodiversity conservation (Van der Linde et al., 2001; Sandwith et al., 2001; Munthali, 2007). The main claims here are that the creation of TFCAs will enhance conservation of biodiversity and promote socio-economic development within one area. These claims about TFCAs provide a useful theoretical lens for analyzing the implications of multiple land use practices in TFCAs in post-apartheid southern Africa. This study argues that multiple land use practices in TFCAs are in practice, a strategy to expand the area under wildlife, with no concern for the livelihoods of agropastoralists and commercial irrigation farmers in areas within and adjacent to the core protected areas. In other words, the main argument of this paper is that multiple land use practices in TFCAs have increased agropastoralists vulnerability, rather than bringing economic benefits, as argued by proponents of TFCAs.

The aim of this paper is to assess the impacts of multiple-land use practices on biodiversity and local livelihoods. The key research question is: What are the implications of multiple-land use practices on biodiversity and local livelihoods in the creation of Greater Mapungubwe TFCA? The first section of the paper presents a brief overview of TFCAs

in southern Africa, focusing on the challenges and controversies affecting this mega conservation initiative. The second part explains the location of the study area and the methods used to collect and analyze data. The third section presents empirical evidence of multiple-land use practices from Mapungubwe TFCA while the last section presents the conclusion.

2. Synopsis of transfrontier conservation areas in southern Africa

The methods of combining protected areas and other land use type to create TFCAs has become the most dominant approach in modern conservation all over the world (Hanks, 2003). More proposals for land management are being made at the landscape-scale to encourage connectivity of protected areas and other land use types across the borders of two or more countries to form TFCAs. The purpose is to manage the entire landscapes as a unit where the region in question encompasses the network of existing protected ecosystems or the unprotected ecosystem or portions of both across the border (Margules, Pressey, 2000; Pence et al., 2003; Bennett, 2004; Muchapondwa et al., 2009). Thus, TFCAs are premised on transforming international borders and the need to reconfigure transnational spaces into a borderless landscape (Fall, 2003; Noe, 2010; Ramutsindela, 2014). There are two border narratives that support the establishment of TFCAs. The first narrative is that borders are political rather than ecological, and therefore the political functions of borders should be removed for purposes of promoting ecological integrity (Sandwith et al. 2001; Hanks, 2003). The idea is to re-establish ecological regions that have been disrupted by imposed human borders. The second narrative is that borders were imposed by colonial governments to serve political purposes (Griffiths, 1986). Collectively, these two narratives render political borders irrational and suggest the need to transform state and property borderlands through conservation in the form of TFCAs. In other words, TFCAs transcends multiple land owners including communal, state and private land. The idea is to promote conservation of biodi-

versity, driving economic growth through regional integration and development; promotion of peace and security and improve rural livelihoods (De Villiers, 1999; Katerere et al., 2001; Hanks, 2003). Of particular interest in this study is the claim that multiple land use practice in TFCAs improve rural livelihoods whilst promoting biodiversity conservation in human dominated landscapes. TFCAs that are created by transforming state and property borders are on the increase particularly in southern Africa. At present, 10 TFCAs have been established in the region through signing of treaties and Memorandum of Understanding (MoU) with 8 more to follow (Peace Parks Foundation, 2013).

The primary driver of TFCAs in southern Africa is the Peace Parks Foundation whose mission is to facilitate the establishment of these conservation areas and the development of human resources necessary to manage them (Peace Parks Foundation, 2009; 2010). The flagship of the Peace Parks Foundation effort thus far has been the creation of Kavango-Zambezi (KAZA) TFCA and Great Limpopo Transfrontier Park (GLTFP) because of the sizes of the parks and the fact that treaties have been signed. The proposed KAZA includes Angola, Botswana, Namibia, Zimbabwe and Zambia covering an area of 278,000 km². The KAZA TFCA became a legal entity when the five partner countries signed a treaty in Luanda, Angola on 18 August 2011 (Peace Parks Foundation, 2013). The justification for the creation of KAZA TFCA is the huge population of more than 200,000 elephants (Metcalf, Kepe, 2008). The idea of a TFCA is to re-establish ecological systems by allowing free movement of wildlife across human imposed borders. The KAZA TFCA transcends multiple land owners including communal, state and private. A total of 60% of the land devoted for TFCA is communal land. Consequently, human-elephant conflict is a real concern as growing elephant populations make increased forays out of unfenced protected areas into communal areas (Metcalf, Kepe, 2008).

Similarly, the GLTFP includes Mozambique, South Africa and Zimbabwe covering an area of 89,000 km² (Ferreira, 2004). The idea since 1995 has always been that the Gaza-Kruger-Gonarezhou (now Great Limpopo TFP) would become a TFP with multiple-land use, particularly with regard to the Mozambique parts, where the aim was to help

impoverished local communities in that country who live within the areas earmarked for the park (Ferreira, 2006). Thus, the establishment of this mega-park is supposed to boost tourism, protect biodiversity, uplift communities and promote harmony in southern Africa (Ferreira, 2004).

The idea of a park was formalized by signing an international treaty by South Africa's Thabo Mbeki, Mozambique's Joaquim Chissano and Zimbabwe's Robert Mugabe on 09 December 2002 (Van Amerom, Büscher, 2005). In the same year, the fence that formed a political border between South Africa and Mozambique was removed with the purpose of re-establishing an ecological region that it had disrupted (Hanks, 2003; Ramutsindela, 2004). The removal of the fence culminated with the release of elephants from South Africa's Kruger National Park into Mozambique (Spierenburg, Wels, 2010; Ramutsindela, 2007). It is important to note that South Africa's Kruger National Park has been struggling with elephant populations that have exceeded the carrying capacity. The removal of the fence created a bigger ecological space, which allowed park officials to relocate excess elephants from Kruger National Park into Mozambique (Ramutsindela, 2004). TFCAs, therefore, create bigger ecological range, which encourages free movement of wildlife from one country to another.

Ironically, the release of wildlife from South Africa's Kruger National Park to Mozambique did not take into account the people living on the Mozambican side of the park. Consequently, an increasing number of wildlife including lions and elephants from the Kruger migrating to the Mozambican section of the park had devastating effects on the lives and livelihoods of those living in the park (see Spierenburg et al., 2008; Milgroom, Spierenburg, 2008). To make matters worse, the United States Agency for International Development (USAID) and a Peace Parks Foundation consultant concluded that the area along the banks of Shingwedzi River where the majority of Mozambican people live is the most suitable for sustaining viable wildlife and tourism development (Spierenburg et al., 2008; Milgroom, Spierenburg, 2008). Resident people are being forced to relocate in order to create extra space for wildlife and to make the park more attractive for private investment (Ferreira, 2006; Munthali, 2007; Spierenburg et al., 2008; Milgroom, Spierenburg,

2008; Lunstrum, 2010). As a result of these controversies, Wolmer (2003: 266) considers TFCAs as the latest in a line of top-down, market-oriented environmental interventions pushed on Africa by international bureaucracies (including the World Bank, bilateral donors, international conservation organizations) and the private sector. Hence, Duffy (2006: 109) argued that TFCAs (and global environmental governance in general) can often be more accurately viewed as an undemocratic phenomenon, and mainly top-down in their approach.

3. Study area and methods

The study area is Greater Mapungubwe TFCA (GMTFCA) which is located at the confluence of the Limpopo and Shashe Rivers, on the international borders between Botswana, South Africa and Zimbabwe. The GMTFCA is formed from integrating state, private and communal land. On the Botswana side, the land committed to the TFCA is the Northern Tuli Game Reserve (NOTUGRE) which covers an area of approximately 75,000 ha. In South Africa, the land is made up of Mapungubwe National Park (a World Heritage Site), contracted freehold land that is not owned by South African National Parks (SANParks) but found within Mapungubwe National Park, and Venetia Limpopo Nature Reserve, which combined together constitute 55,000 ha. On the Zimbabwe side, the land committed to the TFCA is Tuli Circle Safari Area, Sentinel Ranch, Nottingham Estate and communal land of Maramani, Machuchuta and River Ranch which combined together constitute 130,000 ha (GMTFCA TTC, 2010). Thus, the total ecological land area of GMTFCA is 260,000 ha (Fig. 1).

The study uses both primary and secondary sources of data. Primary data was collected between February 2011 and June 2013. Primary data were collected through, first, interviews. Interviews were used to gain insights from government officials, conservation NGOs who are directly involved in the creation of TFCA, communities within and around TFCA and private land owners. Face-to-face interviews were conducted in participants' home areas until all stakeholders had been interviewed. A semi-structured interview was found more suitable

ble in this study because it is more flexible and allows for an open dialogue that can extend beyond the parameters set by the interview schedule. Second, observations were made at the time of interviewing. While interviewing participants, their daily

land use activities were noted. By spending time with communities and participating in their daily activities, the undertakings of local communities became clearer to the researcher and were therefore recorded in the data collection note book.

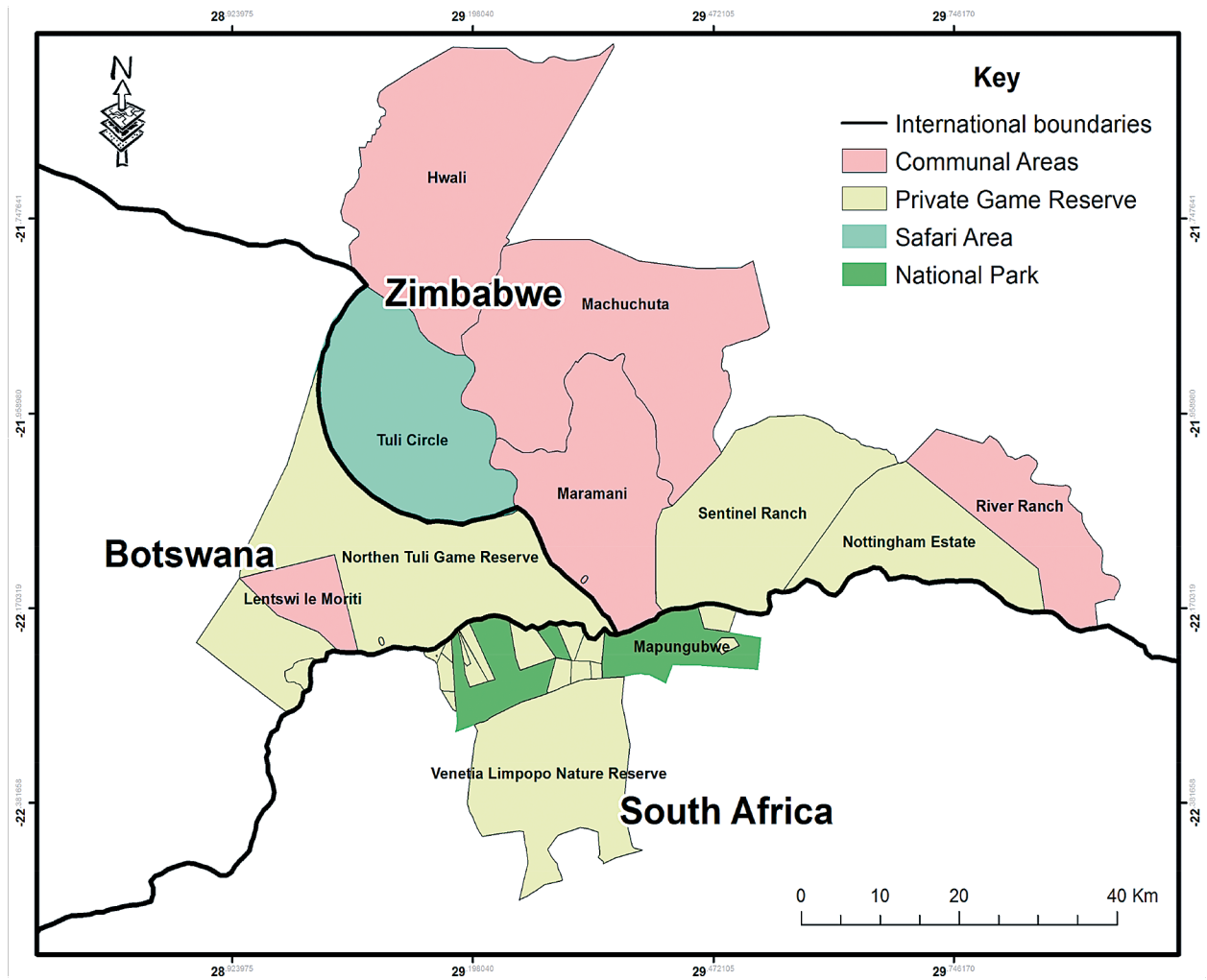


Fig 1. Location of the study area

Source: GMTFCA TTC (2010)

Secondary data that were used in this study include official documents. The main documents reviewed included Memorandum of Understanding, government reports, Peace Parks Foundation reports and maps, and the integrated development plan of the Greater Mapungubwe TFCA. Institutional documents were used to obtain background information about the study area, the agreements signed on TFCA, biodiversity management, land use activities, economic and community develop-

ment, and land ownership in the Limpopo Valley. In addition, documents were also used as a source of information to visually identify the various components of the proposed TFCA during data collection and to understand the official positions on the TFCA project.

The collection and analysis of data were done at the same time throughout the research process. Data obtained from each stakeholders were recorded on a notebook. In instances where there were gaps in the

recorded notes, a follow-up interview was arranged in order to understand what the interviewee actually said. The summary of information gathered was compared with the research question. This helped to determine the type of information to be collected in the next field visits. In addition, it helped to know the groups of people who had been interviewed and those who still needed to be interviewed. This was done throughout the research process until all stakeholders in each country were interviewed.

4. Mapungubwe experience

The idea of a TFCA at the confluence of Limpopo and Shashe has a long history that dates back to 1922 from an initiative of General Jan Smuts who was then Prime Minister of the Union of South Africa. It would have been the first formal trans-frontier park in Africa, because the neighboring Rhodesian (now Zimbabwe) government and the colony of Bechuanaland (now Botswana) were willing to cooperate in the venture (Carruthers, 2006; 2009). Unfortunately, the establishment of a TFCA at the confluence created political differences between Smuts' government (United Party) and the opposition (National Party) that eventually led to its abolishment by the National Party after winning the election in 1948 (Carruthers, 2006; 2009). Over the last two decades, Mapungubwe region has undergone a transformation similar to that proposed by General Smuts. The dream of establishing the TFCA at the confluence of Limpopo and Shashe Rivers was finally realized with the signing of the Memorandum of Understanding by the Ministers of the three partner countries on 22nd June 2006 (Memorandum of Understanding, 2006).

Since the land dedicated for Mapungubwe TFCA includes government, private and communal land, the Greater Mapungubwe TFCA transcends numerous land owners. The idea of integrating various land tenures is to transform space by removing state and property borders that are seen as fragmenting habitats and entire ecosystems. The goal is to increase the habitat size required by large mammals, particularly elephants and to re-establish an ecological system that has been disrupted by different human activities. For instance, an interview

with the Game Reserve General Manager at Northern Tuli Game Reserve (NOTUGRE) in Botswana indicated that NOTUGRE has been struggling with the elephant populations that have exceeded the carrying capacity. The establishment of the GMTFCA in the region is seen as providing a solution to the problem of elephant overpopulation in that the GMTFCA creates extra space for the elephants to roam freely across the borders and within village land. The main objective of creating extra space for wildlife is to meet conservation goals, as culling is not an option because the southern African countries with the exception of Angola are all signatories of the United Nations (UN) Convention on International Trade in Endangered Species on Wild Fauna and Flora (CITES).

Whereas there is significant border transformation for purposes of wildlife conservation, local communities and irrigation farmers within and around the TFCA are suffering from land use conflict as a result of increased presence of wildlife. The term land use conflict is not clearly defined. However, based on the review of conflict literature, a conflict exists whenever incompatible land use activities occur in the same area (Von der Dunk et al., 2011). In the case of Mapungubwe region, there are a number of land use activities within the area earmarked for the TFCA. This includes livestock farming, agriculture, and residential areas or communal lands. On the Botswana side of the TFCA, the conflict is more common in Motlhabaneng, Mathathane and Letswe Le Moriti village (Interview, Senior Wildlife Warden, 29/10/2012). Motlhabaneng and Mathathane are the last two settlements on the western side before entering the NOTUGRE main gate whereas Letswe Le Moriti village is within NOTUGRE. In Letswe Le Moriti village, livestock graze together with wildlife because there are no electric fences that separate them. There is no border fence to control livestock from grazing with wildlife. This creates wildlife-livestock conflict which increases vulnerability of local communities because of the increased presence of wildlife in communal land. As a result, the livestock are often killed by dangerous wildlife, as made clear by one community member in Letswe Le Moriti village:

"I do not have a job. My job is to look after my livestock. I currently have 63 goats and 67 cows and

I make an income from my livestock. The money I generate from selling livestock is used to support my family. It is sad to see wildlife killing our livestock. In 2011, 8 of my cows were killed by lions and 1(one) goat was killed by an elephant. In 2012, only 1(one) goat was killed by a cheater. I like wildlife but the problem is that they are killing my livestock. I only pray that God should protect our livestock from wildlife because I cannot live without them” (Interview, Community member 1, 22/09/2012).

It is clear from the comment above that rather than multiple land use practices in TFCA contributing to economic benefits to local communities as argued by proponents of TFCAs, it is rather leading to economic losses. The livestock that are killed by wildlife are reported to the Department of Wildlife and National Parks (DWNP) for compensation. Once the claim has been reported, the Department sends its official to the scene where the incident happened to investigate the validity of the claim. If the claim is valid, the owner or a community member is compensated for the damage caused by wildlife (Interview, Chief Wildlife Warden, 29/10/2012). The interviews with the community members indicated that although the DWNP compensates the communities for the damage caused by wildlife, communities complain that the compensation is insufficient as compared to the income that is made by selling cows, sheep or a goat. In addition to the killing of livestock, it emerged from the interviews that the greatest fear in Lentswe Le Moriti emerged as that of attacks on people by wildlife when moving within the reserve, and fear for their children's safety.

In Motlhabaneng and Mathathane villages, conflict is between livestock and wildlife. Furthermore, the wild animals also cause damage to crops in agricultural areas near NOTUGRE. The border fence on the western side of NOTUGRE is no longer maintained and at the time of fieldwork the fence was not electrified. This reluctance in the maintenance of NOTUGRE border fence is in line with the idea of creating a borderless landscape for ecological reasons. The idea is to increase habitat size required by large mammals particularly elephants, which is anticipated to improve biodiversity conservation and management. Consequently, wildlife had free access to Motlhabaneng and Mathathane villages. The main gate in NOTUGRE is always open with no

ranger at the entrance and this allows free entry of wildlife into the two villages. All these have allowed wild animals to cause serious damage to crops, with very little compensation from the DWNP (Interview, Chief, 18/09/2012). The economic implications on the livelihoods of local communities are the loss of livestock that are an important source of income to the villagers as captured in the following comment by one community member in Motlhabaneng:

“I acquired the farm in the year 2000 and the size of the farm is 4km². My livestock is the main source of income because I do not work. I sell my livestock when there are weddings or funeral and I am able to make a living. However, most of my livestock are killed by lion, leopards, crocodiles, hyena and jackal in the evening while they are in the kraal. Though, I report any killing of my livestock to the DWNP for compensation, the money we are given is too little. Sometimes we are not even compensated at all if there is not sufficient evidence” (Interview, Community member 3, 13/06/2013).

In addition, crops serve as a source of food to many rural villagers. Communities of Motlhabaneng and Mathathane villages plant their crops along the NOTUGRE boundary. The main crops that are planted include maize, groundnuts, beans, watermelon and sorghum. These crops rely on rainfall. The crops are affected by wildlife that comes out of NOTUGRE as the following comment makes it clear:

“Our farm is only 9 ha and it is our main source of food as both of us do not work. We only have six cows and at least sixty goats which also serve as a source of income and food. We plant maize and pumpkin but elephants coming from NOTUGRE cause a lot of damages in our farm. When they get into the farm, they harvest for us and we have no energy to fight them because they are dangerous. Other wildlife that is also problematic includes impalas, steenbok and kudu” (Interview, Community member 4, 14/06/2013).

The two quotations above by subsistence farmers does not show any concern for economic benefits to local communities as argued by proponents of TFCAs. Rather, multiple land use practices in TFCA is the source of destruction for both crop and livestock farmers. These have devastating effects

on the lives and livelihoods of subsistence farmers in Botswana. In Lentswe Le Moriti, Motlhabaneng and Mathathane villages there is no tourism infrastructure like lodges, guest houses and hotels. Tourism infrastructure is well-developed only in private reserves and state owned land. Consequently, communities do not benefit economically from

ecotourism in the region. As noted above, the livelihoods of local communities depend on farming which is under serious threat because of wildlife. The conflict is so intense in the three villages that in 2011, a total of 283 cases were reported to the DWNP by these communities as indicated by Table 1.

Table 1. The number of reports that were received, species involved as well as the amount paid for the damage in each month.

Month	Number of Reports	Species involved	Amount Paid
January	9	Elephant, hyena, leopard, warthog, zebra and wild dog	P1,680
February	12	Elephant, wild dog, leopard, springhare, giraffe, crocodile, kudu, civet and zebra	Nil
March	18	Elephant, hyena, leopard, cheetah, hyena, porcupine, kudu, giraffe and impala	Nil
April	20	Elephant, cheetah, leopard, warthog, porcupine, hippo and kudu	Nil
May	48	Elephant, hyena, leopard, warthog, baboon and impala	Nil
June	38	Elephant, hyena, leopard, warthog, porcupine, impala, cheetah and wildebeest	Nil
July	18	Elephant, hyena, leopard, warthog, porcupine, kudu, cheetah, python & wildebeest	P1,295
August	23	Elephant, hyena, leopard, warthog, porcupine and lion	Nil
September	21	Elephant, impala, lion, African civet, leopard, porcupine, warthog, springhare, zebra, gemsbok and cheetah	Nil
October	26	Leopard, hyena, elephant, springhare, porcupine, warthog, wildebeest, impala, lion, mongoose and steenbok	P3,625
November	27	Elephant, hyena, leopard, warthog, springhare, kudu, zebra, impala and lion	P14,510
December	23	Elephant, cheetah, leopard, springhare, impala and lion	P4,795
TOTAL	283		P25,905

Source: Department of Wildlife and National Parks, 2011

Table 1 is a demonstration that the creation of Mapungubwe TFCA has increased subsistence farmers vulnerability in Botswana through the increased presence of wildlife in communal areas. Whereas proponents of TFCAs claimed that multiple land use practices in TFCA will improve biodiversity whilst improving the livelihoods of local communities, in this situation, TFCA is bringing economic loss to communities. This has devastating effects on the lives and livelihoods of community members.

The conflict between livestock and wildlife exists on the eastern side of NOTUGRE as well. The livestock from Maramani in Zimbabwe frequently pass through Shashe River into NOTUGRE to access grazing. As a result, livestock graze together with wildlife; with the consequent competition over

grazing material that also leads to overgrazing and soil erosion in NOTUGRE, particularly near Shashe River. It also results in conflict between wildlife and domestic animals leading to death of livestock, as indicated from an interview with the Game Reserve Managing Director. As a mechanism for dealing with livestock in NOTUGRE, any domestic animal that enters into NOTUGRE from Zimbabwe is impounded (Fig. 1).

Figure 2 shows that more than 250 cattle are impounded in NOTUGRE from Zimbabwe every year. The highest number of impounded cattle was in 2011 whereas the lowest was in 2006. The owners of the livestock are identified with the help of Veterinary officials from Zimbabwe. The livestock are released on condition that the owner of livestock pays a fine of US\$10 per cow to the gov-

ernment of Zimbabwe. However, this strategy has run into problems because most of the community members are poor and cannot afford the required fees. As a result, the owners of the cattle are required to pay a fine of at least US\$1 per cow. This

is done to ensure that the owners take care of their cattle all the time. Nevertheless, cattle invasion into NOTUGRE continues to be a threat, as revealed by an interview with the Game Reserve Managing Director.

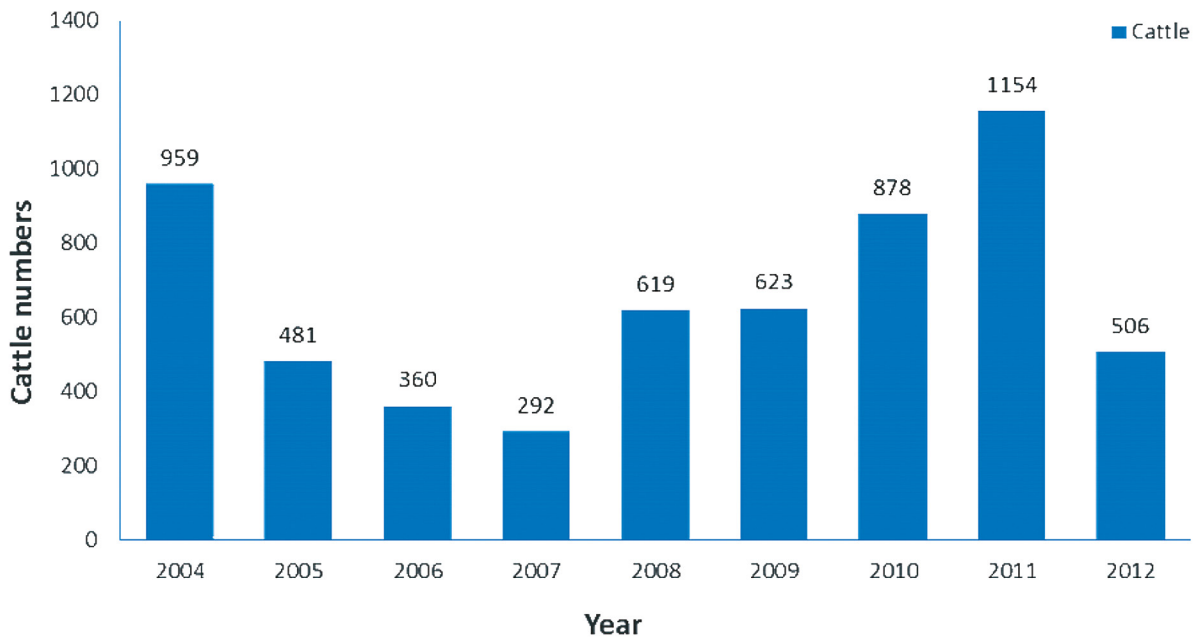


Fig. 2. Annual number of cows from Maramani village impounded in NOTUGRE from 2004 to 2012

Source: Pitsani Game Reserve in NOTUGRE, 2013

While there are statistics of number of cattle from Zimbabwe that are impounded in NOTUGRE, there are no statistics on increased presence of wildlife particularly elephants, lions, jackals and hyenas causing damage in communal land in Zimbabwe. The wild animals invading communal land are not impounded and if community members try to impound or chase wildlife, they are considered poachers as made clear by interviews with community members. Furthermore, there are no fees that NOTUGRE or any other conservation bodies compensate agricultural and livestock farmers in Maramani village who are continuously affected by wildlife.

The Zimbabwe side of the TFCA is dominated by communal land which, at the time of this study, included Machuchuta, Maramani and River Ranch. Just as in Botswana, in these communal lands there is no tourism infrastructure. Their socio-economic livelihoods depend entirely on subsistence farm-

ing. However, the increased presence of wildlife has created human-wildlife conflict, which is very common in Maramani village. The Maramani communities occupy the central position within the proposed TFCA. The village borders wildlife conservation areas on three sides. On the western side there is Tuli Circle Safari Areas and NOTUGRE, Sentinel Ranch on the eastern side and Mapungubwe National Park on the southern side. There is no fence that separates Maramani communal area from adjacent conservation areas. Though the fence has not been removed in Mapungubwe National Park, South African National Parks (SANParks) has been reluctant to maintain the fence along the border of Zimbabwe and Botswana since the establishment of the TFCA, as indicated by an interview with a land owner. This is not surprising because the idea of a TFCA is to create a landscape that is free of borders. Consequently, this has allowed elephants and other wildlife to traverse freely out of Mapungubwe National Park

to Zimbabwe and Botswana. Whereas the resident wildlife populations in Maramani village are low, animals moving out of Mapungubwe National Park in South Africa, Tuli Circle Safari Area, Sentinel Ranch in Zimbabwe and NOTUGRE in Botswana cause human-wildlife conflict. There are problems of wildlife that hunt domestic animals in the evening as indicated by one community member in Maramani:

“I make a living out of my livestock. There is no other job that I do except looking after my livestock. I have donkeys, goats, cows and sheep but unfortunately I have lost a lot of goats and sheep. They are not killed during the day while grazing; rather they are killed by Hyena and Jackals in the evening while they are in the kraal. These animals are the biggest threat to our livestock” (Interview, Community member 5, 13/05/2011).

In this instance, the creation of Greater Mapungubwe TFCA has increased agropastoralists vulnerability because of the increased presence of wildlife in communal land. Once again, rather than multiple land use practices in TFCA bringing economic benefits to local communities as claimed by proponents of TFCAs, it is rather bringing economic losses. The killing of domestic animals by wildlife has already created some antagonism and hatred towards wildlife because domestic animals are an important component of food security in communal areas of Zimbabwe. In addition to killing of domestic animals, there is also damage to crops. Although wildlife is the major source of income in Zimbabwe through trophy hunting, wild animals are, however, also a major source of destruction for agricultural produce in communal land. There is on-going conflict between wildlife and people along the Limpopo and Shashe Rivers and one informant commented on conflict that:

“We cultivate maize, watermelon and pumpkin to feed elephants and baboons in this area. A lot of elephants coming from Botswana and South Africa destroy our crops every year. After drinking water from Limpopo and Shashe rivers, they come to destroy our farms. We don't harvest anything and we are not compensated by government for the damage caused by baboons and elephants” (Interview, Community member 6, 14/05/2011).

Wild animals, particularly elephants and baboons, that transit through Maramani raid crops

in communal farms along Limpopo and Shashe leaving the community stranded with no compensation from government. In contrast to Botswana where communities are compensated for the damage caused by wildlife, communities in Zimbabwe are not compensated. This results in economic losses which significantly jeopardize the food security of communities. Similarly, in this scenario, the multiple land use practices on the Zimbabwe side of the TFCA has increased subsistence farmers vulnerability, rather than bringing economic benefits. Whereas the establishment of the TFCA was to bridge the gap between communities and conservation, the gap is only becoming wider because of the conflicts that continue to threaten the livelihoods of local communities. In addition, instead of communities benefiting from opportunities created by the TFCA, communities only suffer from the effects of conservation. These conflicts have already created some suspicions and antagonism among community members. Despite the popular TFCA idiom that no forced removal of communities will take place, the increased presence of wildlife in communal land and frequent destruction of livestock and crops may in future frustrate community members and persuade them to move out of the TFCA.

On the South African side of the TFCA, there is no communal land. Consequently, the conflict is between conservationists and irrigation farmers. The current Mapungubwe National Park is a fragmented landscape with 10 commercial irrigation farms that are within the borders of the park but not part of the park. The conflict as a result is of elephants causing damage to irrigation farms in the Mapungubwe area. The irrigation farmers complain that SANParks does not maintain the fence around Mapungubwe National Park. In addition, the border (which previously was a military fence) is no longer maintained by government. So elephants coming from Botswana, Zimbabwe and Mapungubwe National Park cause considerable damage to their farms with no compensation (Interviews, Irrigation farmer 1, 23/07/2011; Irrigation farmer 2, 09/12/2011). In his own words, one irrigation farmer commented that:

“My biggest problem in this area is baboons and the bloody elephants. These animals are all over in this area and they cause serious damage when they enter

into my farm. I spend a lot of money to pay my employees who guard baboons from entering the farms. In addition, when there is drought, the bloody elephants and warthogs also get into my farm to harvest and this has serious economic implications” (Interview, Farm manager, 09/12/2011).

As made clear by the comment above, multiple land use practice on the South African side of the TFCA has increased vulnerability of irrigation farmers because of the increased presence of wildlife. In the same manner, rather than multiple land use practice in TFCA bringing economic benefits to local communities as argued by proponents of TFCAs, it is rather bringing conflicts. Although irrigation farms are surrounded by electric fences, they continue to suffer from the effects of wildlife, particularly elephants, baboons and warthogs. When the idea of a TFCA emerged in the region, irrigation farmers were persuaded to sell their land to SANParks. However, the majority of irrigation farmers were not interested in selling their land because of the good economic returns. These conflicts have already created some suspicions and antagonism among irrigation farmers. The increased incursion of baboons, elephants and other wildlife may frustrate irrigation farmers and induce them to sell their land to SANParks. This will have a positive impact on biodiversity and a negative impacts on farmers and farm workers (local livelihoods) who depend entirely on the farm.

It is clear from this study that TFCAs are not created on empty lands; rather they are established on some areas occupied by communities, farms and areas with diverse land use activities. All these groups of people have interest in the land and its resources. As we have noted, TFCAs are established by integrating biophysical and social systems across international and property borders. Whereas the idea of integrating communal, state and private land across the borders of two or more countries is among others to improve conservation of biodiversity whilst improving the lives and livelihoods of local communities, this study has shown that in practice, multiple land use practices in the Greater Mapungubwe TFCA spanning parts of Botswana, South Africa and Zimbabwe is a strategy to expand the area under wildlife, with no concern for the livelihoods of local communities and commercial irrigation farmers. In other words, multiple land use practices in

TFCAs have increased local communities' vulnerability, rather than bringing economic benefits, as argued by proponents of TFCAs.

5. Conclusion

This study has demonstrated that the concept of multiple-land use practices in the creation of GMT-FCA does not benefit all stakeholders. Thus, the integration of state, communal, and private land benefits park managers, conservation agencies, donors but not local communities and irrigation farmers. The study has shown that multiple-land use practices within one area result in human-wildlife conflicts. The study has examined the issue of whether TFCAs can meaningfully contribute to biodiversity conservation while also involving impoverished rural people and improving local economic development. The study found that multiple-land use practices in TFCA benefits conservation goals and not socio-economic goals. TFCAs create extra space for wildlife to roam freely across the border, but with devastating effects on lives and livelihoods of irrigation farmers and local communities. In this sense, the conservation and socio-economic objectives are not mutually reinforcing, rather they are in conflict. This creates a gap between conservation agencies, local communities and irrigation farmers. Essentially, this does not promote rural development. The claim that multiple-land use practices will improve rural livelihoods is overstated and is far from being realized in the creation of Mapungubwe TFCA. The only reason for promoting multiple-land use practices is to gain access to extra space for conservation of biodiversity.

Acknowledgements

I gratefully acknowledge the financial support received from Research and Publication Committee and Research and Development Grant of the University of Venda. This work is based on the research supported in part by the National Research Foundation of South Africa Unique Grant Number 86478 for which I am thankful.

References

- Barrett, C.B. and Arcese, P.**, 1995: Are integrated conservation development projects (ICDPs) sustainable? On the conservation of large mammals in sub-Saharan Africa. In: *World Development*, Vol. 23(7), pp. 1073–1084. DOI: [http://dx.doi.org/10.1016/0305-750X\(95\)00031-7](http://dx.doi.org/10.1016/0305-750X(95)00031-7)
- Bennett, G.**, 2004: *Linkages in practice: a review of their conservation value*. Gland: IUCN.
- Carruthers, J.**, 2006: Mapungubwe: an historical and contemporary analysis of a world heritage cultural landscape. In: *Koedoe*, Vol. 49(1), pp. 1–13.
- Carruthers, J.**, 2009: National parks in South Africa. In Suich, H. Child, B. and Spenceley, A., editors, *Evolution and innovation in wildlife conservation: Parks and game ranches to transfrontier conservation areas*. London: Earthscan, pp. 35–50.
- Department of Wildlife and National Park, 2011: *Problem animal control monthly report per species damage*, unpublished report: Mathathane village in Botswana, Department of Wildlife and National Park.
- De Villiers, B.**, 1999: *Peace parks: the way ahead*. Pretoria: Human Sciences Research Council publishers.
- Duffy, R.**, 2006: The potential and pitfalls of global environmental governance: The politics of transfrontier conservation areas in southern Africa. In: *Political Geography*, Vol. 25(1), pp. 89–112. DOI: <http://dx.doi.org/10.1016/j.polgeo.2005.08.001>
- Fall, J.J.**, 2003: Planning protected areas across boundaries: new paradigms and old ghosts. In: *Journal of Sustainable Forestry*, Vol. 17(1–2), pp. 81–102. DOI: http://dx.doi.org/10.1300/J091v17n01_06
- Ferreira, S.**, 2004: Problems associated with tourism development in southern Africa: The case of transfrontier conservation areas. In: *GeoJournal*, Vol. 60(3), pp. 301–310.
- Ferreira, S.L.A.**, 2006: Communities and transfrontier parks in the southern Africa development community: the case of Limpopo National Park, Mozambique. In: *South African Geographical Journal*, Vol. 88(2), pp. 166–176. DOI: <http://dx.doi.org/10.1080/03736245.2006.9713859>
- GMTFCA TTC, 2010: *Greater Mapungubwe transfrontier conservation area integrated development plan*, First edition.
- Griffiths, I.**, 1986: The scramble for Africa: Inherited political boundaries. In: *Geographical Journal*, Vol. 152(2), pp. 204–216.
- Griffin, J.**, 1999: *Study of development of transboundary natural resource management areas in southern Africa*. Washington DC: Biodiversity Support Programme.
- Hanks, J.**, 2003: Transfrontier conservation areas (TFCAs) in southern Africa: Their role in conserving biodiversity, socioeconomic development and promoting a culture of peace. In: *Journal of Sustainable Forestry*, Vol. 17(1–2), pp. 127–148. DOI: http://dx.doi.org/10.1300/J091v17n01_08
- Hansen, A.J. and DeFries, R.**, 2007: Ecological mechanisms linking protected areas to surrounding lands. In: *Ecological Applications*, Vol. 17(4), pp. 974–988. DOI: <http://dx.doi.org/10.1890/05-1098>
- Heydenrych, B.J., Cowling, R.M. and Lombard, A.T.**, 1999: Strategic conservation interventions in a region of high biodiversity and vulnerability: a case study from the Agulhas Plain at the southern tip of Africa. In: *Oryx*, Vol. 33(3), pp. 256–269.
- Hilty, J.A., Lidicker Jr., W.Z. and Merenlender, A.M.**, 2006: *Corridor ecology: the science and practice of linking landscapes for biodiversity conservation*. Washington DC: Island press.
- Katerere, Y., Hill, R., and Moyo, S.**, 2001: *A critique of transboundary natural resource management in Southern Africa*. Regional Office for Southern Africa: IUCN.
- Lunstrum, E.**, 2010: Reconstructing history, grounding claims to space: history, memory, and displacement in the Great Limpopo transfrontier park. In: *South African Geographical Journal*, Vol. 92(2), pp. 129–143. DOI: <http://dx.doi.org/10.1080/03736245.2010.530062>
- Margules, C. R., and Pressey, R. L.**, 2000: Systematic conservation planning. In: *Nature*, Vol. 40(6783), pp. 243–253.
- Memorandums of Understanding, 2006: *Memorandum of understanding to facilitate the establishment of the Limpopo/Shashe transfrontier conservation between the government of the Republic of Botswana, South Africa and Zimbabwe*, <http://iea.uoregon.edu/pages/view>, accessed 11 May 2011.
- Metcalfe, S. and Kepe, T.**, 2008: “Your elephant on our land” The struggle to manage wildlife mobility on Zambian communal land in the Kavango-Zambezi transfrontier conservation area. In: *The Journal of Environment and Development*, Vol. 17(2), pp. 99–117.
- Milgroom, J. and Spierenburg, M.**, 2008: Induced volition: Resettlement from the Limpopo National Park, Mozambique. In: *Journal of Contemporary African Studies*, Vol. 26(4), pp. 435–448. DOI: <http://dx.doi.org/10.1080/02589000802482021>

- Miller, K.**, 1996: *'Balancing the scales: Guidelines for increasing biodiversity's chances through bioregional management'*. In Breckwoldt, R. editor, *Approaches to bioregional planning*, Proceedings of the conference, 30 October to 1 November, Melbourne, Department of the Environment, Sport and Territories, Canberra.
- Muchapondwa, E., Biggs, H., Driver, A., Matose, F., Moore, K., Mungatana, E. and Scheepers, K.**, 2009: *Using economic incentives to encourage conservation in bioregions in South Africa*, Working paper No. 20.
- Munthali, S.M.**, 2007: Transfrontier conservation areas: Integrating biodiversity and poverty alleviation in Southern Africa. In: *Natural Resources Forum*, Vol. 31, pp. 51–60.
- Noe, C.**, 2010: Spatiality and 'borderlessness' in transfrontier conservation areas. In: *South African Geographical Journal*, Vol. 92(2), pp. 144–159. DOI: <http://dx.doi.org/10.1080/03736245.2010.525079>
- Ohmae, K.**, 1993: The rise of the region state. In: *Foreign Affairs*, Vol. 72, pp. 78–87.
- Peace Parks Foundation, 2009: *Annual report*, Stellenbosch.
- Peace Parks Foundation, 2010: *Annual report*, Stellenbosch.
- Peace Parks Foundation, 2013: *Annual report*, Stellenbosch.
- Pence, G. Q., Botha, M. A., and Turpie, J. K.**, 2003: Evaluating combinations of on-and off-reserve conservation strategies for the Agulhas Plain, South Africa: a financial perspective. In: *Biological Conservation*, Vol. 112(1) pp. 253–273. DOI: [http://dx.doi.org/10.1016/S0006-3207\(02\)00413-5](http://dx.doi.org/10.1016/S0006-3207(02)00413-5)
- Pitsani Game Reserve in NOTUGRE, 2013: *Annual number of cows from Maramani in Zimbabwe impounded in Northern tuli game reserve*. Unpublished report, Pitsani Game Reserve in NOTUGRE.
- Ramutsindela, M.**, 2004: *Parks and people in post-colonial society: experiences in southern Africa*. Dordrecht: Kluwer academic publishers.
- Ramutsindela, M.**, 2007: *Transfrontier conservation in Africa: At the confluence of capital, politics and nature*. Wallingford: CABI.
- Ramutsindela, M.**, editor, 2014: *Cartographies of Nature: How Nature Conservation Animates Borders*. New Castle upon Tyne: Cambridge Scholars Publishing.
- Sandwith, T., Shine, C., Hamilton, L. and Sheppard, D.**, 2001: *Transboundary protected areas for peace and cooperation*. Gland: IUCN.
- Schroeder, R. A.**, 1999. Geographies of environmental intervention in Africa. In: *Progress in Human Geography*, Vol. 23(3), pp. 359–378.
- Spierenburg M. and Wels, H.**, 2010: Conservative philanthropists, royalty and business elites in nature conservation in southern Africa. In: *Antipode*, Vol. 42(3), pp. 647–670.
- Spierenburg, M., Steenkamp, C. and Wels, H.**, 2008: Enclosing the local for the global commons: Community land rights in the Great Limpopo transfrontier conservation area. In: *Conservation and Society*, Vol. 6 (1), pp. 87–97.
- Trisurat, Y.**, 2006: Transboundary biodiversity conservation of the PhaTaem protected forest complex: A bioregional approach. In: *Applied Geography*, Vol. 26(3–4), pp. 260–275. DOI: <http://dx.doi.org/10.1016/j.apgeog.2006.09.010>
- Van Ameron, M. and Büscher, B.**, 2005: Peace parks in southern Africa: bringers of African renaissance? In: *Journal of Modern African Studies*, Vol. 43(02), pp. 159–182. DOI: <http://dx.doi.org/10.1017/S0022278X05000790>
- Van der Linde, H., Oglethorpe, J., Sandwith, T., Snelson, D. and Tessema, Y.**, 2001: *Beyond boundaries: transboundary natural resource management in Sub-Saharan Africa*. Washington DC: Biodiversity Support Program.
- Von der Dunk, A., Gret-Regamey, A., Dalang, T. and Herperger, A.M.**, 2011: Defining a typology of peri-urban land use conflicts: A case study from Switzerland. In: *Landscape and Urban Planning*, Vol. 101(02), pp. 149–156. DOI: <http://dx.doi.org/10.1016/j.landurbplan.2011.02.007>
- Wolmer, W.**, 2003: Transboundary conservation: the politics of ecological integrity in the Great Limpopo transfrontier park. In: *Journal of Southern African Studies*, Vol. 29(1), pp. 261–278.