

Wildlife, cattle, and people in the Limpopo National Park:
A more-than-human political ecology of conservation-induced
displacement and resettlement

Francis Massé

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Abstract

Established in 2001, the Limpopo National Park (LNP) in Mozambique joined South Africa's Kruger and Zimbabwe's Gonarezhou National Park a year later to form the Great Limpopo Transfrontier Park with the aim of creating a "borderless" mega park for wildlife. Like many conservation initiatives, communities living within the LNP have suffered negative consequences including a loss of access to land and resources, the destruction of livelihoods, human-wildlife conflict, and resettlement outside of park boundaries. Of particular importance to these processes is the place of nonhumans, namely wildlife and cattle – the most abundant animal species in the park. In this thesis I examine displacement of people and livestock from within the LNP and their resettlement elsewhere. Specifically, I turn the analytical lens towards wildlife and cattle to demonstrate how non-humans and the socio-material networks in which they are entangled are at the heart of understanding conservation-induced displacement and resettlement.

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Abbreviations

AFD	French Development Agency
BTB	Bovine Tuberculosis (<i>Mycobacterium bovis</i>)
DNAC	National Directorate of Conservation Areas, Mozambique
DNSV	National Directorate of Veterinary Services, Mozambique
DUAT	Mozambican land lease
FAO	Food and Agriculture Organization
FMD	Foot and Mouth Disease (<i>Aphthae epizooticae</i>)
GLTFCA	Great Limpopo Transfrontier Conservation Area
GLTP	Great Limpopo Transfrontier Park
HWC	Human-wildlife conflict
INGC	National Institute for Disaster Management, Mozambique
IUCN	International Union for the Conservation of Nature
JMB	Joint Management Board of the GLTP
KfW	German Development Bank
KNP	Kruger National Park
LNP	Limpopo National Park
MCGA	Mbindzo Communal Grazing Area
MINAG	Ministry of Agriculture, Mozambique
MINTUR	Ministry of Tourism, Mozambique
NGO	Non-governmental organization
OIE	World Organization for Animal Health
PPF	Peace Parks Foundation
RAP	Resettlement Action Plan
SADC	South African Development Community
SANParks	South African National Parks
SPP	Provincial Livestock Services, Mozambique
SRV	Shingwedzi River Valley
TAD	Transboundary Animal Disease
TFCA-Unit	Transfrontier Conservation Areas Unit - Mozambique
VRA	Veterinary Rapid Assessment

Chapter One – Introduction and Conceptual Framework

The relationship between biodiversity conservation and local development remains at centre stage in both political and academic circles. As the number of species dwindle, swaths of forest get cut down, and the twin crises of biodiversity loss and climate change hang overhead, the imperative for conservation has never been greater. At the same time, rural, resource-dependent people who subsist on agriculture and livestock rearing aspire to greater levels of socio-economic development. The result, as has so often occurred in the past, is that state-led conservation efforts and the livelihoods of vulnerable rural populations continue to conflict (Ghimire, 1994; Neumann, 1998; West et al., 2006; Benjaminsen and Bryceson, 2012). This is clear in East and Southern Africa where a system of protected areas is expanding to accommodate the increasing territorial needs of biodiversity conservation (King, 2009; Corson, 2011; Snijders, 2012). Indeed, the imperative to protect large swaths of land and keep similar landscapes intact has led to the proliferation of not only new national parks but transnational parks as well (Ramutsindela, 2004, 2007; King and Wilcox, 2008; King, 2009).

Transfrontier parks – parks that cross national boundaries – are becoming ever more prevalent as an approach to territorial conservation. The success of the transfrontier conservation movement in Southern Africa hinges on its promise to bring together massive tracts of contiguous land creating a “borderless” space for wildlife, especially large mammals (Hanks, 2003; Wolmer, 2003). Proponents of transfrontier conservation also point to its ability to contribute to local and national economic development through wildlife and nature tourism and to political development and cooperation between

participating countries (Hanks, 2003; Ali, 2007; Munthali, 2007). Transfrontier conservation areas and their purported benefits are, of course, not without critiques (Wolmer, 2003; Van Amerom and Büscher, 2005; Spierenburg and Wells, 2006; Spierenburg et al., 2008; Büscher and Schoon, 2009; Lunstrum, 2010; Noe, 2010).

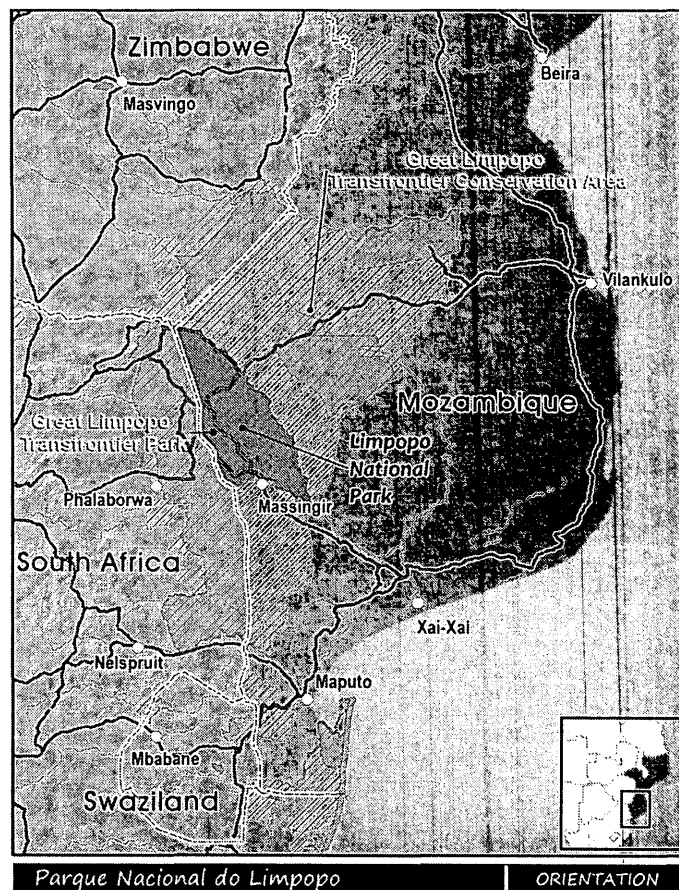
Of central importance to the conservation-development nexus is what happens when the need for land and resources for conservation and that for local livelihoods conflict. History has shown us that in many parts of the world conservation takes precedence (Neumann, 1998; Brockington, 2002). This is particularly the case in “developing countries” (Brockington & Igoe, 2006; Agrawal & Redford, 2009). An all too common result of the establishment of conservation territories is the displacement of vulnerable people via their removal from the inside of park boundaries and resettlement elsewhere (Brockington and Igoe, 2006; Agrawal and Redford, 2009). This process of conservation-induced displacement and resettlement provides the overarching context in which this thesis is situated. Specifically, I examine the creation of Limpopo National Park (LNP) in Mozambique, as part of the Great Limpopo Transfrontier Park (GLTP), and the subsequent displacement and resettlement of people and livestock from within its boundaries.

Even when not physically evicted, local populations have suffered negative consequences of protected area establishment stemming from a loss of access to land and resources (Peluso, 1993; Ghimire, 1994; West et al., 2006; Lunstrum, 2008), the destruction of livelihoods (Vandergeest and Peluso, 1995; Roth, 2004; Milgroom and Spierenburg, 2008) and increasing human-wildlife conflict (Naughton-Treves and Treves,

2005; Treves and Naughton-Treves, 2005; Metcalfe and Kepe, 2008). This last point is of particular interest for this thesis. As land needed for conservation expands, spaces set aside for wildlife increasingly bump up against and overlap with those used for agriculture/livestock rearing, posing risks to livestock and people. This is the case in the LNP where approximately 7,000 people and over 9,000 head of cattle – the most abundant animal species in the park – are coming into increasing conflict with wildlife. Indeed, by turning the analytical lens towards wildlife, and especially cattle, I demonstrate how these nonhumans and the socio-material networks in which they are entangled are at the heart of understanding the displacement and resettlement of communities in the LNP.

The LNP was officially established on November 27th 2001. Approximately half the size of the neighbouring Kruger National Park in South Africa, it stands at 1,123,315 hectares (ha) (GLTP, 2002) (see map 1). Like Kruger, the LNP is part of the GLTP, a flagship park in the transfrontier conservation movement. Established in 2002, the GLTP encompasses approximately 3,577,144 ha and unites the LNP in Mozambique, Kruger in South Africa, and Gonarezhou National Park in Zimbabwe in an effort to create a “borderless” landscape for wildlife and tourism (Wolmer, 2003). What is unique about the LNP is that, unlike its counterparts in South Africa and Zimbabwe, it was created with the specific goal of being part of the GLTP and the larger Great Limpopo Transfrontier Conservation Area that encompasses private reserves, communal lands, and Zinave and Banhine National Parks in Mozambique. This is imperative to understanding many of the changes and processes that characterize the LNP’s evolution and

development over the past 10 years. Such processes include, but are not limited to, the influx of wild animals from South Africa leading to their effective re-colonization of the LNP, a subsequent increase in human-wildlife conflict, and a change in land use patterns from agriculture and livestock rearing to wildlife conservation. While not the sole catalyst of these changes, the removal of sections of the international border fence separating Kruger and the LNP – a cornerstone of the GLTP’s transfrontier nature – has played a leading role in producing these transformations.



Map 1. The GLTP, GLTFCA, and LNP (PNL, 2010).

The LNP, unlike the neighbouring Kruger, contains 27,000 people living within its boundaries who depend heavily on subsistence agriculture and livestock rearing for their livelihoods. Kruger is not only well established with a long history (Carruthers, 1995; Du Toit et al., 2003) but is also free of human settlement, with the exception of tourists and people working as park staff and administration. Of the 27,000 people living in the LNP, approximately 20,000 live within the park's buffer zone (Salas et al., 2011). The remaining 7,000 live in eight communities distributed throughout the park's interior in an area known as the Shingwedzi River Valley (SRV) (Milgroom & Spierenburg, 2008). Unlike the buffer zone, the SRV has been designated as a wildlife and tourism area by the park's administration given its abundance of water, pasture, and proximity to Kruger (PNL, 2010). It is these eight communities that are slated for removal, with the smallest community, Nanguene, having already been resettled in 2008 (Milgroom & Spierenburg, 2008; Milgroom, 2012), a story all too familiar in the history of protected area establishment. Equally important, yet much less talked about in social science literature on the park, is the abundance of cattle within and around the LNP. The communities in the SRV alone are home to over 9,000 head of cattle (SPP, 2012), making it the most abundant animal species in the park. As wildlife move from South Africa to the LNP through translocation or migration from Kruger, they come into increasing contact with communities and their cattle. The result is the transformation of relations between these human and nonhuman subjects, which cannot be disconnected from the displacement and removal of the communities in question. Furthermore, resistance to the resettlement plan by communities is intimately tied to cattle and cattle-based livelihoods

as it is motivated by minimizing negative consequences for their herds and cattle-based livelihoods that the resettlement plan gives rise to.

Without necessarily abandoning anthropocentrism – indeed cattle is central to the livelihoods and well-being of *people* – I seek to bring the nonhuman and the socio-material networks in which they are entangled more squarely into our understanding of the political processes of conservation-induced displacement and resettlement. With an increasing focus on the nonhuman in political ecology (Braun, 2004; Sundberg, 2011), political geography (Hobson, 2007; Collard, 2012), and other fields (Latour, 1993, 2005; Mitchell, 2002), specific discussions about how, in what ways, and with what consequences nonhumans are entangled in conservation-induced displacement and resettlement remain under-developed. My aim in this thesis is thus to explore the role of nonhumans, namely wildlife and cattle, in shaping the twin processes of conservation-induced displacement and resettlement occurring in the LNP. I address this thru the following questions:

1. In what ways are nonhuman subjects, namely wildlife and cattle, implicated in the displacement and removal of communities from the Shingwedzi River Valley?
2. How does the focus on animal subjects, the socio-material networks in which they are integrated, and the relations between them reveal distinct processes of power inherent in wildlife conservation and displacement, and how are they shaped by them?
3. How does cattle inform and shape resistance to resettlement and the resettlement plan?

Drawing on the literature on conservation-induced displacement and using a post-structural political ecology framework incorporating notions of biosecurity, I highlight

how the establishment of the GLTP and the LNP have produced an unsafe space for cattle leading to the emergence of biosecurity risks like disease transmission from wild to domestic animals, and livestock predation. Furthermore, I examine how this becomes a key justification used to remove communities from within its boundaries. At the same time, I critically question why biosecurity and the need to keep cattle safe has resulted in resettlement, as opposed to impeding the movement of wild animals. I argue that this is connected to the transformation of the Shingwedzi River Valley into a space of “wilderness” and the related increase in wildlife’s agency, an agency that is contingent upon its integration into certain networks and animal-animal and animal-human entanglements (cf. Hovorka, 2012) that give them meaning and value through discursive and material practices. The resettlement process itself is also inflected with the influence of nonhumans. Specifically, using a framework based on Jones’ (2012) “spaces of refusal,” I show how the motivations behind communities’ resistance to the resettlement plan are intimately tied to cattle and cattle-based livelihoods.

I now turn to a brief discussion of conservation-induced displacement in order to situate my study within this broader body of work before turning to my conceptual framework that draws on concepts and approaches from three bodies of literature: biosecurity, post-structural political ecology, and resistance. In doing so, I highlight the key concepts and analytical approaches that frame my analysis, address my research questions, and contribute to the central aim of this thesis; that is *to explore how nonhuman actors factor in to the twin processes of displacement and resettlement from the Limpopo National Park.*

Conservation-induced displacement

Often the product of “fortress conservation” or the “fences and fines approach”, conservation-induced displacement is the process whereby people are removed from certain spaces to create conservation territories (Neumann, 1998; Brockington, 2002; Hutton et al., 2005; Brockington & Igoe, 2006). As with the case of the LNP, those being displaced are often vulnerable populations partially dependent on the use of natural resources for their livelihoods and well-being¹ (Milgroom and Spierenburg, 2008; Lunstrum, 2010). The removal of people from conservation territories is, as many political ecologists have demonstrated, a product of spatial processes of power inherent in conservation and protected area establishment including the demarcation and territorialization of conservation spaces, and the establishment of rules defining what belongs and what is to be excluded from the space in question (Vandergeest & Peluso, 1995; Roth, 2008; Goldman, 2009; Noe, 2010). Once something is deemed not to belong, its removal is facilitated. This process of exclusion and creating conservation territories is often rooted in an understanding of nature and humans – along with their activities and assets – as separate (Neumann, 2004a; Adams & Hutton, 2007). This is especially the case when the nature, or space, in question is defined as “wilderness” meant to be free from *certain* humans and activities, something I explore in further detail in the section on post-structural political ecology. Importantly, as I demonstrate in Chapter 4, exclusion and displacement extends to nonhumans as well. While not necessarily a novel idea on its

¹ Communities in the LNP and surrounding region are also quite dependent on labour migration to South Africa and related remittances.

own – indeed others have shown how livestock are central to histories of displacement (Neumann, 1998; Brockington, 2002; Dowie, 2009) – I push the analysis further by examining how the displacement of cattle and by extension people, is the product of a coming together of various discursive and material practices that work to transform the SRV into a space of “wilderness” that both reflects and contributes to changing relations between the “wild” and the “domestic” within that space. This reveals an alternative set of relations inherent in the creation of protected areas and that contribute to related processes of displacement that are thus far underdeveloped in political ecology.

Conservation-induced displacement is often an intervention by a developmental state framed as something that will benefit the country, the economy, the population, and of course, the environment and biodiversity (Brockington & Igoe, 2006; Agrawal & Redford, 2009). It is for the greater good. The removal of people from the SRV is reflective of this and sold as “win-win-win” as it is touted as being able to protect much valued wildlife, along with being beneficial for the economy of the region through tourism development, as well as for those people being displaced (Wolmer, 2003; Mbeki, 2006, as quoted in Lunstrum, 2010; Milgroom & Spierenburg, 2008; Interviews with LNP and DNAC officials 06/2012). With regard to the latter, resettled communities will be more integrated into the urban, “modern” sector of society and have better access to services and opportunities that this putatively provides (Interviews with LNP and DNAC officials 06/2012; Milgroom & Spierenburg, 2008). However, while a common “benefit” used by states to render displacement more palatable, in the case of the LNP, this integration into a more “urban” setting is not the only presumed benefit to communities

that is employed to justify their removal. The state and park administration also frame resettlement as a biosecurity intervention aimed at minimizing conflict between wildlife on the one hand, and cattle and people on the other, a process I examine in Chapter 3. This further contributes to our understanding of conservation-induced displacement and its more-than-human qualities.

Displacement, however, is not only about the physical eviction of people from protected areas, but can be used to describe the loss of access to resources and livelihood opportunities that so often occurs with the establishment of a national park (Horowitz, 1998; Cernea, 2005, 2006). Of course, these two ways of approaching displacement are not mutually exclusive. People in the SRV are subject to displacement in both senses as they have been – or will be – physically removed from the park, and they have lost access to resources central to their livelihoods, which I explore in Chapter 5. However, my research goes beyond how the loss of access to resources stems from both legislation prohibiting the use of natural resources (Neumann, 1998; Brockington, 2002; Dowie, 2009) and an increase in human-wildlife conflict as a result of a higher number of wild animals (Naughton-Treves & Treves, 2005; Treves & Naughton-Treves, 2005; Metcalfe & Kepe, 2008) that literature in political ecology has largely focused on to date. I add focus on how the network in which wildlife is entangled, and related discursive and material practices, work to increase the agency of these wild animals in the LNP. This newfound agency results in changing relations between wildlife and “domestic” animals and people. It is these changing relations that are in large part responsible for human-wildlife conflict and the loss of resources that have negative effects on people’s

livelihoods. Thus, displacement is not just about the introduction of or larger populations of wildlife, but has more to do with how such wild animals, as part of a broader network, gain the ability to take over certain spaces.

The objective of this brief review of conservation-induced displacement is to set the overarching context that the empirical material of my research is situated within while also contributing to it by outlining the arguments and analysis I put forward throughout this thesis. Forming the backdrop of my analysis and the interventions I hope to make, I bring conservation-induced displacement into conversation with a broad framework built on three bodies of literature: biosecurity, post-structural political ecology, and resistance.

Conceptual Framework

Biosecurity

Biosecurity is focused on the management of risks posed by living organisms to the welfare of humans and nonhumans, the economy, and the environment. Scholars have applied biosecurity to look at a myriad of risks ranging from disease transmission affecting humans (Braun 2007; Major, 2008), animals (Donaldson, 2004, 2008; Enticott, 2008) and the economy (Lulka, 2004), the predation of livestock (Buller, 2008; Collard, 2012), invasive species affecting the environment (Barker, 2008, 2010), and even more traditional areas of national security concerned with the weaponization of biological material (Dillon, 2007; Dillon & Lobo-Guerrero, 2008). While varied, what all of these risks have in common is the “ ‘dangerous’ mobility” of a biological threat whether it be a virus, bacteria, plant, or large carnivore (Barker, 2010, pg. 351).

A large part of the biosecurity literature focuses on animal-human and animal-animal interaction including disease transmission from wild to domestic animals (Lulka, 2004; Donaldson, 2008; Enticott, 2008) and the predation of livestock by carnivores (Buller, 2008; Collard, 2012). As I direct my attention to the changing nature of interaction between wildlife and cattle with the establishment of the GLTP/LNP, I focus primarily on this aspect of the literature. However, the risks that emerge from the interaction of nonhumans also have the potential to move beyond the animals in question and impact the health and socio-economic well-being of people (Lulka, 2004; Donaldson, 2008; Enticott, 2008). Indeed, this is a primary justification used by the Mozambican state for the removal of communities from the SRV in the LNP as I show in Chapter 3. As such, resettlement from the LNP can be conceptualized, in part, as a biosecurity intervention. Specifically, removing communities is a way to mitigate the risks posed by the increasing interaction of wildlife and cattle resulting from the establishment of both the GLTP and LNP, a process I examine in Chapter 3. Just as Bingham and colleagues (2008, pg. 1528) argue that biosecurity is best understood when “crudely defined as making life safe,” resettlement from the SRV is framed as keeping cattle – and related human health, livelihoods, and economies – safe. Indeed, this follows Braun’s (2007, pg. 6) description of biosecurity as an intervention by the state to pre-empt risks and “certain biological futures in favour of others.” Such pre-emption is largely based on the physical separation of that which is deemed a threat, and that which is deemed valuable (Donaldson, 2008).

Biosecurity as Geographic Practice

It is well documented that biosecurity interventions largely focus on regulating movement and controlling space (Donaldson & Wood, 2004; Braun, 2007; Buller, 2008; Enticott, 2008; Bingham et al., 2008). Specifically, biosecurity measures aim to either stop or control the movement of biological threats, human and nonhuman alike (Amoore, 2005; Gilbert, 2007; Bauman & Adey, 2009). One example of regulating movement focused on animals is the use of fences to prevent buffalo (Ferguson & Hanks, 2010) or bison (Lulka, 2004) from entering into areas of livestock. Attempts to control the movement of risks are also present at regional and global levels. The World Organization of Animal Health (OIE), for example, has a set of regulations concerning the movement of livestock and livestock products to prevent the mobility of transboundary animal diseases such as Bovine Tuberculosis and Foot-and-Mouth Disease that pose risks to people, other animals, and economies at various scales (OIE, 2003; Thomson et al, 2004). Moving away from disease, biosecurity also looks at “big and ferocious wild animals” (Buller, 2008, pg.1583) such as cougars (Collard, 2012) and wolves (Buller, 2008) that similarly pose a biosecurity risk as they threaten livestock and livestock-based livelihoods/economies via predation. Given that these predators are mobile, measures such as culling and the use of fences are also put in place to limit their movement to make certain spaces “safe”.

There are certain commonalities found across different biosecurity interventions and contexts. The first trend is that it is the threat – the disease, pathogen, or predator – that becomes the subject of the intervention (Braun, 2007; Buller, 2008; Collard, 2012).

Second, and closely related, is biosecurity's focus on excluding the "wild" from the domain of the "domestic", such as those spaces characterized by agriculture and livestock rearing (Donaldson & Wood, 2004; Lulka, 2004; Enticott, 2008). Indeed, the use of fences is an attempt to exclude the wild from such spaces. Third, and resulting from the first two, is the re-enforcement of a hierarchy between human and nonhumans with humans at the top (Lulka, 2004; Buller, 2008; Collard, 2012). The dichotomy between human and nonhuman is somewhat stark and anthropocentric and misses important features of the LNP so I modify it to view the hierarchy as one between the "domestic" and the "wild", whereby the superiority of the domestic – humans and their livestock – is re-enforced. Ultimately, what is deemed the "wild" by those in power is "made killable" (Haraway, 2008; Collard, 2012). The re-enforcement of this hierarchy is especially prevalent when the interests of biodiversity conservation and biosecurity collide (Lulka, 2004; Buller, 2008). However, despite these patterns that characterize biosecurity interventions throughout the literature, and even in the LNP's buffer zone, the re-enforcement of this hierarchy and other trends found in the literature on biosecurity do not always occur. As I demonstrate in Chapter 4, resettlement as a biosecurity intervention does not follow these characteristics, but in fact reverses them. Indeed, I argue that certain discursive and material practices actually lead to the *inversion* of the hierarchy between the domestic and wild instead of its re-enforcement. This leads to an atypical deployment of biosecurity contradicting the trends outlined above, adding a more nuanced understanding biosecurity. To analyze and explain this phenomenon, I employ a political ecology framework, which I now turn to.

Political Ecology

Political ecology is an approach to understanding how changes to the environment, ecological process, and nature-society relations are influenced by processes of power (Jones, 2006; Roth, 2008; Robbins, 2012). Traditionally, political ecology was rooted in a structural Marxist approach to understanding “nature” and society’s relationship with it (Neumann, 2005; Castree, 2002, 2011; Robbins, 2011). It combined “the concerns of ecology and a broadly defined political economy” (Blaikie & Brookfield, 1987, pg. 17; as quoted in Neumann, 2005). Recent analyses of how processes of market-oriented conservation (Igoe and Brockington, 2007; Brockington and Duffy, 2010; Igoe et al., 2010; Roth and Dressler, 2012), and specifically those associated with tourism (Dressler & Büscher, 2008; Duffy and Moore, 2010) are important in understanding the transformation and creation of protected areas and the removal of communities is reflective of this line of thinking. In many instances the setting aside, or creation, of nature without people is tied to making the space available for wildlife or eco-based tourism and game hunting (Neumann, 1998; Brockington, 2002; Dowie, 2009). This is a familiar narrative in work concerning the establishment of conservation territories during colonial times and even more recently, especially in Africa (Bonner, 1994; Carruthers, 1995; Adams, 2003). This is also true for the LNP. In Chapter 4 I elaborate on how the need to open up space for wildlife tourism forms one part of the socio-material network in which wildlife and cattle are entangled that wildlife’s agency is contingent upon, and that works to re-shape relations between them and their domestic counterparts thus leading to displacement.

Some view the somewhat rigid political economy approach as problematic and constraining as it puts too much focus on the larger political-economic structures as causal mechanisms at the exclusion of other factors, such as ecology itself (Vadya & Walters, 1999; Walker, 2005). The focus of such critiques is that limiting one's focus to political economy can lead to missing the "the complex and contingent *interactions*" of human and nonhuman processes that do not necessarily stem from the broader political economic system, yet still produce change (Vadya & Walters, 1999, pg. 168; emphasis in original). I draw on this intervention and contribute to a growing body of literature in post-human political ecology by revealing the ways in which the interaction between wildlife and cattle produces risks used to justify the removal of cattle from the SRV. Furthermore, I argue that the transformation of the SRV into a space of "wilderness" is, in part, what we can see as a result of wildlife's increased agency allowing it to take over certain areas. This agency is, however, still very much tied to human actors, influence, and decision-making. I do want to clarify, though, that I use a post-structural political ecology without leaving political economy behind. Indeed, to understand the construction of "wilderness" requires a political economy approach to uncover important motivations from tourism and donor interests that are also important in shaping displacement. As such, the post-structural approach that I advocate for simultaneously draws from the rich insight of political economy strands of political ecology and complements it.

Producing "Wilderness"

Poststructuralism brought to political ecology a focus on how nature and problems associated with it are socially constructed (Escobar, 1996; Castree & Braun,

1998). “Constructivists”, Braun argues (2009, pg. 21), are concerned with how certain things come to be seen as natural or nature while others are not. Of particular importance to political ecologists working in the area of conservation has been the idea of “wilderness”, or “pristine nature” that acts as the foundation of the protectionist paradigm dating back to Yellowstone’s establishment in the US in 1872 (Cronon, 1996; Neumann, 1998; Fletcher, 2010). Cronon (1996, pg. 7) argues, “The more one knows of its particular history, the more one realizes that wilderness is not quite what it seems.” This is because “wilderness”, like all nature, “must be understood, at least in part, as [a] social product” (Whitehead et al., 2007, pg. 14; see also Castree & Braun, 1998; Whatmore, 2002).

Constructing a certain space, like that of the SRV, as one of “wilderness” is a power-laden process with important consequences for policy making (Neumann, 2004b; Adams & Hutton, 2007; Peet & Watts, 2004). Specifically, it calls for the physical separation of the “wild” from everything deemed anti-thetical to the saving of “wilderness” (Castree & Braun, 1998; Neumann, 2004a; Adams & Hutton 2007). It defines what belongs in that space and what does not. As mentioned earlier, in the LNP, as with many other conservation territories in Sub-Saharan Africa (Neumann, 1998; Brockington, 2002; Dowie, 2009), this means removing humans, their livestock and related activities.

At times, the production of “wilderness” can also take the shape of its active and deliberate *creation* (Neumann, 1996, 2001; Geisler, 2003; Rangarajan & Shahabuddin, 2006). In such cases, this goes beyond keeping the “domestic” out of the areas belonging

to the “wild” by literally re-introducing the “wild” into “domestic” areas of agriculture and livestock rearing. Indeed, this more accurately reflects the processes underlying the SRV’s transformation from a space lacking in wildlife because of the effects of the “civil” war to its re-colonization by wildlife and their increased ability to effectively take over “domestic” spaces as a result of their entanglement in certain networks. As I argue in Chapter 4, this complicates the justification of biosecurity used to partially support resettlement because the transformation of the SRV into a space of “wilderness” leads park managers and the Mozambican state to choose resettlement as the solution to dealing with risks to cattle, and forego other approaches that would allow communities to remain in the park just as communities in the buffer zone are able to, despite facing the same risks. The risks and displacement faced by livestock and communities is thus actually more reflective of the transformation of the SRV into a space of “wilderness” and tourism, and the processes of power driving this. As such, I draw from the scholarly literature on biosecurity and post-structural political ecology to demonstrate how they work in tandem to give a fuller understanding of conservation-induced displacement and why and how biosecurity interventions take the shape they do.

More-than-human geographies and the role of nonhumans

I extend my analysis of displacement and re-settlement to include the important, but often overlooked, role of nonhuman actors. This builds on a lively debate concerning the role of nonhumans in political processes whether it is about the politics and dynamics of border enforcement in the US (Sundberg, 2011) or campaigns to end the farming of bear bile in East Asia (Hobson, 2007). The removal of communities from the LNP is

indeed a political process. Understanding the role of nonhumans is thus central to gaining the most comprehensive understanding of these processes as possible. An approach using biosecurity is one way of doing this. If people and their livestock are being removed because of risks posed by wildlife, then nonhumans are clearly implicated in their removal. To push the analysis of nonhumans further I also draw on debates concerning socio-material networks and nonhuman agency. I reveal how wildlife gain a certain agency that allows it to effectively displace humans and domestic animals and contribute to the transformation and “wilding” of the SRV. As such, wildlife are re-territorializing the SRV. However, I want to clarify that wildlife do not have agency and the ability to take over space on their own. Rather, their agency is contingent on certain groups of actors, or networks that invest in them. As such, I differ from the state’s logic that wildlife on their own provoke displacement or even the destruction of people’s livelihoods. Instead, I argue that it is the ways in which the discursive and material practices of humans and nonhumans come together that create a context in which wildlife are able to negatively impact people’s livelihoods in the manner that they have, which leads to calls for relocation. Admittedly, this is a somewhat dangerous line of inquiry that requires much sensitivity as I risk falling into the trap of arguing that wildlife on their own provoke displacement, which is contrary to a relational notion of agency as explained below, and that ignores important species-species and species-human relations (cf. Hovorka, 2012). Furthermore, this would remove the agency of communities in being able to protect themselves and ignore their long history of living with wildlife. It would also support the reasoning that the state largely relies upon to justify displacement. This

is a reasoning that I do not support as it partially reduces the need to remove communities to an apolitical argument concerned with human-wildlife conflict, which I disagree with.

It is thus important to remember that animals do not have agency in political processes in the “rational, liberal sense” in terms of participating in institutional decision-making like humans do (Hobson, 2007, pg. 263). Rather, nonhumans are “already a part of the heterogeneous network that constitute political life”; they are implicated in what Hobson (2007) refers to as “politics” and “Politics”. “Politics” is about the “institutional arrangements of the state and the international relations” whereas “politics” “refers to the spaces, people, and practices that both challenge institutions through non-traditional political avenues, such as social movements” (Ibid pg. 252). So, nonhumans matter. As Donald Moore argues in his powerful analysis of territorial transformation in Zimbabwe, “history and politics are inflected with the *consequential materiality* of milieu, of nonhuman entities and artifacts (Moore, 2005, pg. 24; emphasis in original). I draw on this thinking to understand the role of wildlife and cattle in shaping the processes of displacement and resistance to resettlement.

Using a Network Ontology

Central to thinking about nonhuman agency is thinking in networks, or assemblages (Latour, 1993, 2005; Whatmore, 2002; Moore, 2005). Political ecologists, geographers, and scholars from other disciplines such as Science and Technology Studies recognize that we as humans, and everything else, are entangled in networks of interactions with heterogeneous subjects – human and nonhuman alike (Haraway, 2001; Latour, 1993, 2005; Whatmore, 2002; Braun, 2004). Network thinking departs from the

traditional structural, Marxist roots of political ecology in that it refuses the idea that “different networks are driven by the same general processes or factors,” namely capital and class relations (Castree, 2002, pg. 119). This opens up opportunities to discover new processes of power as every part of the network is in some sense “causally important” (Ibid, pg. 120). Examples of power at work include the social construction of wilderness, described above, but also extend to include nonhumans as well.

Agency, however, is not something that is held or projected by a single entity; it is a relational achievement produced by interactions within a particular network (Haraway 1992; Law, 1994; Latour, 1993, 2005; Castree, 2002). This notion of agency has been used to describe the influence of nonhumans ranging from scallops (Callon, 1986), mosquitoes (Mitchell, 2002), plants (Robbins, 2001), elephants (Whatmore, 2002), and even desert roads and wildcats (Sundberg, 2011).

Post-structural thinking using networks has already been embraced in the literature on biosecurity. As with nonhuman agency, risks (that which biosecurity attempts to address) emerge from interactions within a specific network. Risks do not materialize out of nowhere and they are not necessarily the product of being careless; they emerge from the circulation and interaction of human and nonhuman subjects (Latour, 2003; Braun, 2007; Bingham et al, 2008). They are also contingent on certain events and interactions (Donaldson, 2008). Living involves being part of this network, a world full of emergent risks (Braun, 2007). As put by Bingham et al. (2008, pg. 1529), “living involves articulations with all manner of living things. To live is to articulate and to circulate. It is a risky venture.” Indeed, the concept of network thinking is so cemented

in approaches to biosecurity and risks that one of the founders of network thinking, Bruno Latour (2003), argues, “risk is synonymous with network in the actor-network theory sense” (quoted in Donaldson, 2008, pg. 1557). I employ this network approach in Chapter 3 to understand the position of cattle in the SRV and the emergence (and contingency) of risks to its health and safety, and those to the wider economy and human health, resulting from the establishment of the GLTP/LNP. In Chapter 4 I also examine the socio-material network in which wildlife is entangled and how their ability to displace people and their livestock is contingent on the various other actors and practices that this network is comprised of. Furthermore, cattle, and their ties to people, land, and space, have shaped anxieties towards resettlement on the part of park residents. This anxiety often leads to resistance.

Resistance

I focus on resistance with regards to conservation and conservation-induced displacement. It is well known that protected area establishment and conservation-induced displacement often give rise to resistance by affected communities (Neumann, 1998; Agrawal & Redford, 2009). Such resistance can have negative implications for conservation as “displaced peoples have strong incentives to destroy wildlife and resources within protected areas” (Agrawal & Redford, 2009, pg. 6). As such, resistance often manifests itself in anger directed towards the conservation territory in question. A well known example of such acts of resistance come from the Maasai who, after the creation of Amboseli National Park restricted their access to resources and pasture, began “killing lions, leopards, rhinos, [and] leaving carcasses near favored tourist campsites”

(Dowie, 2011, pg. 38). In 2005, Amboseli was degazetted and management given over to the Maasai who “today are regarded as symbols of revolt” (Dowie, 2011, pg. 40).

Neumann (1998, pg. 133), also looking at the Maasai, similarly documents acts of resistance where, “deprived of a political voice the Maasai found ways to protest their predicament.” Such protests took the form of violating the resource laws of Arusha National Park including starting fires and hunting within its boundaries.

What is important to take from Neumann and Dowie, and Neumann in particular, is that these acts of resistance are not just about adjusting to losses, but have a political dimension as well. Thus, collecting fuel wood and grazing within park boundaries are not just matters of survival, but are “political insofar as they represent a rejection of the state’s claims of ownership and management” (Neumann, 1998, pg. 49). Like many others looking at resistance, Neumann draws on Scott’s notion of “everyday resistance” used by peasants that include acts such as “foot dragging, dissimulation, desertion, false compliance, pilfering, feigned ignorance, slander, arson, sabotage” (1985, pg. xvi). Similar to the Maasai in Arusha, residents in the LNP routinely break park rules as they continue to clear new fields, hunt wild game, and build new houses. In the areas where they are resettled to, communities also do not abide by the planned re-organization of cattle rearing as they construct their own corrals and also continue to graze cattle within park boundaries. However, I do not agree that these acts are necessarily politically motivated or intended to be political statements. Rather, in Chapter 5 I draw from literature outside of political ecology and conservation and use Jones’ (2012) analysis of “spaces of refusal” to take a more nuanced approach to understanding these actions, and

resistance to conservation-induced displacement in general. Furthermore, I reveal how the motivations behind communities' resistance of the LNP resettlement plan are intimately tied to cattle, once again bringing the nonhuman into my analysis of conservation-induced displacement and resettlement. While not necessarily non-anthropocentric, it is only through taking the place of cattle in resettlement seriously that certain telling nuances can be uncovered.

Like protected areas and loss of resource access, communities also resist resettlement itself. Writing specifically about the increase in national parks and relocations in Central Africa since 1992, Schmidt-Soltau (2003, pg. 531) argues, "hardly any of these resettlements have been successful. There has been resistance to moving in the first place, and even returns to former villages inside the national parks." Hence, resistance to resettlement, like that to conservation efforts, often results in its failure. What, though, does resistance to resettlement look like?

Many attempts to resist resettlement have taken the form of social movements and political and legal battles (Ramutsindela, 2002; Dowie, 2009). Some have even used formal political channels and legal frameworks in their fight to resist resettlement (Brockington, 2002; Dowie, 2009) and gain back land that they were removed from, such as with the Makuleke in South Africa's Kruger National Park (Ramutsindela, 2002). Other forms of resistance fall more in line with Neumann's description of actions against the park or with Scott's notions of everyday resistance as people employ strategies to subvert the state's authority and will. While varied, these acts of resistance all have one thing in common: they are attempts to prevent resettlement from happening in the first

place. Yet, as I show in Chapter 6, resistance to resettlement does not always take the form of resisting removal from the park. Again, using the concept of “spaces of refusal” (Jones, 2012) and introducing cattle into the analysis, I show that while people accept the reality that they have been resettled or will be in the near future, they still resist resettlement by refusing to abide by its planned re-organization of cattle rearing. Communities are not trying to change the circumstances of the park and the reality that they are being removed from it, yet they still employ strategies and actions that defy the wishes of the state in order to take care of their most important asset, cattle.

This approach to looking at resistance to the resettlement plan complements work on resistance to resettlement that focuses on how it emerges from risks, losses, and uncertainties that people perceive as being connected to resettlement (Schmidt-Soltau, 2003; Dwivedi, 1999). For instance, in his analysis of resettlement from protected areas in Central Africa, Schimidt-Soltau (2003) identifies nine different losses associated with resettlement that communities risk facing and that motivate their resistance. Such losses and risks include landlessness, loss of source of income or subsistence, food security, education, and access to common property in addition to risks of marginalization, homelessness, increased morbidity and mortality, and social disarticulation. The perception, potential, or reality of these losses motivates the resistance of communities in trying to prevent resettlement from occurring. Again, I build on this work by revealing how resistance to the LNP’s resettlement plan emerges from how it will negatively affect cattle.

Spaces of refusal also reveals a cultural element to resistance that is less developed in political ecology and resistance to resettlement more specifically. That is, communities' resistance is tied to different ways of understanding, seeing, and being with cattle that are shaped by local histories and generations of dependency on cattle rearing. By failing to be sensitive to certain "cultures" of cattle-rearing, or ways of being with cattle, the resettlement plan misses what is most important to those people being resettled, once again motivating people to resist the resettlement plan. In this sense, "the central issue is one of inadequate, and to a lesser extent, inappropriate compensation" (Dwivedi, 1999, pg. 75).

Ultimately, the aim of this thesis is to increase our understanding of how nonhumans, including both wildlife and domestic livestock, matter and are indeed influential in the process of displacement and resettlement, and the overall transformation of the SRV. This helps to bridge the literatures of biosecurity and the political ecology of conservation and reveals different processes of power driving displacement, and a more nuanced understanding of resistance to resettlement than those offered by more traditional narratives in both political ecology and specific work on conservation-induced displacement.

Structure of Chapters

The thesis is organized into six chapters following this introduction. In Chapter 2 I elaborate on the specifics of my field site and outline the research design and methodology employed during my research. In Chapter 3 I focus on the decision to remove communities from the LNP. Specifically, I trace the ways in which the

establishment of the GLTP/LNP has mediated the socio-material networks in which cattle and wildlife are embedded to produce a “bioinsecure” space as it has led to the production of risks that threaten the health and safety of cattle. According to park authorities and the Mozambican state, the implications of these risks are so great that cattle must be removed from the interior of the park. The removal of communities can thus be understood in part as a biosecurity intervention aimed at keeping cattle – and related livelihoods, economies, and human health – safe.

People and livestock located in the LNP’s buffer zone are vulnerable to the same risks. However, unlike those in the SRV, they are not slated for relocation. Instead, the approach to keeping them safe follows more traditional methods of managing biosecurity risks such as the use of barriers to prevent predators, other wild animals, and diseases from entering into livestock rearing areas. These same types of traditional methods are also used along Kruger’s (and thus the GLTP’s) western boundary. Hence, in [Chapter 4](#) I outline the ways in which resettlement as a biosecurity intervention differs from what is occurring in the park’s buffer zone and contradicts the trends normally found when the interests of biosecurity and biodiversity conservation collide. To explain these differences, and the contradictory nature of biosecurity in the form of resettlement, I employ a post-structural political ecology framework to examine the transformation of the SRV and the power dynamics underlying this. In doing so, I critique the use of resettlement as an approach to keep cattle, and by extension people, safe. Despite the very real risks faced by cattle, resettlement is not the only option. Yet, the removal of communities is made to be *the* solution. This can in part be explained as a result of the

co-constituted processes of the transformation of the SRV into a space of “wilderness” and tourism, and the increase in wildlife’s agency effectively allowing it to re-territorialize areas within it. In Chapter 5 I continue with a focus on how nonhumans are imbued in political processes by examining how cattle underlie communities’ motivations in resisting the resettlement plan. With its re-organization of cattle-rearing the resettlement plan not only negatively impacts cattle, thus leading to material losses that communities attempt to prevent, but it also fails to recognize local histories and ways of being with cattle. Hence, I reveal how resistance to the resettlement plan is motivated by material and cultural concerns that are intimately connected to cattle. I end with a brief conclusion in Chapter 6 where I summarize and reflect on my findings and arguments.

Chapter Two – Research Design and Methodology

Through studies about everyday geographies, space and politics, and multi-local sites and networks, geographers research the complex power and ethical relations that accompany such practices (Watson & Till, 2010, pg. 122).

Research for this thesis was conducted over a period of four months, from mid-May to Mid-September 2012. The research design focuses on the one case study of Massingir Velho in the context of the LNP and GLTP. Using primarily an ethnographic approach, I used a suite of qualitative methods including participant observation, interviews, informal conversation, questionnaires, and analysis of relevant documents. Importantly, ethnography includes relations and work with human and nonhuman subjects, and has been used to understand and theorize about “spatial processes and concepts” (Watson & Till, 2010, pg. 122). This suite of methodologies were thus appropriate for investigating the questions guiding my research and my overall objective, namely to understand the role of nonhumans, namely wildlife and cattle, in shaping the processes of conservation-induced displacement and resettlement occurring in the LNP.

I start from the assumption that nonhumans, and the socio-material networks that they are entangled in, do indeed have a role to play in these processes. The role of nonhumans in political and political-ecological processes is widely accepted (Callon, 1986; Latour, 1993, 2005; Emel et al., 2002; Mitchell, 2002; Whatmore, 2002; Braun, 2004; Hobson, 2007; Sundberg, 2011). However, what is less clear is how they influence and are entangled in these processes, where their ability to make a difference and contribute to these processes comes from, and in what ways it emerges. As such, I propose an ontological shift that seeks to bring the nonhuman more fully into our

understanding of conservation-induced displacement and resettlement. I do this by addressing the following three questions.

1. In what ways are nonhuman subjects, namely wildlife and cattle, implicated in the displacement and removal of communities from the Shingwedzi River Valley?
2. How does the focus on animal subjects, the socio-material networks in which they are integrated, and the relations between them reveal distinct processes of power inherent in wildlife conservation and displacement, and how are they shaped by them?
3. How does cattle inform and shape resistance to resettlement and the resettlement plan?

Fields Sites: Massingir Velho, The Limpopo National Park, and Maputo, Mozambique

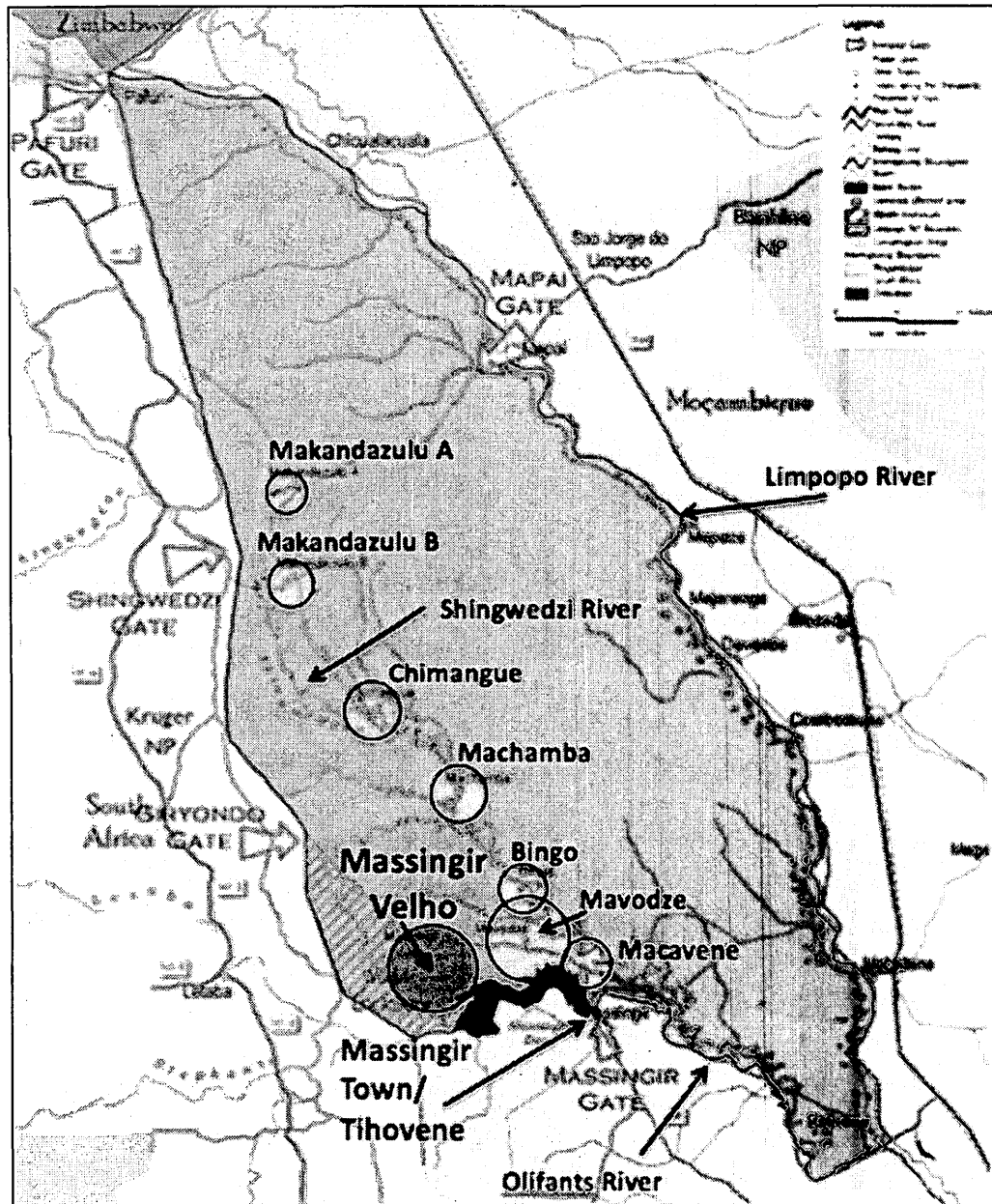
My main field site was Massingir Velho, a village located approximately 40 kms in the interior of the LNP (map 2). It is situated in the south-east portion of the park about 20 kms from the border with South Africa's Kruger National Park and 17 kms from the nearest village, Mavodze. Massingir Velho is an ideal site to explore the above questions as it is slated for resettlement, and cattle forms a large part of the residents' livelihood strategies and cultural identity. On a more practical side, the village leader was welcoming and residents were willing to talk. This could partly be due to the fact that one of my supervisors previously conducted research in the village. Another important note to consider was the current context of rhino poaching. Within the communities in the SRV there are some residents who are more or less involved in the commercial rhino poaching occurring in Kruger National Park. Massingir Velho is one of the least involved and some of the other communities may have been less welcoming because of their larger involvement in this illicit activity.

In other respects, Massingir Velho is quite similar to the other villages in the park. It is the second largest village with approximately 160 households and a population of about 1,200 people (LNP, 2010b). We can compare this with Mavodze, the largest village with about 256 households, and Chimangue, the 3rd largest, with 88. All villages belong to the Shangaan cultural group and have similar livelihood strategies focused on subsistence based agriculture, hunting/fishing, and importantly livestock rearing. Migrant labour to South Africa is also important in the region as a whole. Massingir Velho is thus taken as being representative of other communities in the park, and the SRV more specifically, while recognizing the limits of generalizing one's data.

The LNP spans the Massingir, Mabalane, and Chicualacuala districts of Gaza Province in the south of Mozambique. Massingir Velho and the park headquarters are located in Massingir District, approximately, 7 hours north of Maputo, Mozambique's coastal capital. The area of Massingir Velho and the LNP more generally are part of the subtropical climate zone receiving approximately 360 to 500mm of rainfall per year (Salas, 2011). Periods of drought are common as rainfall is highly variable and there are high evaporation rates. This exacerbates the difficult conditions for agriculture and contributes to human-wildlife conflict as there is competition for water sources. Ecologically, the LNP is dominated by three major rivers, the Olifants, Limpopo, and Shingwedzi, and by mopane vegetation. Massingir Velho, more specifically, is characterized as Pumbe Sandveld, a type of sand plain dominated by mopane and low woodlands (LNP, n/a). Biodiversity in the region is rich, with over 500 species of birds,

and 147 known species of mammals (Ibid), which is partially the result of the GLTP and efforts to re-stock wildlife populations.

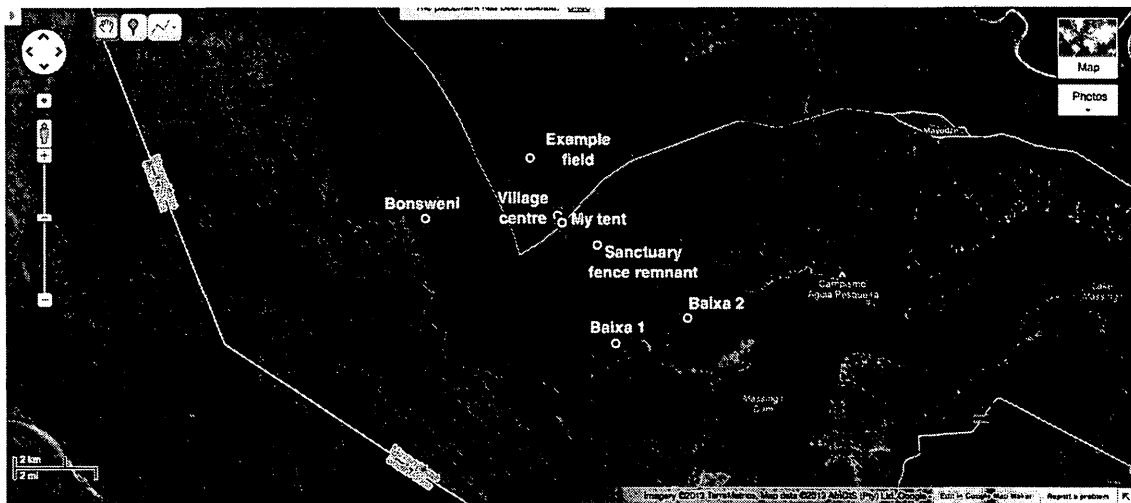
The village of Massingir Velho is split into two main areas, the *Alta* (highlands) and the *Baixa* (lowlands). The *Alta* is the main area of the village where the village centre is, most households are, where the school is, and where livestock graze. The *Baixa* is located about 7kms away on the banks of the Olifants River. It is in the *Alta* where most of my time was spent with several of trips made to the various areas of the *Baixa*. The *Baixa* is a strategic location for agriculture and an important source of food security as many households have fields along the banks of the river allowing for agricultural yields even with the lack of rain that characterizes the region. As such, many households live there temporarily throughout the year such as during the harvest period. Some people live there permanently as well.



Map 2. The Limpopo National Park with location of villages. Massingir Velho is bottom left red circle. Map taken from Peace Parks Foundation (PNL, 2007) with modifications made by author.

Map 3, below, gives an idea of the spatial layout of Massingir Velho and the area it encompasses with points taken from GPS coordinates I recorded. The village proper is

surrounded by fields, and it is important to note that, for the most part, cattle graze beyond the fields, although some areas of pasture may be located closer to the centre of the village as both fields and pasture vary in distance from people's households. There are various areas along the Olifants River that make up the *Baixa. Bonsweni*, a part of the Machampane River is also shown. It is the main site where cattle drink.



Map 3. Massingir Velho and key points of interest (map from Google Maps with points added by author).

Residents in Massingir Velho, like the rest of the LNP, are characterized as living in “extreme poverty” and lack food security and access to basic services and infrastructure (Salas, 2011). Households are largely dependent on subsistence, rain-fed agriculture and livestock rearing. The main crop is corn (maize) with some varieties of squash and beans also grown. Agriculture is very difficult with the low and variable rainfall and recurrent periods of drought. When it does rain it is often very heavy and can result in floods that cause extensive damage to crops and infrastructure. Because of the precarious nature of agriculture, livestock is especially important. Most households have

goats, chickens and cattle, with cattle being the most important as it of most value and can be sold in times of hardship to buy basic goods. Cattle are also very important culturally as it is a sign of wealth, status, power, and masculinity (Interviews 06/2012; 07/2012). It is mainly male members of the village that take care of cattle, while female members largely take care of the goats and chickens and tend to the fields. Other important sources of food include hunting and fishing. Fishing is carried out mostly in the Massingir Reservoir to the south. Hunting of wild game including birds, gazelle, impala and other small animals is an important source of protein for households. However, with the establishment of the park, hunting has been prohibited. While hunting still continues, the practice has decreased because the penalties associated with it are deemed too risky. Many community members stressed the hardship that this has caused. The collection of roots, tubers, wild fruits, and forest products is also practiced.

There is limited wage labour available in the area because of Massingir Velho's remoteness and because of the economic situation of the larger Gaza Province and Mozambique as a whole. The park has provided some wage labor opportunities for community members in the form of Rangers, road building and the building of tourist camps. Such opportunities are, however, limited. Hence, one of the most important economic activities in the village, and the region more broadly, is labour migration to South Africa. Most men and a smaller number of women of Massingir Velho have at one time worked in South Africa either in mines or on agricultural plantations. Most people who do go work eventually return with some savings so that they can buy cattle and start their own herd.

In addition to Massingir Velho and the LNP, I also spent significant time in Massingir Town/Tihovene, the location of the LNP's headquarters. Tihovene is a small town with some basic infrastructure and is home to the administrative offices of Massingir District. In Tihovene I was also able to speak with officials from Massingir's office of the Gaza Provincial Livestock Services (SPP) and Massingir's office of the Department of Flora and Wildlife. It is also in Tihovene where I had to go through several "gate keepers" to gain permission to conduct research. This included permission from the District Administrator as well as some local leaders.

Outside of the LNP and larger Massingir region I also spent time in Maputo where I conducted much of my analysis and did transcriptions in order to prepare for subsequent visits to Massingir Velho. As Maputo is the national capital it is also the location of government offices. It was thus also an important field site as it was there where I conducted my interviews with officials from various government departments such as the National Directorate for Conservation (DNAC), the Transfrontier Conservation Area Unit (TFCA-Unit), and the Department of Veterinary Services (DNSV). I also made one trip to Xai-Xai, the capital of Gaza Province where I spoke with officials of the province's Department of Flora and Wildlife, Gaza Provincial Livestock Services, and non-governmental organizations.

Methods

Semi-structured and conversational interviews with village residents

"A semi-structured interview is a *conversation* with a purpose" (IIR, 1998, pg. 76, emphasis added). This conversational approach characterizes how I conducted most

interviews with residents of Massingir Velho. The ultimate goal of interviews was to *understand* issues, processes, histories, and relations (Fontana & Frey, 2000). For each interview I had some pre-designated themes and topics, with some explicit questions that were open ended. This approach allowed me to guide the interview to areas that I wished to focus on, yet also allowed the interviewee to develop ideas and open up new avenues of questioning by elaborating on certain points. As my assistant would always say in Portuguese while tapping me on the shoulder when something new came up: “*É uma nova abordagem*” (It’s a new line of inquiry). Semi-structured and structured interviews exist along a “continuum,” and “[in] practice any interview can slide back and forth along the scale” (Denscombe, 2007, pg. 176). Following this logic, each interview I conducted was more or less structured than others depending on how the interviewee responded and what I was hoping to achieve with the particular interview in question. At the early stages of my research the interviews were much more exploratory and open ended in nature to get a broad view of some of the dynamics occurring in the village. As I progressed, I focused my interviews on more specific issues. For instance, with those men who were open to discussing hunting I geared my interviews towards hunting. This follows the approach known as progressive focusing whereby “the analyst adjusts the data collection process itself when it begins to appear that additional concepts need to be investigated or new concepts explored” (Schutt, 2009, pg. 322). Interviewing, like analysis, was thus an iterative and reflexive process. Of particular importance for my research approach was a focus on interconnections and relations, not just processes, issues or events in isolation (Schutt, 2009). One way to help achieve this was to consistently make notes in margins

of interview transcripts, connecting things said or read elsewhere, and in asking specific questions about relations and connections. It is through an explicit effort at making connections and establishing relations among human and nonhuman processes, subjects, and issues that the networked focus of my thesis emerged.

During the interviews, I made a consistent effort to get people to tell stories and explain what they were talking about by using examples that they had experienced. This allowed people to ground what they were talking about in life experiences and elaborate on and broach new subjects through their stories. For instance, one woman spoke of conflicts with elephants, and I asked her if she had any personal experience with elephant conflict. When she responded in the affirmative, I asked if she could tell the story of the incident. She proceeded to recount a 15-minute story full of rich empirical detail that I could not have achieved through asking pointed questions alone. Asking participants to recount stories is also one technique to “minimize discomfort felt by participants” that could arise from the power dimensions between the researcher and participant (Scheyvens et al., 2003, pg. 151). This strategy of “handing over the stick” is akin to asking the participant to teach the researcher, which shows appreciation and value of their knowledge and experience (Ibid).

In total I conducted 42 interviews with residents of Massingir Velho ranging in age from 20 to over 80 years of age. All participants have been given pseudonyms and no one is referred to by their real name in order to protect their anonymity. Interviews ranged in length from 15 to over 90 minutes with the average interview being about 45 minutes in duration. The majority of interviews were with male members of the

community. With that said, 12 women were interviewed. Interviews with women tended to be shorter, and at times of lesser quality. Being a male, and having a male interpreter did present some barriers in this regard. Some women would not speak to us without the permission of their husband and even when such permission was sought some women looked away while we asked questions, answered timidly without much elaboration, and seemed to have a general feeling of uneasiness. If this was the case we made sure to end the interview out of respect and sensitivity to her. Despite our best efforts to strike a balance between men and women, these types of occurrences limited the number of women interviewed and their overall voice within the dataset. In this respect it would have been beneficial to have a female research assistant as well. Many women, however, provided remarkable, detailed insights that have proved valuable in shaping many of my conclusions. As for men, the majority of interviews were with men over 40 years of age. This is because most adult male members of the community that are younger than this were working in South Africa. Despite this, I did manage to interview 10 younger men who were in the village at the time.

In Massingir Velho I also conducted a single group interview. It was very conversational with everyone contributing at the same time and responding to each other. The group consisted of 3 women and 4 men in the *Baixa*, the lower area of the village by the river. A group interview was an ideal method in the *Baixa* for several reasons. The first is a practical reason as the *Baixa* is a 3-4 hour walk from the village, so I could not return to and from to conduct interviews with people. The second is that people were in the *Baixa* to tend their crops and were thus extremely busy, so we were able to speak to

this group as they took a break for lunch. Interviews with individual residents were also conducted in the *Baixa*.

In Massingir Velho I worked with a translator and a village guide. I recruited my translator Filipe, from the University of Eduardo Mondlane in Maputo with the help of the University's Geography Department. Filipe is of Shangaan background and had lived and worked in the area of Massingir so knew the context and culture in which we worked. This was important as Filipe acted not only as a language interpreter (English, Portuguese and Shangaan), but also as a cultural interpreter. The majority of our communication was in Portuguese. Before interviews we would discuss the types of question that we wanted to ask and what we were looking to focus on in the interview. During the interviews Filipe would translate between the interviewee (Shangaan) and myself (Portuguese). As the research progressed, Filipe was able to take more and more control of the interview process with less intervention by me. I always instructed Filipe to "go with the flow" of the interview and not needlessly interrupt the interview to translate for me. As such, I put a large amount of trust in Filipe while conducting the interviews. After each interview, we would de-brief and discuss (when possible) and he would fill me in on some of the details. I always sought feedback from Filipe, as well as our guide, my supervisors, and others on the ground that I was fortunate to work with. I believe that critical feedback is essential to a good research design as "the solo analyst is a great danger to self and others" (Schutt, 2009, pg. 322).

Of course, working in a language other than English posed its challenges both in terms of communication and in terms of translation. First, there are many phrases and

logics that exist in English and Portuguese, but not in Shangaan. For example, the word “impact”, “consequence”, or “effect” does not exist in Shangaan. I would routinely ask interviewees (through Filipe) “what impact ‘x’ will have on ‘y’”. After a few times of not getting answers I asked Filipe about it and he told me that the word “impact” does not exist. After this conversation we spoke about how we could get to the same meaning by wording the question differently. This took the form of asking “if ‘x’ occurs, will ‘y’ change, and if so how?” Or, instead of asking “how has the Park impacted ‘x’,” we would ask “what changes to ‘x’ have occurred over the past 10 years?” and follow up from there with specific connections to the Park or other issues. Another example of such a challenge was when talking about resettlement. I would ask simply, “what do you think about resettlement?” or “what is your opinion on resettlement?” At first I would receive the answer, “I have no opinion on resettlement.” Again, I consulted Filipe about this and he said it is because resettlement has not happened yet, so people have no opinion on it. This is part of the way language and logic inform each other and how people answered and related to questions. Again, this meant altering the way the question was asked. As for transcriptions, Filipe would translate from Shangaan to Portuguese and I would translate from Portuguese to English. In this three-step process there was sure to be some nuance lost. While everything was done to make sure that the original meaning and nuance was kept as intact as possible, such as routinely consulting between us, it is a legitimate challenge presented by working in various languages. I do not think this had any undue impact on my findings, analysis, or conclusions.

My positionality as white and foreign sometimes created tension between Filipe and I. At times there were certain things I wanted to do or I had certain ways of doing things. For the most part I deferred to Filipe's advice when it came to issues of how to comport myself in terms of cultural relations and so forth. However, there were times where he simply disagreed with how I wanted to proceed even if it was a mundane issue not related to cultural sensitivities. In these rare occasions it was pointed out to me that I was a white foreigner so did not know how to "do things" in Mozambique. I return to this issue of positionality below.

When we arrived in Massingir Velho, we were appointed a "guide" by the *chefe do posto*, or political leader of the village. The guide worked with us to find people who we could interview and take us to various places in and around the village. When we first started we were not looking for specific types of people, but a cross-section of residents. As time went on I asked to interview certain types of people to obtain as representative sample as possible, and to get more detailed information on certain subjects. The village guide was paid a daily stipend for the days he worked with us, and while we did not give any compensation for those people we interviewed, we did give each person a kilogram bag of sugar as a gesture of appreciation and thanks. This is in keeping with the tradition started by one of my supervisors, Dr. Lunstrum, who has previously conducted research in Massingir Velho.

Key informant interviews with state and park officials

Key informant interviews were conducted mostly with officials and staff of the LNP and officials from various government departments in Mozambique. Unlike in

Massingir Velho, I conducted these interviews on my own. At times Filipe joined me so that he could keep abreast of topics I was covering and when present he was free to ask questions. He was not there in the role of translator. These interviews were conducted in Portuguese or English depending on the interviewee. For Mozambican interviewees I made a point to conduct the interview in Portuguese even if they spoke English so that they would be as comfortable, open, and ultimately as talkative as possible. In total, I conducted 20 key informant interviews. This includes 6 interviews with administrators from the LNP, 5 interviews from people within DNAC (which includes the TFCA-Unit), 5 interviews with officials from the DNSV and 4 other interviews with officials from other government agencies like the Gaza Provincial Livestock Services and the Gaza Province Department of Flora and Fauna and other institutions like the German Development Bank (KfW). I also conducted two group interviews with key informants. The first was with four officials/technicians of the Gaza province Wildlife and Flora Unit in Xai-Xai. The other group interview was with three rangers from the LNP at Park headquarters.

Observation

The portion of my fieldwork that was in Massingir Velho entailed living in the community full time. My trips to Massingir Velho would range in duration from six days to two weeks. In the month of August I was in Massingir Velho almost the entire time, but would take two to three days break to go back to Tihovene and the park headquarters to get supplies, conduct important interviews with various officials when available, and take some time for transcription, analysis, and further research planning. Time spent

away from Massingir Velho was important for the research process. Living in Massingir Velho consisted of staying in a small tent, and cooking over a wood fire. There was no running water, electricity, or other amenities. Furthermore, as it was winter in Mozambique it would get dark (and quite cold) in the early evening. This made it quite difficult to transcribe, analyze findings, and write.

Despite the difficulties it posed, living in Massingir Velho had substantial benefits in terms of observation and building relationships. The entirety of my time in Massingir Velho was an exercise in observation. I was constantly taking in my surroundings – ecological, social, and cultural. At the end of each day, or whenever the opportunity arose, I would try my best to write down notes detailing my observations. There were also instances in which I sought to observe specific activities. These included going to pasture with people and their cattle, or going to *Bonsweni* to where cattle go to drink, among other activities.

The evenings, where there was not much else to do other than sit around the fire, provided great opportunities to talk informally with people. As my research assistant and I were newcomers and foreigners to the village, people were very curious to talk to us, especially the few young male members of the community who were in the village at the time. Some of these conversations provided a glimpse into aspects of the village that we may not have been able to talk about in a formal interview.

Admittedly, I would have liked to conduct more observation of specific activities within Massingir Velho. These include spending more time at pasture, or even going to check on animal traps or hunting, for example. There are several reasons why I was

unable to engage in these activities as much as I would have liked. For one, cattle are taken care of by young boys. The village leader did not want us going with them alone in case something happened because a boy of 8 years old, for example, would not be able to help out if one of us broke a leg, or even worse came across a lion, elephant, or buffalo. Going with an adult proved to be difficult because it meant asking someone to take time away from their own activities to accompany us. Furthermore, with regards to any observation related to hunting and trapping wildlife, this was not an option. Killing wildlife is illegal in the park. As such I could not put my assistant, Filipe, in that situation, and village residents – although they spoke about hunting fairly openly with me a times – were not comfortable having me go with them because of safety reasons, but mainly because of trust issues and them not wanting me to report anything to park authorities. For example, when I watched a man skin a gazelle and asked if I could take a picture, he declined, saying that killing the gazelle was illegal and he did not want to risk a photo getting into the wrong hands.

I also conducted participant observation with officials of the LNP. On multiple occasions I accompanied rangers or technical advisors as they went on drives throughout the park to conduct their activities. One example is when I accompanied a technical advisor as he went past Makandazulu, a village in the north of the park, to pick up some labourers and check in on the construction of a tourist camp. This was a 10-hour day where we passed through every community in the park. This proved to be a valuable experience because I was able to explore different areas within the park and the other communities, and learn about the park from the perspective of those who work for it.

Spending time walking around or driving proved to be a great opportunity to delve into issues that I otherwise might not have been able to.

Questionnaire

As part of my suite of methods I conducted a very short questionnaire. The questionnaire was conducted with 42 households (approximately 30% of the households in the village) and consisted of six specific questions – 4 ranking exercises, and 2 closed-ended questions – that came out of trends found in my interviews (see Appendix 1). Instead of simply relying on interviews, the questionnaires were an effort to get a broad consensus on a few key issues having to do with the establishment of the park, human-wildlife relations, and livelihoods. The answers to the questionnaire allowed me to add a small quantitative aspect to establish consensus and support my important qualitative data. The questionnaires were conducted at the end of my time in Massingir Velho with questions designed specifically in response to trends and important issues gained through the qualitative interviews. This follows the use of questionnaires in similar types of research. Ranking exercises, for example, are “usually used after an area of interest or set of options has been identified through some other processes, e.g., using semi-structured interviews” (IIRR, 1998, pg. 3). To ensure the appropriateness of the questionnaire and the wording of the questions, we went over it with our guide who worked with us throughout our time in the village.

Analysis

The analysis of my data is grounded in a post-positivist approach. Post-positivism acknowledges that “there is an external, objective reality”, but that there is also a need to be “sensitive to the complexity of this reality and to the limitations and biases of the scientists who study it” (Schutt, 2009, pg. 89). This differs from a positivist philosophy that believes there is an “objective reality that exists apart from the perceptions of those who observe it, and that the goal of science is to understand this reality better” (Ibid). While my research is an attempt to understand the reality of the LNP, and processes of displacement and resettlement occurring as a result of it, I acknowledge that my understanding of this reality is limited. It is limited because of its complexity, my biases, and the many limitations, which barred and continue to bar me from being able to understand and access all aspects of what is occurring and has occurred. In this sense I hope that my research can be a humble contribution to the other rich research conducted in Massingir Velho, the LNP and the issues I investigate.

On-going analysis of my data was conducted throughout my period of field research. While I was in Maputo I used the time to transcribe and analyze my data in order to prepare for the next trip to the LNP and Massingir Velho (as well as for interviews conducted in Maputo). Upon my return to Toronto I started using a software for qualitative data analysis called Dedoose. Like many similar software programs, Dedoose allows for the storing, coding, and organization of qualitative data and is particularly useful for interview transcripts. Once uploaded, all interviews were coded using different tags and coding hierarchies. Coding is an approach to “identify[ing]

general patterns, clarify connections and relations, develop possible insights and refine ideas” (Watson & Til, 2010, pg. 128). As such it is an iterative and reflexive process, like analysis itself. Analysis was not limited to the primary data I collected as my research also relies extensively on secondary sources such as LNP and GLTP documents, and government documents including park management plans, human-wildlife conflict reports, maps, and the Resettlement Action Plan.

A short point about doing research and analysis with a focus on the nonhuman deserves attention. Studying human-animal and animal-animal relations “presents considerable epistemological challenge[s]”, and I would add methodological challenges as well (Seymour & Wolch, 2010, pg. 305). In the case of my research, however, it was not the animal itself that was the subject of research, but its relations with people, other animals and a changing socio-political-ecological context. I am not a wildlife biologist nor did I engage in this type of study. Thus, when specific information was needed about wildlife like, for instance, their movement and patterns, I deferred to studies regarding this that had already been done in the park such as census information and other relevant reports, as well as interviews with wildlife managers and local villagers. This is a common practice by those engaging in similar research (Ibid). Fortunately there has been quite a lot of ecological and biological research conducted in the LNP and the GLTP more broadly. However, it is largely apolitical and asocial. As a result I am able to situate myself as a social scientist that seeks to bring some of this research into conversation with social science, and specifically political-ecological research and demonstrate how they complement each other and are both needed for a holistic understanding of what is

occurring in and around the park. As my focus is on relations between various subjects, interviews and related qualitative methods were appropriate for the questions I sought to answer. Indeed, interviews and other forms of oral communication combined with observation and document analysis are the most popular methods for understanding society-animal relations (Seymour & Wolch, 2010).

Challenges

I have already spoken to some of the challenges I faced, such as the issue of translation and language or interviewing female members of the community. However, there are two challenges that require specific attention. The first has to do with gatekeepers. Doing research in Mozambique is a very bureaucratic process with formal written and oral permission needed from various levels of authority from the National Directorate of Conservation Areas (DNAC) down to the village leader and everyone in between. One of these in betweens was the Warden of the LNP. When I arrived in Mozambique in May, I had all of my paperwork and credentials authorizing me to do work in the park in order. In addition, I had already met and interviewed the Warden on a previous trip in March with my supervisor, Dr. Elizabeth Lunstrum. Before heading to the park I phoned the Warden to touch base and let him know I was coming so we could talk and set a date to meet. When I arrived at the park's headquarters, I hit a major roadblock. Despite having official permission and authorization to conduct research in the park and having already done so previously, the Warden would not let me begin, effectively barring my entry to the park. While I did have authorization from a higher authority that I could have deferred to, I thought it best to work with him to get past this

obstacle and avoid any potential conflict in order to preserve the best working relationship as possible and not cause any further complications. In the end – after several meetings, reports and proposals, and much back and forth spanning almost four weeks – I was successful in gaining his permission to start research. However, this whole process delayed my entrance into the park and to Massingir Velho by about a month meaning less time for research in the village was available. Despite the delay and the inevitable stress and frustration that this caused, it did present a valuable learning experience and I feel that I emerged a stronger researcher because of it. While such difficulties and complexities alter plans and cause complications, I believe that they helped me gain a certain set of skills and a frame of mind that I will carry with me.

Another important challenge that I faced in terms of data collection is that I was unable to carry out a livelihoods/demographic questionnaire to get a more formal overview of the village and to have a baseline data set with which to analyze and revert back to when analyzing qualitative data from interviews. Such a questionnaire would have consisted of a systematic recording of the assets and livelihood activities of different households, members of each household and their education, and a type of socio-economic ranking. However, when I arrived in Massingir Velho, there were technicians from the LNP's resettlement program who were conducting a census and a survey to register all of the assets of the households. This information is to be used for resettlement planning and compensation. I did not want to replicate the same type of questionnaire that the park was doing and fatigue community members by asking the same questions they just answered. This would have been insensitive to them and could have resulted in

people not being interested in speaking with me in the first place. Second, I did not want to be associated with the park or resettlement program. Residents of Massingir Velho, like the other villages being resettled, are not fond of the park and are unhappy with their situation and the fact that they will be removed. Carrying out a similar questionnaire shortly after the resettlement team of the park would not have bode well for trying to keep my distance from park administration, nor for my credibility as an independent researcher. While many of these questions could have been incorporated into semi-structured interviews, I wanted to be sure to avoid any suspicion that I worked for or was associated with the park. Some community members already doubted us when we said we were not with the park or government. Having this data could have altered what I chose to argue and could have deepened my analysis, such as revealing patterns in regards to specific concerns among certain types of people. Some patterns were gleaned from what I could get from interviews such as young vs. old, male vs. female, cattle owner vs. non-cattle owner and so forth, but a deeper analysis may have been possible. Despite the desire to carry out this type of survey and the benefits that such as baseline of data can produce, “a well-intended research framework may be neither practical nor possible” (Watson & Till, 2010, pg. 132), and as a result some sacrifices need to be made. Humility, as Watson and Till (2010) say, is much needed in ethnographic work. In the end my analysis and findings do not require this type of data, and while I may not have a standardized set of quantitative questionnaire data, I was able to gain a broad overview of the village in a less systematic and quantitative way.

Power and Positionality

Whether we like it or not, the nature of much Development Studies research means that we will be in positions of power in relation to most of our participants, a fact which can and should make us engage in some awkward self-reflection about the value of our research (Scheyvens et al., 2003, pg, 149).

Any discussion of research and methodology, especially that of a qualitative and ethnographic nature, requires a discussion on power and positionality and how the researcher may have affected the data collected. The residents of Massingir Velho had previous experience with researchers (including my supervisor Dr. Elizabeth Lunstrum) and foreign “consultants”, especially since the establishment of the LNP. As such they were both comfortable with people in my position, yet perhaps not that interested at times. Because of this I made sure to be extra-sensitive to their desires and allow them space to shape the direction of the research. Everyone, for instance, wanted to talk about the forthcoming resettlement so this guided much of our conversations. Of course, it is possible that people spoke openly with me about resettlement and some of the problems they were facing because they saw me as someone who might have influence and the ability to help their situation. Indeed, being a white male, people assumed that I was wealthy and had political connections. I routinely had to remind people that I was not South African or Portuguese. I was very upfront with people so as not to give any allusion or promise that I could change their situation and told them that the information I gather will be made available to park authorities and that this is all I can do at this point. I hope that my research has some benefit for the community, but that remains to be seen.

Working in a context where people are upset with their conditions and the prospect of resettlement may have influenced our interactions and the data collected (Fontana & Frey, 2000). If people saw me as a way to increase their voice and reach certain authorities, then it is possible that they focused on their problems in the hopes that I would be an advocate for them. While I am sure this did occur, I have confidence that it did not overly skew my data, as there are many instances of contradicting views and opinions on the part of different people, including some that are even sympathetic to being removed from the park. There are many anomalies in the data set, and instead of ignoring them and brushing them off, I embraced such anomalies as signs that not everyone was repeating the same discourse, and as opportunities for new lines of inquiry. At the same time as being seen as a potential advocate, some residents were wary of my position and were doubtful that I did not work for the park. This could have had the opposite effect whereby people told me what I wanted to hear, or withheld information for fear of being reported to the park. While this is a legitimate concern and is likely to have influenced some of my relations and the data gathered, I remain confident that, once again, this did not affect the data in an undue way. I say this because of the openness in which people spoke with me about, and allowed me to observe, many activities that are not permitted by the park. I believe that having my interpreter Filipe who could relate well with village residents, and the confidence of the village leader, helped in this regard. Whereas it was much easier for Filipe to relate to members of the community, I tried my best and often had conversations comparing and contrasting lives in Massingir Velho with my life back home. Residents were particularly happy to hear that my partner

(whom I referred to as my wife) comes from a family of cattle raisers and grew up on a cattle farm. We had many good laughs about the difference between cattle rearing in Canada and in Mozambique and especially regarding the fact that she knows more about livestock raising than I do!

Throughout this chapter I have already mentioned instances where my positionality and certain power relations affected the research process such as interviewing women or gaining entry into the park. While not my first time living or working in the context of the “Global South,” I constantly struggle with my positionality in the context of doing research among and with vulnerable communities like Massingir Velho. I routinely ask myself if I should be conducting research in such a context and fear falling into the trap of “academic voyeurism” (England, 1994, pg. 84, quoted in Watson & Till, 2010). As a young researcher, I am unsure of how to fully deal with these internal battles and I thus try to focus on two things. The first is the value and importance of the research being done and making sure that it is relevant to the people I work with. The second is being as sensitive and responsible of a researcher as possible. This includes building relationships that last beyond the data collection process and in listening to those people that I rely on for my research. This also includes “listening for hints that one is unwelcome” (Watson & Till, 2010, pg. 131). Fortunately, the residents of Massingir Velho were open, inviting, and willing to engage with me in this project, as were the other key informants I relied on. It is safe to say that without this, my research would not have been possible.

Conclusion

In this Chapter I have given an overview of the context in which I conducted research by describing the field sites and some of the challenges and opportunities this presented. I also present an explanation of the research design and methodologies used. Research and data collection were based on an ethnographic design and thus focused largely on qualitative data gathering techniques like observation, interviewing, and document analysis. It is through a post-positivist approach that I analyzed this data. While the research process was not without its challenges and was indeed imbued with issues of power and positionality that influenced the research process and the data gathered, I am confident in the data collected and believe that it was a productive research process. I also hope that it will yield some benefit for those generous parties that made it possible. I now turn to my empirical and analytical chapters based on the data collected.

Chapter Three – (Trans)national parks and the wildlife-cattle nexus: The production of insecure space, biosecurity risks, and the framing of conservation-induced displacement

The gradual removal of domestic livestock from the LNP is recommended and the LNP management is encouraged to develop alternate land use practices and internal policies that will address this (GLTP, 2002, pg. 82).

But the lions will come back once the wildlife comes back so we need to remove people quickly and their livestock (Interview with TFCA-Unit Official, 06/2012).

These two quotes demonstrate the overarching sentiment among park and state officials that domestic livestock such as cattle need to be removed from the Limpopo National Park (LNP). The first excerpt comes from the Management Plan for the Great Limpopo Transfrontier Park (GLTP) written just after park establishment and recommends the removal of livestock from within its boundaries. The second quote, from an official in the Transfrontier Conservation Area (TFCA)-Unit in Mozambique, illustrates how ten years after the park's establishment and the release of the Management Plan, the idea that livestock needs to be removed from the LNP is still prominent. A closer examination of the context from which these excerpts emerge reveals that the establishment of the GLTP and the LNP produces risks that threaten the health and safety of livestock. What is not revealed is *how* the two parks have contributed to the emergence of these risks, and how this informs the decision to remove over 7,000 people from the interior of the LNP.

In this chapter I seek to uncover and explain the dynamics behind the emergence of risks of disease transmission and predation that threaten the health and safety of cattle in the LNP. I start off by briefly returning to the literature on biosecurity to more fully

explain the notions of risk and network, which I use to structure the remainder of the chapter. I then engage with the empirical case of the GLTP/LNP tracing how the various risks to cattle have emerged. Building off of Latour (2003) and Bingham et al. (2008), I employ the notion of reverberations to understand how the establishment of the GLTP and LNP has mediated the network in which wildlife and cattle are entangled to produce an insecure space (cf. Collard, 2012) for cattle leading to risks of disease transmission and predation. A reverberation is “any action that discharges a series of consequences, only some of which will be known or knowable prior to the event” (Bingham et al., 2008, pg. 1529). Through a largely empirical analysis, I show how reverberations, or consequences, stemming from the removal of the international border fence and new park legislation tied to the GLTP/LNP underlie the risks of disease transmission and predation that cattle face. Furthermore, using a biosecurity framework and a networked conceptualization of risk, I demonstrate how the need to protect cattle from these risks forms part of the state’s justification for the removal of communities from the interior of the LNP, an area also known as the Shingwedzi River Valley (SRV). By removing communities and their cattle from the SRV, cattle are also removed from the network where the threat of disease transmission and predation emerges. The removal of communities from the LNP is thus framed, in part, as a biosecurity intervention aimed at protecting the health and safety of cattle by removing them from an unsafe or “bioinsecure” space.

While not the only reason underlying their removal – indeed the SRV has been designated as a wildlife and tourism area – keeping cattle safe is a depoliticized

justification that renders communities' dislocation as necessary for their well-being, and thus more palatable. I conclude the chapter by arguing that a focus on cattle and wildlife, and their interactions within a more-than-human geography allows for a better understanding of the unintended consequences stemming from ecological, social, and material processes of conservation efforts that alter interactions between nonhuman actors, yet still hold important implications for people that might otherwise get glossed over. This reveals a different set of processes tied to conservation-induced displacement that are less talked about in political ecology, yet that are still relevant. This type of approach is especially relevant for transfrontier conservation initiatives and in a broader context where land used for wildlife conservation continues to expand and conflict with that used for agriculture and livestock-rearing, thus producing insecure spaces for people and their livestock.

Risk, Biothreats, and Post-human Networks

A perfect translation of 'risk' is the word *network* in the ANT [actor-network theory] sense, referring to whatever deviates from the straight path of reason and control to trace a labyrinth, a maze of unexpected associations between heterogeneous elements, each of which acts as a mediator and no longer as a mere compliant intermediary (Latour, 2003, pg. 6. emphasis in original).

Commenting on risk, Bruno Latour puts forward a notion of the concept based on associations and interactions between heterogeneous elements, human and non-human alike. Building off of scholars like Braun (2007), Barker (2010), and Bingham et al. (2008), *risks*, in a biosecurity sense, are emergent and contingent upon interactions. The mediation of these interactions leads to the emergence of new risks, some predictable, and others not. Mediating interactions can also *reduce* potential

risks. Latour argues that risk “does not mean that we run more dangers than before, but that we are now *entangled* [...]” (Latour, 2003, pg. 36. Emphasis in original). Others have also shown how the entanglement of heterogeneous entities, human and nonhuman alike, similarly produces “bioinsecure spaces”, from which risks emerge (Collard, 2012, pg. 38). Cattle in the LNP are entangled in a web of interactions mediated by the establishment of the GLTP and LNP, the conservation efforts they entail, the changes they have produced, and the values underlying them. The reverberations induced by these changes place cattle in a precarious position where their well-being has become jeopardized. The most important factor underlying the production of this unsafe space and the emergence of risks is the cross-border movement of wildlife from Kruger to the LNP with the removal of sections of the border fence separating the two parks.

The Emergence of Risks with the Opening of the Border – The Great Limpopo Transfrontier Park

A herd of buffalo is circulating in the Kruger National Park along its eastern boundary bordering Mozambique. As it moves further west, it is no longer impeded by the fence that had marked the international border between the Kruger and LNP. With the establishment of the GLTP, this particular ten-kilometre section of fence (about twenty kilometers north of the Giriyondo border post) was removed. Such is the case with about forty-five more kilometers of fence all along the border. Its removal is meant to facilitate the movement of wildlife between the two countries in order to fulfill the GLTP’s vision of a “borderless” landscape (Hanks, 2003; Wolmer, 2003). Attracted by the prospect of

water and open grazing lands, the herd continues eastward and crosses into the LNP. Unbeknownst to them, these buffalo are now officially in Mozambican territory – no customs and no border patrol, free to roam into one sovereign territory from another. The herd finds a source of water, the ever-flowing Shingwedzi River winding its way through the interior of the park before connecting with the Olifants River - the park's southern-most boundary. As the herd drinks from the Shingwedzi it makes its way south, following the bends in the river and eventually realizing that this is perfect habitat; there is water and plenty of grazing lands with fewer animals to share with. Unlike Kruger, this side of the border is vastly under-populated in terms of wildlife². The herd is not the only one to realize the potential habitat here. This area, known as the SRV, has been deemed “prime wildlife area” and was even officially designated so according to park land-use plans (GLTP, 2002). It is no wonder that the buffalo like it here and eventually choose to settle and establish a home range in the area. Yet the buffalo, although new to the area, are not the only inhabitants³.

Part way through my fieldwork I accompanied a technical advisor from the LNP as he drove through the park. Driving down a small dirt road surrounded by *o mato* (literally, the bush, in Portuguese) on the way to Massingir Velho – a village located in the SRV and about twenty kilometres from the South African border – I asked about the home-ranges of buffalo and where they were. The response: “Right here.” But so close to

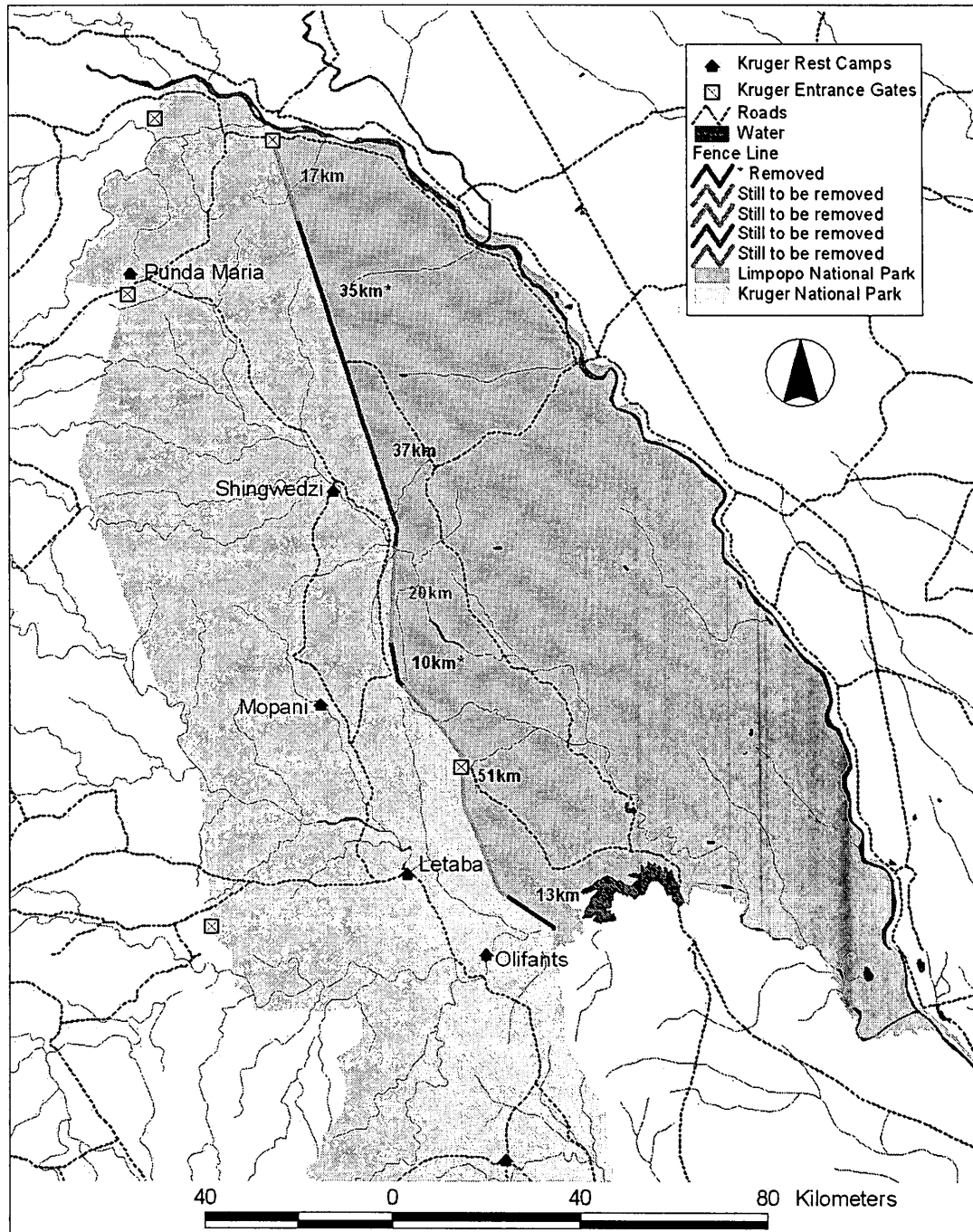
² Most of the wildlife in the area of Coutada 16, now the LNP, was decimated during Mozambique's Civil War (Lunstrum, 2010; GLTP, 2002). Also mentioned in Lunstrum 2008 & 2010.

³ The information for this vignette does not come from one particular source, but from a variety of sources and observations compiled over the course of my research in the field.

Massingir Velho? We were maybe five to six kilometres away from the centre of the village, and after spending some time there I knew that cattle graze this far out. “Yes”, the technical advisor responded, “this is an area of interface between buffalo and cattle.”

This conversation actually happened, and the movement of buffaloes, while not based on an event that I experienced, is reflective of some of the key processes occurring in the GLTP/LNP. It is this entanglement of processes – the partial removal of the international border fence (see Map 4) and the contrast in wildlife populations, water access and distribution – stemming from the transfrontier nature of the park that are driving the migration of wildlife and the resulting intensification of the buffalo-cattle interface responsible for the emergence of disease transmission and predation in the LNP – what I refer to as biosecurity risks. As one TFCA-Unit official explaining the migration of wildlife into Mozambique told me:

Because at the heart of it we are in a situation where gradually in the LNP the number of animals is increasing. Animals were transferred, in an active way for lack of a better word. They were put on trucks and transferred to Limpopo, around 3,000 animals of different species. But there are others that migrate naturally because the big difference between Kruger and Limpopo is that Kruger has a high burden of animals and Limpopo has a low burden of animals, Limpopo has an abundance of pasture. Limpopo also has two rivers that have water pretty much permanently. The Limpopo River permanently has water and the Shingwedzi decreases, but still has water. So, water is a strong attraction for animals and pasture as well. So naturally they will migrate to the Mozambican side (Interview, 07/2012).



Map 4. Sections of the border fence (red lines) that have been removed between the Kruger National Park and the Limpopo National Park (SANParks, 2012d).

The ecological aspects driving the migration of wildlife are part of the transnational network of the GLTP. In addition, they help to explain why the migration of wildlife is largely *unidirectional* with animals moving from Kruger to the LNP. Water is arguably the main feature attracting wildlife to the LNP not only because of its abundance of water available year-round, but also because of Kruger's relative lack of water tied in part to the closure of many of its artificial watering points (GLTP, 2002; SANParks, 2012a). Water not only attracts wildlife to Mozambique, but is also a decisive factor in their decision to stay and create home-ranges (de Garine-Wichatitsky et al., 2011). Thus, as water disparity between the Kruger and LNP continues to grow with the closing of more artificial watering holes, the LNP offers an enticing alternative not only sparking the initial cross-border migration, but also the animals' desire to remain. As a wildlife veterinarian with the National Directorate of Veterinary Sciences (DNSV) in Mozambique explained,

The supply of water in certain areas is no longer being done. This means that wild animals will have to disperse in search of sources of water and will cross into our side here in Mozambique, and, logically they will stay. This happens fundamentally in the Shingwedzi Region. That is where there is the largest concentration of wildlife (Interview, 06/2012).

Apart from water disparity, there is also a disparity in terms of animal populations between Kruger and the LNP. Simply put, Kruger is overstocked with large mammals and the LNP has very few as its wildlife population was all but decimated during Mozambique's civil war (Lunstrum, 2010; GLTP, 2002). Table 1 highlights the difference in wildlife populations between the three parks of the GLTP at the time of its opening. The LNP's low wildlife population also means an abundance of pasture that

similarly attracted, and continues to attract, wild animals (Interviews 06/2012). However, as important as these ecological drivers of migration are, the movement of animals from Kruger to the LNP would not be possible without the removal of sections of the international border fence. It is the removal of this physical barrier that effectively expands the potential habitat of wildlife and enables its cross-border movement.

Species	Limpopo	Kruger	Gonarezhou	Total
Elephant	±150	9 294	4 243	13 395
Hippo	Few in dam	2 963	76	3 039
Rhino White	0	3 972	0	3972
Rhino Black	0	300	0	300
Giraffe	<50	6 493	166	7 709
Buffalo	Very Few	± 25 000	536	± 25 536
Wildebeest	±30	20 093	161	20 284
Lichenstein's Hartebeest	0	<50	0	<50
Tsessebe	0	<100	0	<100
Eland	<50	<250	114	<414
Kudu	>500	5 147	1 122	6 760
Nyala	Present	300	Present	Numerous
Buhbuck	Present	Common	3000	>3000
Waterbuck	± 400	2 225	300	± 3000
Reedbuck	Few in dam	300	50	350
Mt. Reedbuck	0	150	0	150
Impala	Numerous	96 000	2 976	>100 000
Roan	1	60	100	160
Sable	± 100	300	130	430
Zebra	<100	25 244	652	± 26 000
Warthog	Few	1 823	300	>2000
Leopard	Common	1000	250	>1 250
Lion	Few	2 500	250	2 650
Spotted Hyena	Common	2000	100	>2 100
Wild Dog	± 50	200	50	±300
Cheetah	0	200	20	220

Table 1. Estimates of some of the large mammal populations in the GLTP in 2002. The estimates for the LNP were based on interviews with hunters from Gaza Safaris in 1998 (GLTP, 2002).

The migration of wildlife is not the only manner in which they are re-populating the Mozambican park. Migration has been coupled with a translocation program whereby a total of 3,885 large mammals were loaded onto trucks in South Africa and transported to the LNP between 2001 and 2006. The majority of these animals were moved into a 40,000 ha wildlife sanctuary that was fenced in. The purpose of the sanctuary was to allow the animals to “settle down” so that when the sanctuary fence was eventually removed, they would feel comfortable in the LNP and not return to Kruger (GLTP, 2002). Importantly, the sanctuary overlapped with land used by Massingir Velho. As a result, when it was removed, the animals within it were essentially released into the village’s backyard where many of its fields, pastures, and water sources are located. As buffalo and other wild animals move into the LNP by migration or translocation they do not enter an “empty” space, but one inhabited by people and their livestock, including cattle – the most abundant animal species in the park. The result of this transnational movement and settling of wildlife is an intensifying interface between wildlife and cattle leading to the emergence of biosecurity risks like disease transmission and predation. This is especially the case in the SRV, an area designated as prime wildlife area and home to over nine thousand head of cattle (Gaza SPP, 2011).

The wildlife-livestock interface: Insecure space and the emergence of biosecurity risks in the Shingwedzi River Valley

You see even now, we can see an animal enter right into our house because there is no fence that exists, there is nothing prohibiting the animals from entering into our areas and coming into our houses even. Now the animals encounter each other in the bush and eat together. Particularly in rain times when all of this area turns in a pan area with water, the animals are where we are, they come here to drink water and don't need to go far and they encounter our cows all of the time. [...] It is very

rare to have an incident with people because God is powerful but the boys who go to pasture encounter them in the bush when they [cattle] go drink water. Here where we are, we are not protected enough so that an animal can't enter and kill a person. Our cows also, when they are drinking, and eating, and grazing they enter where the animals are and sometimes go way into the bush where they find animals. Our boys who take care of the cattle, they are afraid to go out that far in the bush; so the men have to go out there in the bush and fetch the cows sometimes. Now cattle is really in there in the bush where wildlife are so we have no protection (Henrique 08/2012).

Henrique is about 40 years old, a resident of Massingir Velho and the community veterinarian. In trying to help me understand some of the changes that have occurred regarding cattle raising over the past ten years, he laid out the nature of the wildlife-cattle interface occurring in and around Massingir Velho. Henrique's description also sheds light on the spatial characteristics of the interface that are largely dictated by needed and available resources. Just as buffalo and other wild animals need water, so do people and their cattle. It is no coincidence that the distribution of villages in the LNP is found along the Shingwedzi or Limpopo Rivers. A Veterinary Rapid Assessment conducted in the LNP in 2006 (MINTUR-MINAG, 2007) and a consultancy study on human-wildlife conflict in 2011 (Le Bel, 2011) further corroborate how water is a central gathering point contributing to the creation of the wildlife-cattle interface, which resembles what Collard (2012) refers to as "bioinsecure space."

In her examination of the unmaking of safe space through cougar-human interactions, Collard argues, "heterogeneous networks of entities are continuously producing space" (2012, pg. 38). Of particular importance to the production of these spaces is the role of nonhumans as "spaces are produced within dynamic, heterogeneous, and often precarious assemblages of entities that are not all human" (Ibid, pg. 26). This

accurately reflects how the SRV has become an unsafe space for cattle and other domestic livestock as much of the intensifying interface through which risks to its health and safety emerge is a result of the higher number of wild animals present in that area. This also means that the SRV is now less safe for communities like Massingir Velho. For instance, at the time of park opening there were almost no buffalo or elephants in the LNP, yet in 2012 there were over 1,200 of each (LNP, 2010). This is directly tied to the removal of sections of the international border fence and the translocation program. But, as detailed above, the fence removal is entangled with other ecological features that result in migration being unidirectional from Kruger to the LNP. One must also remember that humans are not exempt from this network either. Indeed people are responsible for many mediations of this network. Such mediations include actions not directly related to the GLTP, like closing artificial watering holes, but also include the most important action of all, the removal of the fence separating Kruger and the LNP. I now turn to the specific risks of disease transmission and predation.

Biosecurity Risk I: Disease Transmission from wildlife to cattle

Disease transmission in the GLTP occurs largely from wild to domestic ungulates, or hooved animals. Some of the most important ungulate species with regards to disease transmission are wildebeest, kudu, wart-hog, nyala, bushbuck, impala, and most importantly, African buffalo (MINTUR-MINAG, 2007). The removal of sections of the international border fence separating Kruger and the LNP not only contributes to the production of insecure space by facilitating the movement of wild animals, but the movement of diseases, pathogens and their vectors as well. As buffaloes, for example,

cross the border, they bring with them whatever it is that they may carry, be it bacteria, viruses, or ticks, the vector of so many animal diseases. According to the GLTP Management Plan,

It is predictable that without international boundary fences, and with contagious wildlife populations, any infectious disease present in any one of the participating conservation areas will eventually spread throughout the entire transfrontier conservation area, unless containment or control measure are put in place (GLTP, 2002, pg. 77).

For the most part, “containment” and “control” in Southern Africa (Cumming, 2004; SADC, 2008) has relied on the use of fencing to keep wild animals outside of livestock rearing areas⁴. The removal of the fence thus presents serious challenges to controlling the spread of disease, especially transboundary animal diseases such as Foot-and-Mouth Disease (FMD) and Bovine Tuberculosis (BTB). The risk posed by disease transmission is further exacerbated by the difference in epidemiological contexts between Kruger and the LNP, another aspect of the GLTP’s transnational network.

There are many animal diseases that are present in Kruger but not in the LNP. Of particular importance are FMD and BTB, which pose significant threats not only to wild ungulates, but to cattle and other domestic livestock as well. There are also other diseases already present in the LNP whose incidence and risk of transmission are likely to increase as infected or carrier animals migrate from Kruger. Examples of these diseases include anthrax and Theileriosis (Corridor disease), both of which can be fatal for livestock (OIE, 2009). One does not have to go far to find evidence of these diseases in Kruger and the

⁴ Literature on biosecurity also demonstrates how fences are one of the preferred biosecurity interventions with regards to animal disease prevention (Lulka, 2004; Buller, 2008; Donaldson, 2008).

risks they pose. As recently as August 2012, thirty roan antelope carcasses were found in the North of Kruger and were “believed to have died from yet another outbreak of the anthrax disease in the park” (SANParks, 2012c). In 2006 a small outbreak was responsible for the deaths of at least fifteen animals including kudu, nyala, buffalo and giraffe (SANParks, 2006b)⁵. All of these species are migrating into the LNP, increasing their numbers and sharing space with cattle.

Like anthrax, there have been recent outbreaks of FMD in South Africa. Of particular importance are those that occurred adjacent to Kruger in cattle populations. For example, from 2000 to 2006 there were five outbreaks of FMD in livestock in South Africa. Three of these, which occurred in the Limpopo province adjacent to Kruger, were the result of contact between buffalo and cattle after damage was caused to fences on Kruger’s western boundary by floods that allowed buffalo to escape (Vosloo et al., 2002, 2006). In April 2012, there were four FMD outbreaks in Bushbuckridge, again located adjacent to Kruger’s western boundary, where a total of thirty-two cases were uncovered in cattle at a dip-tank (OIE, 2012a). According to the official report, the source of the outbreak was “contact with wild species” (OIE, 2012). FMD is also particularly problematic in the context of the LNP where the wildlife-livestock interface centers around water as transmission is “most likely to occur due to congregation of animals

⁵ Anthrax (*Bacillus anthracis*) is a bacterial disease fatal to both animals and humans and is endemic to the northern part of Kruger. It occurs in cycles where activity is higher than at other times, which is what is responsible for outbreaks. Large outbreaks have been recorded in the north of Kruger in 1959/1960, 1970/1971 and 1990/1991 (SANParks, 2006b).

around higher quality pasture and water sources” (Brahmbhatt et al., 2012, pg. 9; see also OIE, 2012d).

Like Foot-and-Mouth Disease, there have also been outbreaks of Theileriosis, also known as Corridor Disease, along Kruger’s western boundary as a result of damaged park fences caused by flooding once again leading to increased contact between buffalo and cattle (Vosloo et al., 2002). Buffalo, as well as waterbuck are hosts for Corridor Disease that is spread by ticks (Olwoch et al., 2008; OIE, 2009). Both are migrating from Kruger to the LNP with the opening of the border fence.

Arguably most important in terms of disease, though, is the presence of BTB in Kruger. A livestock disease with wildlife reservoirs, BTB was first diagnosed in African buffalo in Kruger in 1990 (De Vos et al., 2001; Michel et al., 2006). Initially found in the southern portion of Kruger, it has since spread northwards and is now found throughout the park, and has even spread to adjacent private game reserves, suggesting that it can spread to the LNP. Michel *et al.* (2006, pg. 92) specifically mention the risk for the LNP stating that the risk of infection for cattle stemming from the wildlife-cattle interface is a risk “not only along the western boundary of Kruger National Park, but also with regards to the joint development of the Greater Limpopo Transfrontier Conservation Area”, a conclusion that the KNP Management Plan (SANParks, 2006) and a Veterinary Assessment (MINAG-MINTUR, 2007) conducted in the LNP share.

The point of detailing this information about certain diseases, and the history of outbreaks and spread in Kruger, is to highlight how the removal of sections of the international border fence creates the conditions not only for the movement of wildlife,

but also the spread of diseases. This is one important mediation that has reverberated throughout the network in which wildlife and cattle are embedded to produce risks and make the SRV less safe for cattle. According to a report by the Southern African Development Community (SADC), there are four factors that increase the risk of transboundary animal disease occurrence (SADC, 2008).

1. Creating large contiguous populations
2. Creating biological bridges for animals and disease movement over relatively long distances
3. Expansion of the geographic range of a pathogen or vector
4. Increasing the size of the wildlife/livestock interface

The GLTP does all four of these things and is thus a vital contributor to the emergence of disease transmission facing cattle in the LNP. One could even go so far to say that the spread of disease (and risk) is in part *contingent* on the removal of the fence. Even with the other factors – such as the distribution of water and uneven wildlife populations – it is the removal of the fence that enables the cross-border mobility of wildlife and disease. Of course, the initial translocation of almost 4,000 wild mammals is also important in this regard. However, it is the removal of the fence that is going to allow wildlife, and by extension disease, to continue to move into the LNP into the future. To be sure, the implications of the fence removal with regards to the emergence of this risk are becoming ever more clear as the spread of these diseases and their associated risks become more real, and no longer merely potential.

According to a report on the animal disease situation in Mozambique, the movement of buffalo from Kruger has led to the re-introduction, or put differently the *re-emergence*, of Corridor Disease in the area of the LNP (Costa, 2008). The disease re-

emerged in 2004, the first time since 1960 (Ibid). Interviews with officials from the National Directorate for Veterinary Services (DNSV) and the National Directorate for Conservation (DNAC) confirm this re-emergence and the associated risks (Interviews 06/2012, 07/2012). One official said, “there is a high record of mortality [of cows] as a result of Corridor Disease in areas where buffalo go” (Interview 06/2012). He went further saying this occurs “because of the migration of buffaloes, because there is no division between the parks, so the buffalo migrate and transmit ticks that are responsible for the disease. This creates a high mortality” (Ibid). The reality of BTB spread is similar. Reports from the Massingir District Office of the Gaza Provincial Livestock Services (SPP) from the months of July and August 2012 include fourteen positive cases of BTB in the region both within and outside of the LNP boundaries thus confirming fears of its potential spread.

In short, the removal of the border fence to facilitate the migration of wildlife between the two parks also facilitates the movement of diseases. This means an increase in diseases already present in the LNP, like anthrax, as well as the introduction of potentially disastrous diseases in the LNP like FMD and BTB. The importance lies in the movement of animals, without which the movement of diseases would not occur. Hence, the connection between the removal of the international border fence and biosecurity is that the movement of animals that the fence removal enables produces a bioinsecure space for cattle, other livestock, and by extension people. The network of the GLTP is one where wild animals, diseases, domestic livestock, and even people circulate and the removal of the international border fence has reverberated to produce new entanglements

of these bodies that did not exist previously. Wildlife, along with pathogens, viruses, and ticks that they carry now circulate freely alongside domestic cattle in ever-increasing numbers. This has led to the re-emergence of certain diseases and their transmission to cattle and ultimately the production of insecure space that Collard (2012, pg. 38) would argue is “forged within networks of circulating entities.”

Disease transmission is not the only risk emerging from the removal of the border fence and the broader establishment of the GLTP. Furthermore, despite its relative importance, it is not the risk that captures the attention and imagination of most of the residents of Massingir Velho. When it comes to their cattle they are much more focused on lions.

Biosecurity Risk II: Predation of cattle by lions

Like buffalo and other ungulates, lions have taken advantage of the opening of the border to migrate from Kruger to the LNP. Ungulates are lion’s prey, so as they migrate, the lions follow (Interview with LNP technical advisor 06/2012). Many residents of Massingir Velho testify to the increase in the number of predators over the last ten years. As Luiz explained when I asked about risks for cattle when they go to pasture, “That which we fear most at pasture are lions. Particularly now that the park has entered, there are a lot more lions” (Luiz 08/2012). Paulo, another cattle owner, demonstrates an intriguing perception of why and how the number of lions has increased. While explaining to me that despite the occasional eating of a cow, he still feels that residents of Massingir Velho have a relatively peaceful co-existence with the large predators and that “the park” did not bring them. Instead, he told me that “lions come from outside, they are

escaping from somewhere” (Interview 06/2012). This is an interesting insight that lions must be coming – or “escaping” – from Kruger where parts of the fence were removed. With the migration of lions from Kruger and the increase in their numbers in the LNP that follows, the level of conflict between lions and livestock in the form of predation has also been on the rise. However, the emergence of greater risks of predation that contribute to the unmaking of the SRV as a “safe space” is not just a result of more lions with the opening of the border, but is also tightly connected with processes associated with the LNP as a national park that seek to mediate human-wildlife relations.

It is well known that national park establishment can lead to increased human-wildlife conflict in and around park boundaries (Treves & Naughton-Treves, 2005; Metcalfe & Kepe, 2008). The LNP is no exception but the problem is arguably more significant because of the re-colonization of wildlife following the creation of the GLTP and the subsequent increase in wildlife populations⁶. Apart from the increasing number of wild animals in the SRV, the inability to kill them has also contributed to the intensification of human-wildlife conflict as residents are less able to defend themselves and their crops. In fact, residents of Massingir Velho are much more pre-occupied with changes directly associated with the LNP as a national park than with its transfrontier nature. Most important are changes to rules regarding resource use such as legislation prohibiting the killing of wild animals.

⁶ This conclusion is also supported by officials from DNAC, the TFCA-Unit and the LNP (Interviews /05/2012; 06/2012).

With legislation aimed at protecting wild animals, relations between humans and wildlife have changed so that co-existence is less bearable for residents compared to before the LNP. The following excerpt from a conversation with Luiz clarifies this relationship:

Francis: What are the most abundant animals?

Luiz: It's the elephants.

Francis: Do these animals cause any problems?

Luiz: They cause a lot of problems.

Francis: What do they do?

Luiz: They eat our corn.

Francis: Before the park did you have these problems with animals?

Luiz: Before the park there were animals, but they did not invade our fields because every time they would try we would expel them with guns.

Francis: Why do you no longer shoot at animals?

Luiz: Because the park prohibits it. (Luiz 06/2012)

Judite, a mother seven, went on at length, as many other residents did, about the problem of crop raiding and the inability to defend their fields.

What I am able to see is that we are suffering and I don't know how this suffering will end. We suffer a lot because of the park, what causes this suffering is that the animals eat our corn and other crops. There in Baixa [lower area of the village near the water], the hippos eat what little fields we have. In the Alta [main area of the village], the elephants eat our fields. Before the park we would punish the animals by hunting them or by setting traps and the animals would not come back. But now, we are suffering a lot because we are not allowed to kill the animals [...] Human-wildlife conflict has intensified with the entrance of the park because we can no longer kill the animals (Judite 07/2012).

These excerpts demonstrate that residents are less able to deter wild animals from invading their fields and eating their crops. While they have adopted other non-lethal methods of trying to scare and chase away animals – such as placing metal drums in the middle of fields to make noise, and using fire as a means to deter animals – such methods often do not work (see Photos 1 & 2).

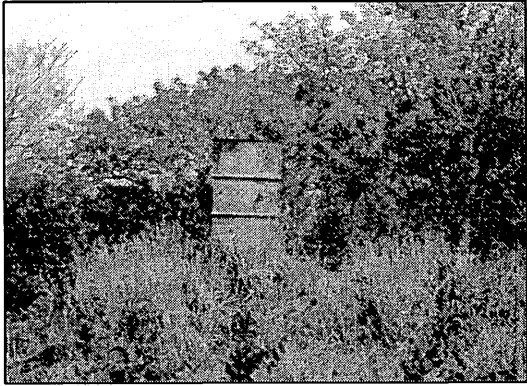


Photo 1. A barrel placed in a field used to scare elephants away by banging on it.

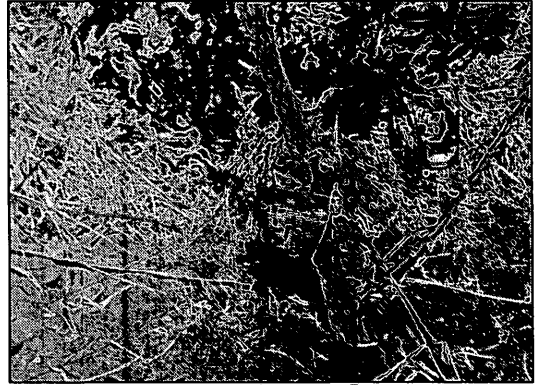


Photo 2. Food and beer cans strung along a wire to alert residents if an animal enters the area

While the new legislation in the LNP has altered human-wildlife relations, there is nothing specific about this that pertains to livestock or cattle. In fact, the legislation really has nothing to do with cattle at all. So, why mention it?

Cattle are a foundation of the agricultural based livelihoods that residents of Massingir Velho depend on. Like any asset, they work to protect it. However, as with their crops, the mediation of their relationship with wildlife stemming from national park legislation has reduced their ability to defend their livestock. Not only are there more predators as they migrate into the LNP, but residents are less *able* to defend cattle from predator attacks. The space that cattle occupy is thus less safe as there is greater risk of predation. Over the course of many interviews residents explained how, before the park existed, when a lion attacked a cow they would kill the lion. This would obviously prevent the lion from coming back, but they argue it would also act as a deterrent to other lions. If they were unable to kill the lion then and there, residents would set a trap by

baiting it with meat and setting a snare, poisoning the meat, or shooting it as it approached the meat. As Carlos explained:

We left cattle there, up until a week in the bush. Even leaving them there at night, if they encountered a wild animal before the park, the animal could kill our livestock but we would set traps. And soon after the lion would get trapped because it would eat and leave some meat. And when it would return to eat again from the meat it left, it would get caught in the trap and we would kill the lion. Like this we reduced the incidents of death of domestic animals because the lions would no longer return to kill our animals. But since the park entered it does not want this (Carlos 07/2012).

The loss of cattle and other livestock to predation is not new. Many residents who were present when Massingir Velho was still located in the *Baixa*⁷ before 1975 remember dealing with predator conflict. As Bartolomeu explained:

In the *Baixa*, there were not many [attacks]. It happened, they appeared from time to time, but it was not often. If for example an animal was attacked and killed in a certain place, we would set up traps in this place in order to kill the animal that caused us harm. When this occurred it was very rare that other animals returned again to this area (Bartolomeu 07/2012).

The risk of being attacked by lions was always there, yet it has been unpredictably transformed and augmented. While there are more lions because of their migration, most residents argue that the risk of predation is greater because of their inability to defend cattle. Furthermore, because lions cannot be killed as punishment for killing a cow there is nothing to discourage them from returning and killing again. This was repeated often by residents and is tied up with the ways in which they co-exist with wildlife revealing

⁷ *Baixa* is an area by the Olifants River that is the original site of Massingir Velho. In 1975 the village was relocated to its current location, about 9 kilometres away. Residents still use the fertile land along the river in *the Baixa* to farm. Some people live there temporarily today.

how predation of domestic animals and the presence of predators are not new; it is, the relations between them that have changed. As Judite said,

Before the park we would punish the animals by hunting them or by setting traps and the animals would not come back. But now, we are suffering a lot because we are not allowed to kill the animals [...] Since a while ago there are wild animals that eat domestic animals. They eat cows, goats, chickens and there are some that eat corn and those animals all still exist. Before we didn't chase animals away, we killed them if they caused problems. We killed it because it killed and ate our cows and they needed to be avenged (Judite 07/2012).

Residents are now reliant on the LNP staff and administration to deal with lion attacks.

However, by the time a lion has attacked it is too late to save the cow, and even then the park does not always respond. As Lidia explained, “the lions enter and eat our livestock and our only recourse is to call the LNP officials, but they don't do anything” (Interview 07/2012). The LNP is supposed to deal with “problem” animals, but this seems to rarely be the case (Interviews 06/2012 & 07/2012). For instance, according to the LNP's own annual report, in Massingir Velho there were five cattle deaths as a result of predation recorded and a number of fields destroyed by other wild animals (LNP, 2010c). The only “action taken” was evaluation.

The phenomenon called the “national park effect” supports residents' observation that the inability to kill lions and punish them for killing their cattle results in more frequent attacks and the returning of lions to areas of cattle grazing (Schiebe, 2009, pg. 223). The national park effect explains how wild animals behave differently in areas where they are hunted and where they are not. Most importantly, these behavioral changes are manifested in a tolerance of animals towards humans, a reduced or even lack of flight behaviour and a tendency to be more active in daylight. Put simply, animals such

as lions learn to be less afraid of certain areas when they do not associate that area with “unpredictable or possibly dangerous events” such as being killed or trapped (Schiebe, 2009, pg. 223). While made an insecure space for cattle, the LNP is simultaneously made to be a more secure space lions, and other wildlife via park legislation. This is not something that biosecurity on its own can explain, but requires the insights gained from political ecology, which I detail more extensively in Chapter 4. By mediating human-wildlife relations, this legislation has reverberated throughout the socio-material network in which cattle are embedded making them more vulnerable to predation.

The LNP’s designation as a national park also entails other changes that combine with these new resource use rules, specifically, improved surveillance and law enforcement to regulate behaviour. In national parks this takes the form of park rangers who are tasked with protecting wildlife and other biodiversity. This involves anti-poaching activities, and monitoring and surveillance to prevent hunting in order to produce a secure space for wildlife. It also involves enforcing park legislation by penalizing those who are caught breaking such rules. The LNP and the funding it attracted meant a large increase in the presence of rangers that carry out these activities. An interview with an official from one of the key donors funding the LNP described how when he first went to the area of the LNP (then still the hunting ground Coutada 16) shortly before it was established, he met two rangers who had no shoes and a bicycle with a flat tire. Their job was to protect the entire area (Interview 07/2012). The GLTP Management Plan paints a similar picture describing how there were only 10 field rangers for the area of the LNP in 2002 (GLTP, 2002). Furthermore, these rangers did not

have their own weapons and their only vehicle was located in the provincial capital of Xai-Xai, 300kms away. The Plan goes on to say that “there was virtually no involvement of government or NGOs in the area” (Ibid, pg. 104). This lack of state presence in the area meant that the killing of wild animals – whether one wants to call it poaching, hunting, or any other term – went “virtually unchecked” (Ibid, pg. 199). Since 2002, funding for rangers has increased substantially and there are now more rangers who are better trained and better equipped to monitor the LNP and enforce parks laws. In total there are 110 rangers, 55 of whom are field rangers who “move through the park to enforce rules” (Lunstrum, 2013, pg. 1).

The presence of the rangers and the threat of punishment in the form of fines or prison sentences also discourages residents from killing animals, even in defense of their cattle. It is the threat of being caught, not the law itself, that is arguably most important. This point became most salient in a conversation I had with Luiz in Massingir Velho who was quite forthcoming about how the inability to kill predators has jeopardized the safety of his cattle. He spoke, unprompted, about the presence of rangers and its impact on cattle’s safety:

Francis: How do you deal with the problem of lions?

Luiz: I don't do anything because before we would hunt the animals and kill them but now it is very hard to do this because the men from the park are here to punish us. The park does not allow us to kill an animal even if [it] has eaten a cow [...].

This worries us a lot because the park does not let us kill its lions.

Francis: If you are so worried...

Luiz: ...there is no strategy to be able to kill because the park will always know. The park does not allow you to kill any animal. For example if you kill a lion you will be arrested.

Francis: How will they find out you killed a lion?

Luiz: How will they not? This is not a question, they will. They circulate here in the bush and they will find the dead lion and find out someone killed it and pursue this until they find out who killed it and you can be arrested and put in jail your whole life simply because of a lion, because of the park that exists here (Luiz 08/2012).

To be sure, arrests have taken place. The 2010 Annual Report lists eight arrests and the confiscation or destruction of a long list of items including firearms, bikes, dogs, traps, and bush meat (LNP, 2010c). Furthermore, Lunstrum (2013, pg. 2) describes the how one man in Massingir Velho was beaten and arrested for killing wildlife and how this is reflective of the state's consolidation of power over the area "at an unprecedented level." This perceived omnipresence of park, and ultimately state authorities like never before has altered relations between residents and wildlife and how they co-exist. These changing relations also reverberate to impact cattle and its safety.

As stated earlier, the national and transnational park do not exist in isolation of each other. When looking at the risk lions pose to cattle this becomes clear as the threat of lions has also increased with the removal of sections of the border fence as they are simply more numerous. However, as stated above, most residents describe their concerns regarding lions as something that emanates from national park legislation, despite the reality of more lions with the GLTP. A survey I conducted with 42 households in Massingir Velho reveals that 65% of households see the prohibition of killing animals as the biggest problem for livestock predation. This is compared to 35% of households who said the increase in wildlife numbers poses a more serious problem. The opening of the border in conjunction with translocations, and park legislation and the protection of wild

animals contribute to the production of unsafe space and the emergence of biosecurity risks in the form of cattle predation in the LNP.

Importantly, these risks, keeping in line with literature on biosecurity, extend beyond the mere health and safety of cattle to affect humans and economies as well. A discussion I turn to next.

Beyond Cattle's Health and Safety: Human-Well-Being and the Livestock Trade

The potential risks posed to cattle by disease transmission and predation, and actual changes to their health and safety have implications beyond cattle themselves. This is because of cattle's place in the lives and livelihoods of residents in Massingir Velho and because of their wider economic importance, yet another socio-material network in which cattle is entangled. In essence, the reverberations stemming from the GLTP/LNP with regards to the health and safety of cattle do not stop at cattle but also present risks to human health and well-being, livelihoods and the wider Mozambican livestock economy.

Human Health

The health and disease status of livestock is of direct relevance to the health of people, especially in contexts such as Massingir Velho where people rely so heavily on their livestock, and where there is a changing and growing wildlife-livestock-human interface. Zoonotic diseases account for up to 75% of human illness (Taylor, 2001, as quoted in Geoghagen, 2010). Some argue that despite our limited understanding of BTB, "the wildlife-livestock-human interface as a risk factor should not be underestimated" in terms of impacts on human health (Michel et al., 2006, pg. 95). In fact, humans are just as susceptible to BTB (*M. bovis*) as they are to the human form of tuberculosis (*M.*

tuberculosis). The difference is that the opportunity for *M. bovis* transmission to take place is much lower than that of *M. tuberculosis* (Huchzermeyer et al., 1994; De Vos et al., 2001). The change in the wildlife-livestock interface is expanding these transmission opportunities if cattle become infected. Humans can become infected with BTB by drinking unpasteurized milk or eating sundried meat of infected, both of which occur in Massingir Velho (OIE, 2012b; Geoghegan, 2010). Communities like Massingir Velho are also at particularly high risk for such disease transmission because they have poor access to health services and veterinary services, and relatively high rates of malnutrition and HIV/AIDS (Geoghegan, 2010). The risks posed to cattle are a thus biosecurity issue for humans as well. The reason cattle occupy such an important position to begin with is because of their importance for livelihoods and trade.

Economic security at multiple scales: Livelihoods and Trade

Cattle, and other domestic animals, are vital to economies both at the household/community level and at the national level in terms of trade. The risk of disease transmission, especially FMD, poses a great threat to both. FMD is known to have a “significant economic impact” as morbidity can approach 100% in susceptible livestock populations (OIE, 2012d). Kruger’s Management Plan (2006, pg. 24) even acknowledges that FMD “has much wider economic than biodiversity implications.” This is largely because of constraints on trade in meat products from areas that are not declared free of the disease. An area where buffalo infected with FMD circulate freely does not qualify as being disease free (SADC, 2008). SADC (2008) specifically highlights the ability of TFCA’s to facilitate the spread of transboundary animal diseases and the negative

repercussions this has for marketing and trade in animal products. It also cites FMD as the “most severe constraint to trading animal-derived products” in international markets (Ibid, pg. 3). Specific to the LNP and Mozambique, several officials, including a veterinary official from SANParks and an official from the German Development Bank (KfW) – the main donor funding the LNP – acknowledged Mozambique’s desire to export meat, especially to the European Union and how the movement of wildlife into the LNP – and beyond – jeopardizes this (Interviews 03/2012, 07/2012). The livestock trade *within* Mozambique may also become jeopardized. Gaza province, where the LNP is located, is the most important livestock district in the country (Interview, 07/2012). Yet, as with international trade, the spread of transboundary animal disease and the infection of cattle means increased restrictions on the trade and movement of livestock and livestock products from the Massingir, Chiculacuala, and Mabalane districts of Gaza Province.

The risks for cattle also have an economic impact on individuals, households and communities, especially those like Massingir Velho that depend so heavily on cattle and other domestic animals. The death or even the illness of cattle can have severe economic consequences for households. This is not limited to FMD, but all disease that affect livestock, including BTB and Corridor disease, as well as predation. Kruger itself states that the effects of BTB are classified as either biodiversity impacts or socio-political impacts. The latter refer to infection in “neighbouring communities and livestock” (SANParks, 2006, pg. 16). Henrique, one of the community veterinarians in Massingir Velho, explained the serious implications of certain diseases. In particular, he described

FMD as “one of the diseases that we fear the most because when you know it is happening in South Africa, we here in Mozambique need to be afraid that diseases can contaminate us here” (Henrique, 08/2012). He then went on to talk about BTB,

It has been observed, but not in this area [Massingir Velho]. But in all seriousness it is a disease that we fear a lot, it is a disease that kills. When we find out that it is in Chicualacuala and other areas we become afraid because it can transmit to here (Ibid).

Pedro, a man of about 50 years of age is like many men in Massingir Velho in that he has cattle, but not very many. A loss of cattle to disease or predation for a man like Pedro and his family can be catastrophic in terms of economic security and well-being. Pedro explained to me how last year he lost two out of his four cows to disease, and a third one got sick, but he managed to save it with the help of the community veterinarian. He also lost a bull to a lion attack in 2010. After describing the hardship that this put him and his family through he said, “what I can confirm is that the park has really brought a different dynamic to the social life of this place” (Pedro, 07/2012). According to Pedro, the increase in disease transmission is attributable to the park because of the change in the wildlife-livestock interface.

It is difficult for me to explain diseases, but that area where we take our livestock to drink, it is the same site where there are lions, elephants, rhinos, hippos, among other animals and this also makes it easy for diseases to transmit (Ibid).

Protecting the livelihoods of these residents is in line with biosecurity as the FAO (2003, pg. 1) also states that biosecurity measures are needed “to protect agricultural production systems, and those dependent on these systems: Producers and others dependent on

agriculture can see their livelihood destroyed by animal and plant pests and disease.”⁸

Scholars writing on biosecurity also recognize its use in managing or protecting agricultural interests, which include “techniques to prevent infection of livestock and emergency measures to contain disease outbreaks” (Hinchliffe & Bingham, 2008, pg. 1535; see also Enticott, 2001; Donaldson & Wood, 2004; Donaldson, 2008). Others (Buller, 2008) also investigate biosecurity measures to keep livestock safe from predators. It is these risks that provide an important, apolitical justification for the removal of communities from the SRV.

Resettlement as a Biosecurity Intervention

From an institutional and state perspective, there is widespread agreement that people and their livestock need to be removed from the interior of the LNP to protect the safety of cattle, and by extension, people who depend on them. Removing livestock from the SRV effectively removes it from the network, and the unsafe space, where risks to its health and safety emerge. This keeps it – and related livelihoods, economies, and human health – safe.

The language of security is often used in justifying resettlement from the LNP. Several officials from the National Directorate for Areas of Conservation (DNAC) categorize resettlement as a security issue because of human-wildlife conflict in the park (Interviews 07/2012). The solution to this security concern is resettlement. As one member of the TFCA-Unit explained when I asked about security concerns in the LNP,

⁸ the FAO explicitly states that agriculture includes, among other things, livestock rearing (FAO, 2003).

Another security concern has to do with people who live in the park, who enter into conflict with animals [...]. People feel unsafe because now there are conditions where fields are being destroyed because of elephants and there have been cases, few, but there have been some, animal attacks on domestic animals – cows, goats – by wildlife, lions, that have crossed the border and attacked cows, attacked goats. This is a concern. The solution to this concern is the resettlement program (Interview 07/2012).

Another DNAC official reiterated these security concerns as a reason for resettlement, specifically mentioning livestock predation and disease. When I asked what the “official reasons for resettlement” were, she responded:

The reason for resettlement is that there is human-wildlife conflict inside of the park because the people are there and the pattern is that the number of animals is going to increase. Also the project of the GLTP is to open the border, remove the fence between Kruger and Limpopo and that means a greater movement of animals. There will be a lot more than there are today and with people inside the park there are serious problems, problems with people and wild animals who attack domestic animals that are very numerous inside of the park, regarding health issues concerning domestic animals and wild animals. This is really the big reason; the security of the people is the big reason (Interview, 07/2012).

Of particular importance with regards to these excerpts is the explicit mention of the opening of the border fence and the cross-border movement of wildlife and how this is responsible for the risks of disease transmission and predation that necessitate the removal of communities. Several other DNAC and TFCA-Unit officials (Interviews, 07/2012, 05/2012) along with those funding the resettlement program are also in agreement. An official from KfW (Germany agency funding the resettlement program) told me that health and safety issues regarding cattle are an absolute reason for resettlement and that the problem of human-wildlife conflict is centred around cattle because of its importance to people and their livelihoods (Interview, 07/2012). While these interview excerpts demonstrate the centrality of cattle’s health and safety in the

decision to remove communities from the LNP, they are not simply the opinions of these select individuals. A reading of park documents and reports on human-wildlife conflict and veterinary issues also reveal the how these biosecurity issues form a large part of the justification for resettlement. As the Management Guidelines for veterinary issues in the GLTP/LNP state,

The gradual removal of domestic livestock from the LNP is recommended and the LNP management is encouraged to develop alternate land use practices and internal policies that will address this (GLTP, 2002, pg. 82).

“Alternate policies” internal to the LNP have been developed. This policy is to remove residents and their livestock from the SRV altogether. To be fair, this is not the only motivation behind resettlement. Other reasons are put forward such as the need to open up and preserve space for wildlife and tourism (Interviews 06/2012 & 07/2012), arguments that political ecology has criticized and something that I explore in further detail in the next chapter. However, the reality of these risks, and the concern over the safety of cattle and communities serves to depoliticize the removal of communities thereby making it more palatable than if it were simply about creating a “wilderness” area for tourism and wildlife.

One example of this depoliticization of displacement is a Veterinary Rapid Assessment that was carried out in the LNP in 2006 by the Mozambican Ministry of Tourism (MINTUR) and Ministry of Agriculture (MINAG). Citing the increasing risk of disease transmission, human-wildlife conflict, and “a deficiency in innovative technical solutions”, the assessment argued for “translocat[ing] people from the Shingwedzi River to outside the park,” and that this should be done “as soon as possible” (MINTUR-

MINAG, 2007, pg. 5). Furthermore, with regards to relocation it states, “the movement of people will include the movement of livestock out of the Park” (Ibid, pg. 8). In a scenario planning exercise, the assessment further stresses the importance of removing people and livestock because of the health risks presented to cattle. Indeed, it paints a rather dystopic scenario for the year 2022 if “poorly executed relocation” and increases in conflict and the wildlife-livestock-human interface occur (Ibid, pg. 44). Some of the excerpts from the fictional scenario are specific to cattle. For example, it states that Mavodze

moved last year and only after most of their cattle had developed strange diseases that came with the arrival of the LNP. [...] we never knew that the LNP would mean BTB, Corridor Disease and all manner of diseases that we had never heard of before (Ibid, pg. 41).

In a description of driving through the SRV, it goes on to say there is “hardly a cow in site, mostly victims of those deadly bugs and predators” (Ibid, pg. 41). While entirely hypothetical, it is a powerful, apolitical argument for removing communities based on *their* well-being.

I use a large body of empirical evidence to argue that resettlement from the LNP is and can be conceptualized as a biosecurity intervention, but is it fair to do so on a more theoretical level? I argue yes. Conceptualizing resettlement as a biosecurity intervention builds off of Braun’s argument (2007, pg. 23) that biosecurity pre-empts risks by reconfiguring “relations between people, and between people and their animals.” Relocating people and their livestock mirrors this line of reasoning except it is about reconfiguring relations between wild and domestic animals (and by extension people), not animals and people per se. It is reconfiguring the place of cattle within a certain

network to eliminate or to substantially reduce risks that could jeopardize its health and safety and the related consequences for people and economies. Resettlement removes cattle, and by extension people, from an unsafe space.

Although the large majority of residents of Massingir Velho do not want to leave the park and be resettled, there are some who do see resettlement in a favourable light. As with the state, these residents think that leaving the park would be favourable because of human-wildlife conflict and the insecurity faced by their livestock. In response to my question about whether the increase in wild animals justifies resettlement, both Maria and Ana Sofia responded in the affirmative.

It would be better. It would be better because even the kids who take the cows to pasture, we thank God that they return because there are a lot of risks in the bush. Sometimes they come back and say a lion attacked a cow, so a lion attacked a cow as they watched. (Ana Sofia 08/2012).

Yes, it really justifies that there is resettlement; this is because as a result of these animals, we lose our domestic animals. They are eaten by lions and other animals that eat meat and beyond this they threaten people's lives (Maria 07/2012).

Again though, the large majority of residents are strongly against moving⁹. While resettlement is *one* approach to keeping cattle safe, it may not be the most welcome nor socially just as removing communities from the SRV is indeed still be motivated by other factors like the need to open up space for wildlife and related tourism. Indeed, I would argue (and I elaborate on this in Chapter 4) that biosecurity works in tandem with these other factors work to depoliticize resettlement. While the risks to cattle and humans are

⁹ It should be noted that of all the residents I spoke to, those who are in favour of leaving because of these risks are all women. Similarly, in terms of positive perceptions of resettlement, the few residents who are in favour of leaving are women, except for one. This exception is a male who was part of the village resettlement committee.

real, and the desire to keep both safe are genuine, this depoliticized rendering of resettlement as the only viable solution not only ignores other options that could keep communities safe – like one of the original plans to have enclave communities in the park protected by fences¹⁰ – but dismisses communities’ desire to remain in the park. Perhaps even more importantly, it also forgets to account for the stark reality that these risks have *recently* emerged as a result of the top-down imposition of the GLTP and LNP that the communities like Massingir Velho did not agree on, were not adequately consulted on, and really have nothing to do with. It similarly forgets that resettlement itself poses risks to the livelihoods, especially cattle-based livelihoods of the communities in question, something I explore in more detail in Chapter 5. It is the establishment of these two parks that produced an unsafe space for cattle that is now mobilized, along with other reasons, to justify their displacement.

Conclusion

In this chapter I demonstrate how the establishment of the GLTP and LNP have produced certain risks for the health and safety of cattle located in the LNP. The emergence of these risks stems from the mediation of two separate, yet interconnected socio-material networks in which cattle exist to produce a bioinsecure space for these bodies. The first is the network at the transnational scale characteristic of the GLTP whereby the translocation of wild animals, differing ecological conditions, and most importantly the removal of sections of the international border fence have resulted in a

¹⁰ This plan was mentioned by many residents as favourable (Interviews 06/2012 & 07 2012). LNP officials also spoke of enclave communities but how it was no longer considered an option (Interviews 06/2012 & 07/2012).

growing and intensifying wildlife-livestock interface. This has resulted in the transfer of diseases from wildlife to cattle and higher numbers of predators that come into conflict with livestock. The second network is that of the LNP, representative of the national park and local scale, but still intimately connected to the GLTP as a transnational initiative and the cross-border movement of wildlife that it has spurred. As such, the LNP is best understood as a combined national/transnational network. In the LNP, new rules on hunting and related enforcement have mediated relations between humans and wildlife so that cattle are now more vulnerable to predation by lions and other predators that have increased in number as they migrate from Kruger. Cattle also exist in a third network, namely the livelihoods and economies of local communities and larger regional and even international economies and trading markets. As such, threats to the health and safety of cattle also present risks to human well-being; namely their health, livelihoods, and economic security, as well as to important livestock economies more broadly. The Mozambican state has thus deemed the removal of communities and their livestock from the SRV as necessary. In this sense, resettlement can be conceptualized as a biosecurity intervention to keep cattle safe, and is thus depoliticized.

Resettlement to keep cattle safe is quite well aligned with thinking on biosecurity. Similar to Braun's understanding of biosecurity as a reconfiguration, Donaldson (2008), in his investigation of the FMD outbreak in the UK, argues that "biosecurity is not about the management of animal diseases themselves; it is concerned with animal disease *risk*" (pg. 1556, emphasis in original). This understanding of biosecurity quite accurately describes the use of resettlement as a biodiversity intervention in the case of the LNP.

Despite the best efforts in both South Africa and Mozambique, disease outbreaks still occur. As such, it is much more effective to manage the disease risk. One way of doing this is by reconfiguring the network in which this risk is produced by removing cattle. If risk is synonymous with network, as Latour (2003) suggests, then managing the network is equivalent to managing the risk, as put forward by Donaldson (2008). However, there is one question that lingers; why would the state choose to manage the network (or risk) in this particular way instead of erecting fences around communities or somehow limiting the movement of wildlife into areas of livestock rearing, especially if residents themselves wish to remain? Why was the Shingwedzi River Valley allowed to become “unsafe” for cattle (and by extension “safe” for wildlife) to begin with? This question provides the starting point for Chapter 4.

Chapter Four – Complicating Resettlement as Biosecurity: “Wild” vs. “Domestic” and the transformation of the Shingwedzi River Valley

The government treats us like animals and the animals like people. It should be the opposite. They like the animals and not us. We are made to feel inferior (Massingir Velho Resident 06/2012).

The establishment of the LNP as part of the GLTP has resulted in approximately 7,000 people being slated for relocation from within its boundaries. In the previous chapter, I demonstrated how the decision to remove communities from the SRV is in part justified as a biosecurity intervention aimed at minimizing the risks stemming from the changing wildlife-livestock interface. As such, wildlife, it might be argued, provoke displacement. However, the SRV is not the only area of the park where people and livestock live. The park’s buffer zone located along the Limpopo River, and still considered within the boundaries of the LNP, is home to approximately 20,000 people and 70% of the livestock that live in the park. Like the SRV, it is a site of increasing contact and conflict between people and their cattle, and wildlife. And yet, unlike livestock and human populations in the SRV, those in the buffer zone are not being removed, despite their vulnerability to the same risks. Biosecurity in the buffer zone is occurring, but it has taken on a completely different form; one much more akin to the trends found in the literature on biosecurity. Biosecurity threats, in this instance, are managed in a way that protects domestic livestock and associated livelihoods without displacing them.

Literature on biosecurity demonstrates that biosecurity interventions directly address whatever it is that causes harm – the disease, pathogen, host, or predator – and

aim to exclude the “wild” from spaces belonging to the “domestic”. This often means impeding the mobility of the threat, or simply killing it (Enticott, 2008; Collard, 2012). As a result, biosecurity interventions tend to re-instate or re-affirm existing hierarchies that place humans at the top and non-humans at the bottom (Lulka, 2004; Buller, 2008; Collard, 2012). This is especially true in cases where wildlife conservation and biosecurity interests collide. However, the division between human and nonhuman is not necessarily the most accurate. In the context of conservation it is better to conceptualize the hierarchy as one that distinguishes between “wild” and “domestic”, whereby certain humans (like park residents) along with their livestock form the “domestic” and wild animals responsible for the threat are the “wild”. As I aim to demonstrate, the hierarchy between “wild” and “domestic” in the SRV is not re-affirmed, but inverted.

Drawing on post-structural political ecology, I upset this hierarchy even further by conceptualizing it as being more complex than simply “wild” vs. “domestic”. Once unpacked, it is more reflective of competing networks in which each is embedded. The first is a network of human-tourism-conservation-wildlife-wilderness. The second is a network of human-livestock-agriculture-rural livelihoods. The first network – and by virtue of its standing in it, wildlife – is at the top of the hierarchy while the second network with its livestock and local livelihoods are placed closer to the bottom.

Others have noted the relationship between animals and humans and the relative status of each resulting from their embeddedness in networks and hierarchies. For instance, in her analysis of the intersectionality of humans and animals, Hovorka (2012) demonstrates how cattle in Botswana are afforded a higher status than chickens because

of their ties to men, whereas chickens are associated with women. At the same time, men are in a superior position to women in part because they are attached to cattle, and women to chicken. This networked hierarchy of species-human relationships that Hovorka details exists in other contexts as well. In the SRV wild animals are afforded a superior position because of their ties to tourism and conservation (and the interests associated with each) whereby livestock have a lower status because of their association with less powerful interests, namely subsistence oriented park residents. Thus, just as the network of men-cattle is above the network of women-chicken (Hovorka, 2012), the network of human-tourism-conservation-wildlife-wilderness is above the network of human-livestock-agriculture-local livelihoods. Not only does this help to explain the inversion of the “biosecurity hierarchy” of “wild” vs. “domestic”, but it is also central to understanding how wildlife come to play a role in conservation-induced displacement.

In this chapter I interrogate why biosecurity in the SRV has taken the form of removing livestock and communities and not a more traditional approach such as the one taken in the buffer zone, and as seen throughout the relevant literature. I argue that the inverting of the hierarchy between the “wild” and the “domestic”, and ultimately their associated networks, alters who, or what, becomes the subject of biosecurity. In the LNP this shapes the biosecurity intervention and facilitates the removal of communities and their livestock. Furthermore, I use a post-structural political ecology approach to examine the socio-material processes driving the inversion of this hierarchy and the relationship between “wild” and “domestic”. At its most basic, the hierarchy is inverted as a result of the transformation of the SRV into a space of “wilderness” where wildlife, tourism, and

conservation belong and domestic animals, their owners, and local livelihoods do not. Underlying this transformation are more specific discursive and material practices connected to wildlife's entanglement in networks that imbue them with value and meaning connected to tourism and biodiversity conservation. These practices include the social construction of the SRV as a space of "wilderness", and other, more material practices, like opening up the SRV for wildlife in order to achieve the LNP's tourism potential, and the active protection of wildlife to promote conservation and the growth of their populations. However, these practices do not simply invert the hierarchy between the "wild" (network) and "domestic" (network). In doing so, they also provide the "wild" network, and by extension wildlife, the necessary agency needed to take-over the SRV, negatively impact the livelihoods of park residents, and thereby contribute to its material transformation into a space of "wilderness" resulting in displacement. For the remainder of this thesis I refer to the network of human-tourism-conservation-wildlife-wilderness as the "wild" and the human-livestock-agriculture-livelihoods as the "domestic" for ease of readability. Like any network, neither of these is static or pre-given, but is relational and always shifting (Latour, 1993, 2005; Whatmore, 2002). Furthermore, when I refer to single entities, such as wildlife, I do so with the understanding that they are not autonomous entities as such, but always exist within a network.

After this introduction I start with an outline of the trends found in the biosecurity literature to demonstrate what a "traditional" biosecurity intervention looks like. I then describe the steps taken in the buffer zone aimed at dealing with wildlife-livestock conflict. I elaborate on

how resettlement as a biosecurity intervention acts in contrast to what is occurring in the buffer zone and the established trends and critically question why this is the case. Using a post-structural political ecology framework I argue that biosecurity in the form of resettlement is the result of wildlife's positionality in a specific socio-material network and the coming together of various actors and processes associated with it that places the "wild" in a position of superiority over the "domestic". This network, and the various actors within it, invest in wildlife value and meaning connected to tourism and biodiversity conservation resulting in its privileging (cf. Hovorka, 2012) over livestock and local livelihoods. Furthermore, it is through this network and the practices that it entails that wildlife is able to take over spaces within the SRV leading to the displacement of cattle, communities, and their livelihoods. As such, this chapter is not only about how the hierarchy between the "wild" and "domestic" becomes inverted and why biosecurity took the form of resettlement that it did. It is also about how wildlife gain the ability to displace communities in the context of conservation. Indeed, the two are closely related and complement each other. I argue that wildlife do not provoke displacement on their own, despite how such an argument might be mobilized by the state and park to justify the displacement of communities in the LNP, and elsewhere. Rather, it is only through their entanglement in certain socio-material networks and the ways in which they are imbued with meaning and value that they obtain the ability, and thus agency, needed to take over spaces within the SRV. It is in this way that wild animals come to play a role in displacing communities. These findings complicate the use of resettlement as a biosecurity intervention and the only, or even best, solution to the

risks that communities in the SRV face. Furthermore, it problematizes any argument that wildlife on their own provoke displacement.

The “Traditional” Shape of Biosecurity Interventions

Three themes consistently emerge throughout the literature where the relationship between biosecurity and nonhumans is concerned. The first is that it is the threat – the disease, pathogen, host, or predator – that becomes the subject of the biosecurity intervention. For example, in the case of controlling outbreaks of animal diseases like Bovine Tuberculosis (Enticott, 2001, 2008), Foot-and-Mouth Disease (Donaldson & Wood, 2004; Donaldson, 2008), and Brucellosis (Lulka, 2004), efforts are directed at the host of the disease. It is the bison (Lulka, 2004) or badger (Enticott, 2001, 2008) that become subjected to increased surveillance and efforts at controlling its mobility. It is these same hosts that also become subject to culling in order to eliminate the disease (Lulka, 2004; Enticott, 2008).

Looking at the threat posed by predators reveals the same pattern. In his examination of the re-introduction of wolves into the Southern French Alps, Buller (2008) cites the use of the European Union Habitats Directive that allows for the capture and killing of wolves to protect sheep. Collard argues the same with regards to cougars saying,

The biological threat they pose to humans and their domestic property (in the form of livestock) renders them ‘killable’ in the same manner that Foucault (1990, pg. 138) claims killing under biopower is condoned if the entity killed is perceived as a “biological danger” (Collard, 2012, pg. 24).

Thus, biosecurity focuses on whatever it is that poses the threat.

The second characteristic of biosecurity is that it seeks to exclude the “wild” from the domain of the “domestic”, such as spaces of livestock and agriculture. Indeed, the objective of culling and fencing in Yellowstone National Park is to “eliminate bison movements beyond park boundaries” and into cattle rearing landscapes (Lulka, 2004, pg. 454). The management of wolves in the Alps of France is to prevent them from entering the “semi-natural and domesticated space” of livestock (Buller, 2008, pg. 1583). Again, in their analyses of animal disease outbreaks in the UK, different authors argue that biosecurity measures attempt to “close boundaries on pathogens” (Donaldson, 2008, pg. 1564) or purify agricultural space by “building out disease” (Enticott, 2008, pg. 1569).

The result of the above two trends – and in order to make them possible – leads to the third characteristic of biosecurity. Namely, biosecurity interventions re-enforce the hierarchy between the “wild” and the “domestic” with the domestic being on top. This is especially the case when the interests of biodiversity conservation and biosecurity intersect. As Lulka (2004, pg. 454-455), regarding the management of bison and disease transmission to cattle, argues, biosecurity strategies are “re-affirming the hierarchies that marginalize nonhumans.” I expand on this to conceptualize the hierarchy as more closely concerned with “wild” vs. “domestic”, not necessarily human vs. nonhuman as livestock are also placed above wild animals. Buller (2008, pg. 1592-1593) also argues that biosecurity is a relationship between the “tame” and the “wild”, as it was wild animals (wolves) who “became the first subjects of ‘biopower’ via the subjugation of animal bodies and the control of [their]

populations.” Looking at conflict between cougars and humans, Collard (2012, pg. 31) similarly builds off of Haraway (2008) and argues, “animals are made systematically exploitable.” The use of culling is one example of this. The regulated killing of wild animals has been employed to control the threat posed by cougars (Collard, 2012), wolves (Buller, 2008), and disease transmission from bison and badgers to livestock (Lulka, 2004; Enticott, 2001, 2008). As Enticott (2008, pg. 1572), building off of Law (2006), argues, culling is “the most well-used method of controlling animal disease.” The result of the re-affirmation of the hierarchy between the “wild” and the “domestic” is that the wild is “made killable” (Collard, 2012, pg. 31).

The use of resettlement as a biosecurity intervention does not reflect the trends outlined above. Indeed, it acts in contrast to them. Before elaborating on why this is the case, I turn to an approach to managing conflict with wildlife in an area of the LNP that does follow the outlined trends, the park’s buffer zone. I do this to demonstrate that there are alternatives to resettlement being used in the LNP that could be applied to the SRV and that follow more closely with common approaches to biosecurity as outlined above. This further justifies the need to question why different approaches are being used in the SRV and in the buffer zone and why *certain* communities are being relocated.

Keeping cattle safe in the buffer zone: A familiar biosecurity approach

The buffer zone of the LNP, still formally part of the park, is home to approximately 20, 225 people belonging to 5, 530 households across 44 villages (Le Bel, 2011, pg. 48). It is also home to 70% of the park’s cattle. The characteristics of the buffer

zone are analogous to those communities living in the SRV, as they also depend heavily on subsistence agriculture and livestock rearing. Furthermore, these communities and their cattle are similarly vulnerable to conflict with wildlife as they are subject to the same risks as those in Massingir Velho and the rest of the SRV (Le Bel, 2011, 2011b alas, 2011). The ecological processes driving migration into the buffer zone and into the SRV and the LNP more generally are also the same. What is different with regards to the buffer zone and the SRV is how these risks are being managed. Communities and their cattle located in the buffer zone are not being forced to leave. Instead, the management of these risks closely parallels the biosecurity approaches outlined in the literature such as the use of fences and other mechanisms to keep wild animals outside of areas where there is livestock. Unlike in Massingir Velho, though, these are not temporary solutions (see Chapter 3) to be used until relocation – the “real” solution – occurs.

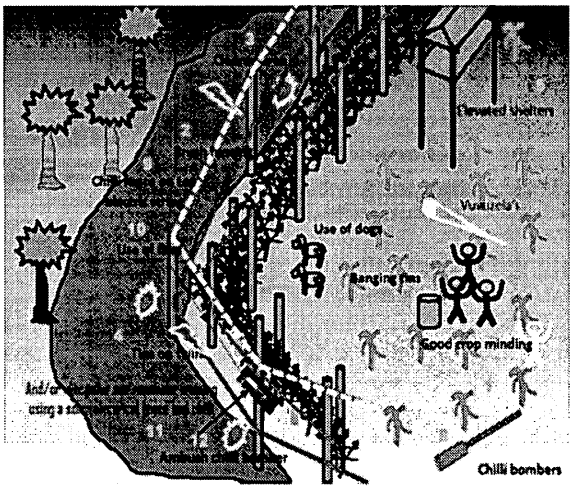


Figure 1. Example of a strategy to keep wildlife out of certain area in the buffer zone (Le Bel, 2011).

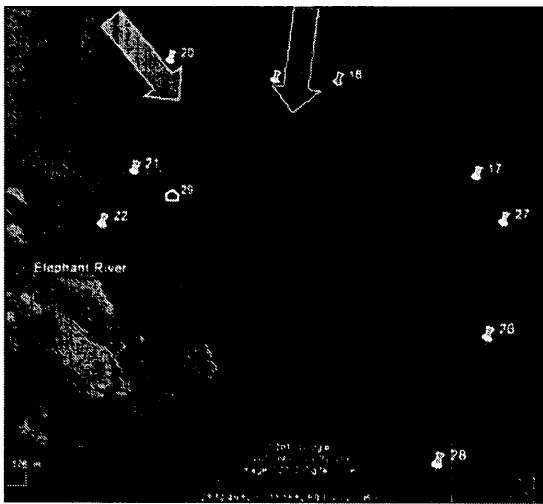


Figure 2. Example of proposed fencing to protect an area from wildlife (Le Bel, 2011).

Figures 1 and 2 above are examples taken from the strategy guide for dealing with wildlife conflict in the buffer zone (Le Bel, 2011). They clearly demonstrate the spatiality of the approaches taken and how they are meant to stop the movement of wildlife into community and livestock/agricultural areas. When I asked an advisor for the buffer zone programme about how to deal with human-wildlife conflict, he surprised me by talking about the importance of fences.

I: The most important thing to do is to fence. They are doing it, you will see that, with dead, dry wood and so on. They can make a nice fence. Again, some animals can come through, a lion can jump over. The elephant is more complicated because they are strong, or when the elephants are like this, you will see them inside.

Francis: So what does the park think about communities building fences? Are they ok with that?

I: Of course.

Francis: Because they are just small fences protecting crops?

I: Its ok they can do it, no problem. They have to do it, they don't need to ask us to do anything because that is what they need. Protect yourself. They know there are animals and they know it was the government who decided to change it into a park, so we are there to try. We have to (Interview 06/2012).

In all, the report on human-wildlife conflict recommends about 10,000 Euros worth of equipment to deter wild animals including a solar fence kit with 10kms of wire (Le Bel, 2011). This stands in stark contrast to the approach to mitigating conflict and attitudes towards fences in the SRV.

There is also another project occurring at a much larger scale that truly reflects a different approach to biosecurity than displacing entire communities. This is the construction of a 56 km fence to stop the movement of wild animals into the south-east portion of the park at the confluence of the Limpopo and Olifants rivers [see photos 3 and 4 and Map 5].

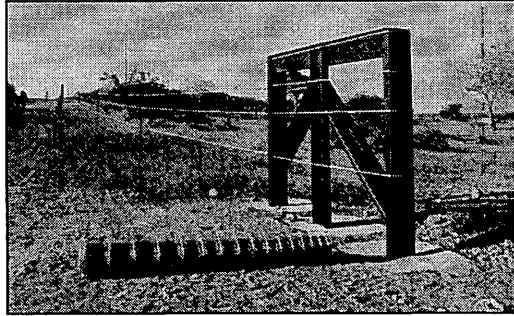


Photo 3. Barrier fence under construction. (by author).

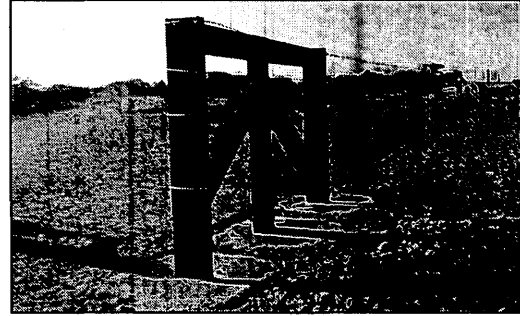
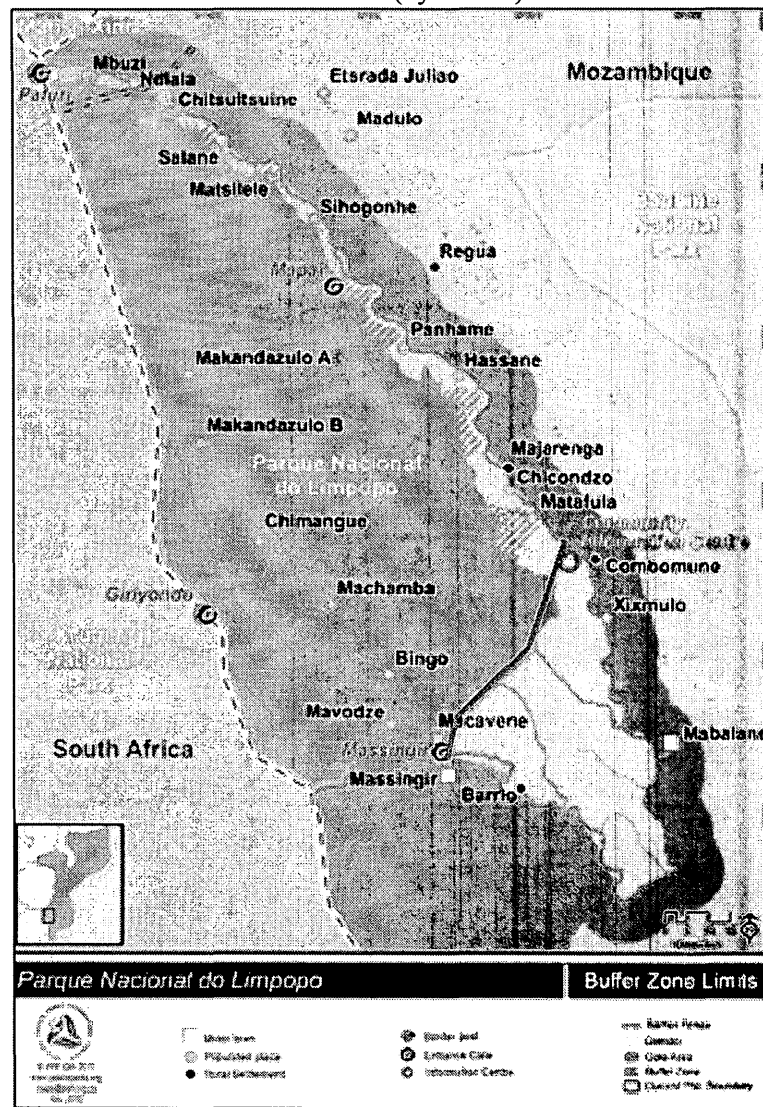


Photo 4. Barrier fence under construction (by author).



Map 5. Buffer zone (light green) and location of Barrier fence shown by the red line extending from Massingir to Combomune (taken from Salas, 2011).

According to technical advisors for the Buffer Zone Programme (Interview 06/2012), the LNP (Interview 06/2012), and the National Directorate for Veterinary Services (DNSV) (Interview 06/2012), the fence is specifically being built in this area because of the large amount of livestock, and specifically cattle, that is contained within it. The fence is meant to separate land uses and prevent wild animals from entering into areas of livestock raising and farming (Salas, 2011). Or, as put more simply in the words of a TFCA-Unit official, “it’s basically to prevent human-wildlife conflict” (Interview 07/2012). A representative for the Department of Flora and Fauna for the Massingir Region reiterated this saying the barrier fence is being built because it is the only way to mitigate conflict and the risks associated with it in any serious way (Interview 08/2012). The substantial role of the fence in keeping cattle safe is also reflected in its official description in the Buffer Zone Management Plan (Salas, 2011). It lists the functions of the fence as follows:

1. A veterinary barrier to limit the transmission of diseases (including FMD and BTB) between wildlife in the northern and central parts of the LNP and livestock in the south.
2. Reduce the incursions of elephants and lions in communities, fields and grazing areas of communities and livestock
3. Prevent livestock from going north into the centre of the park.

The construction of the barrier fence is akin to the biosecurity philosophy of “building out” disease and risk (Buller, 2008; Enticott, 2008), as its role is to impede the movement of wildlife and the pathogens they carry into an area of livestock rearing. This is again in stark contrast to the SRV where the movement of these same bodies is being *facilitated*, and communities and their livestock are being removed.

Resettlement as an atypical biosecurity intervention, and at odds with the buffer zone approach

Despite the similarities in context in terms of the health and safety of livestock, the core aspects of biosecurity in the SRV differ substantially from the more traditional approaches in other cases and those being used in the buffer zone. For one, there is no culling of wild animals occurring¹¹. The reservoirs of disease in the GLTP/LNP (buffalo, wildebeest, kudu, among others) are known. However, unlike badgers in the UK (Enticott, 2001, 2008) and bison in Yellowstone (Lulka, 2004), they are not being culled, whether for protecting livestock or even other wild animals. There is no “stamping-out” (Law, 2006; Enticott, 2008) of disease taking place in the SRV. In contrast though, according to Massingir’s Department of the Gaza Provincial Livestock Services (SPP), any cows that become infected with Bovine Tuberculosis in the SRV are subject to slaughter¹² (Interview 08/2012). Predators, unlike in southern France, are also not the subject of any “institutionalized slaughter” to protect livestock. Instead, the solution is to remove livestock from areas where lions pose a threat¹³.

Second, the above cases, including that of the buffer zone, are based on controlling and limiting the mobility of the threat, whether it be a pathogen, virus, or predator into more populated rural areas. Especially in terms of diseases, physical barriers are used to exclude pathogens from areas where livestock are present (Donaldson, 2004;

¹¹ Some buffalo have been culled in the KNP, but this has been done for the purposes of research, not for controlling disease spread (SANParks, 2012b).

¹² Two cows were slaughtered by SPP in the LNP in July (SEDAE, 2012).

¹³ Officially the park will eliminate problem animals. While this has occurred in Massingir Velho, residents say it is very rarely the case and their complaints go unheard. Conversations with park staff and extensionists suggest that this is done more in the buffer zone as people are not supposed to be in the SRV.

Lulka, 2004; Enticott, 2008). This is very clearly happening in the LNP's buffer zone with the use of fences, and especially the large-scale project of the 56 km barrier fence. In the SRV, the barriers to diseases are actually being brought down with the result that the movement of diseases is facilitated and, to an extent¹⁴, even encouraged. In short, what physical barriers did exist, whether or not they were specifically meant to prevent the mobility and flow of disease, have been and continue to be removed and are not repaired when damaged.

Literature on biosecurity (Lulka, 2004; Braun, 2007; Buller, 2008; Enticott, 2008) also demonstrates that biosecurity interventions re-assert the hierarchy between human and nonhuman (domesticated and wild) with the subordination of the nonhuman or “wild” threat. What we see in the SRV is the opposite. Biosecurity in the shape of resettlement reverses this hierarchy by placing wildlife in a superior position to people and livestock. While the affirmation of the human (domestic) – nonhuman (wild) hierarchy typically “facilitates the removal and exclusion of the nonhuman [wild]” (Lulka, 2004, pg. 330), when the hierarchy is inverted, it facilitates the removal and exclusion of the “domestic”.

What evidence is there for this change in the hierarchy? The most important and obvious is the simple fact that while, yes, the removal of people and livestock is putatively being done for their benefit, it is they who are being displaced, removed, and lose access to resources when they would prefer to remain. At the same time, wildlife are

¹⁴ I say to an extent, because while facilitating, no one is actually encouraging the movement of diseases per se. They are encouraging the movement of wildlife, which act as reservoirs and hosts for these diseases.

benefitting from increased mobility and access to new land and resources, even though it is they who pose the risk and negatively impact people's livelihoods. The "wild" is taking over the space of the "domestic". In the SRV we see the facilitation of the mobility of certain threats into areas populated by people and livestock with the solution being to remove people and livestock, instead of preventing the threat from entering and circulating in the first place. The resettlement of people and livestock from the SRV does seem to buck the trend when it comes to the characteristics of biosecurity interventions, but several related question deserves further analysis; How does the relationship between the "wild" and "domestic" becomes inverted and how does wildlife gain the ability to take over the SRV and not other areas like the buffer zone? Why are communities in the buffer zone not being removed, or perhaps more importantly, why are communities in the SRV not allowed to stay? Why is it that resettlement is the only solution to the risks and conflict facing communities and livestock in the SRV? This is where the use of post-structural political ecology complements insights gained from a biosecurity framework used thus far in this chapter and in the previous. The two approaches work together to provide a more nuanced understanding of conservation-induced displacement and why biosecurity takes the shape it does.

Thus, in the remainder of the chapter I aim to do two things. The first is to reveal the ways in which the hierarchy between the "wild" and "domestic" is inverted. This is an important contribution to the literature on biosecurity as it reveals why and how biosecurity interventions can take different shapes in different geographical and socio-political contexts, especially those having to do with conservation. What becomes the

subject of a biosecurity intervention is a political move, and not anything inherent to biosecurity situations, despite trends found across the literature. Second, I reveal how, largely as a result of the same processes that change the relationship between the “wild” and “domestic”, wildlife gain the agency to contribute to the material transformation of the SRV and the displacement of livestock and people. It is here where I further upset the inversion of the hierarchy by conceptualizing it as much more complex, pitting a network of human-tourism-conservation-wildlife-wilderness against a network of human-livestock-agriculture-local livelihoods.

Inverting the hierarchy between “wild” and “domestic” and contributing to wildlife’s ability to displace

By virtue of their entanglement in a “wild” network and the ways in which they are invested with meaning and value, wild animals are able to effectively play a role in conservation-induced displacement. The agency need to do so is not something that wildlife possesses as a single entity or force of power. It materializes through the interaction of various actors and processes and the ways in which wildlife is entangled within these (Latour, 1993; Whatmore, 2002; Hobson, 2007). Specifically, wildlife’s agency, like the inversion of the hierarchy between “wild and “domestic”, is a relational achievement emerging from the transformation of the SRV into a space of “wilderness”, wildlife’s relations with state and private tourism interests, power relations operating between Kruger and the LNP, and its status as foreign and protected. In other words, wildlife’s contribution to displacement is via its positionality in a network of human-tourism-conservation-wildlife-wilderness.

Social construction of the SRV as a space “wilderness”: Facilitating removal via (un)belonging

The social construction of the SRV as a space of “wilderness” for tourism and biodiversity conservation purposes results in the “wild” being deemed to belong in the SRV while the “domestic” do not. Several scholars have elaborated on how the GLTP is represented and constructed as a space of “wilderness”. Spierenburg and Wells (2008) look at the use of maps in the promotion of the GLTP and conclude that they are silent about the communities that live within its boundaries. Wolmer (2003, pg. 274) comes to a similar conclusion arguing there is “heavy promotion of the Great Limpopo Transfrontier Park as a wildlife and wilderness landscape.” He also notes people’s fears concerning the restriction of livelihoods of local residents in Zimbabwe’s portion of the park, as it becomes “wildlife country not farming country” (Ibid). While these authors demonstrate how the GLTP is represented as a space of wilderness free from livestock and people, the LNP and specifically the SRV play a special role in this given its suitability for wildlife and tourism.

The LNP Tourism Development Strategy (2010) is rife with references to the park as a “wilderness” area. It uses the word “wilderness” 18 times within the document to refer to the characteristics of the LNP, specific areas within it, and what it has to offer (PNL, 2010). On multiple occasions, the term “vast wilderness” is employed to describe its “unique” characteristics and what separates it from Kruger (PNL, 2010 pg. 11 and pg. 13). Furthermore, maps that show future land use within the SRV do not include any villages or communities even though much of this “wilderness” is actually land used by

people and their livestock. *Bonsweni*, a 10,000 ha concession located in the SRV allocated to host a 4 or 5 star tourism facility, is one example of this (PNL, 2010).

Pictures and satellite images render the area of *Bonsweni* as one free from the presence of humans and livestock (see Figure 3 and Photo 5).

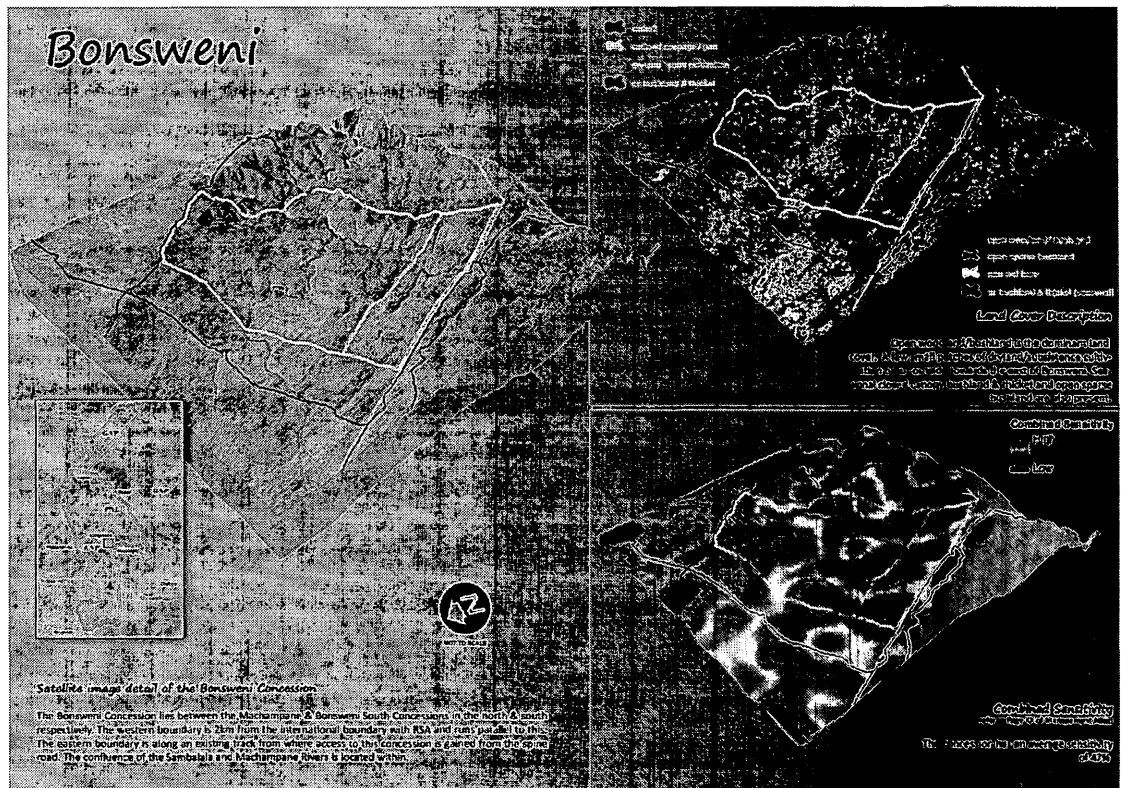


Figure 3. Infographic of “Bonsweni” concession (PNL, 2010).

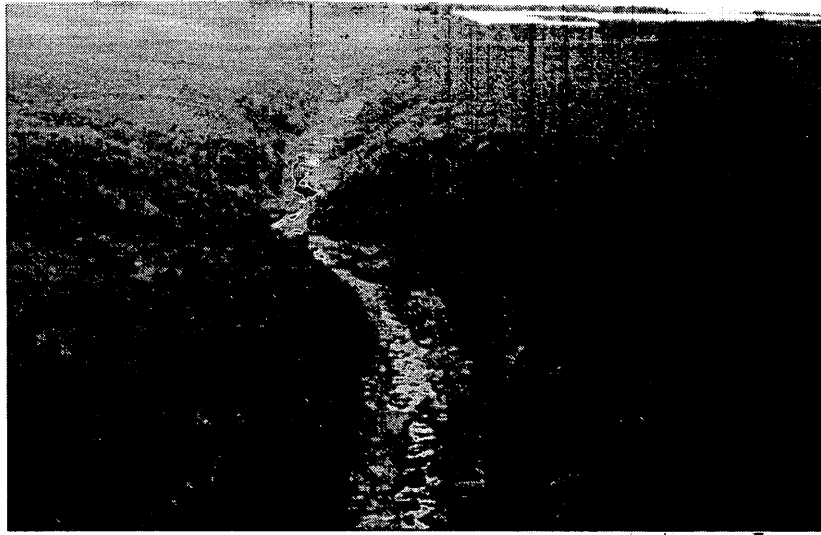


Photo 5. An aerial photo of the Bonsweni concession. Photo taken from PNL, 2010, pg. 78.

However, part of the Machampane River that runs through the Bonsweni concession is the principal area where more than 1,320 head of cattle from Massingir Velho go to drink on an almost daily basis. When I asked where people take their cattle for water they consistently responded “Bonsweni.”

Given its importance, I decided it was necessary to go see Bonsweni for myself to understand what people were talking about when they referred to the ever-flowing source of water – a literal lifeline – for their cattle. So, my translator and I did the 6 km walk with the village leader. As we made our way he explained the importance of Bonsweni, and how the well-beaten path (evidence of its frequent use) that we followed was the main route from the village to the riverbank. Depending where people go to pasture there are other access points all along different sections of the river. When we arrived to Bonsweni, it was full of cattle, as a few young herders had brought their cows to drink. With at least three separate herds spread up and down both sides of the river, cows

drinking from the banks and some even in the water itself, the importance of this place became evident. But, what I saw did not fit the description of Bonsweni either in the images or words found in the LNP's Tourism Development Strategy (Photos 6 & 7).

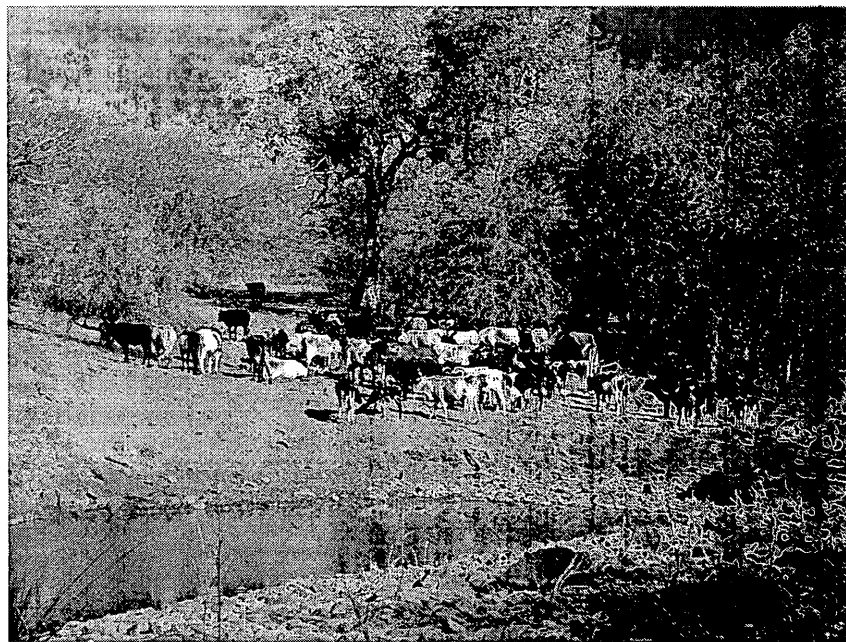


Photo 6. Cattle from Massingir Velho gathering at Bonsweni (photo by author).

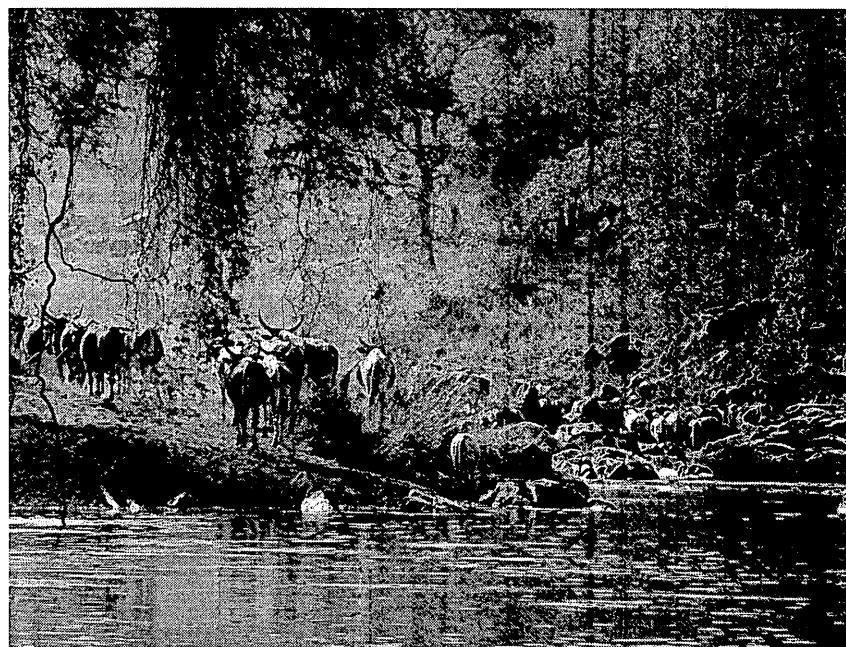


Photo 7. Cattle from Massingir Velho drinking at Bonsweni (photo by author).

The images from the Tourism Development Strategy represent Bonsweni as an “open”, “wild” area free from humans and livestock. The written description of the area does mention that “a few small patches of dryland/subsistence cultivation occur outside towards the east of Bonsweni” (PNL, 2010, pg. 78) and also makes reference to community access to a borehole for water. While credit must be given for mentioning that people do access this area, it completely ignores the fact that this is the most important water source for approximately 1,320 head of cattle that is accessed on an almost daily basis. Its representation as a space of “wilderness” and tourism is not reflective of its actual use by cattle and people. The importance of constructing this space, and that of the SRV, as one of “wilderness” and tourism is that it affects the standing of various subjects within it. What is “wild” and tied to this network of tourism and “wilderness” is deemed to belong, what is “domestic” does not. This is imperative to understanding the decision to remove cattle from the SRV, as opposed to taking an approach to keeping them safe that is more closely aligned with what is happening in the buffer zone. It also helps to explain the inversion of the hierarchy between “wild” and “domestic” that contradicts what normally occurs in biosecurity interventions, and allows the “wild” to take over.

This discursive attempt to construct the SRV as a space of “wilderness” supports practices aimed at materially transforming the SRV and certain spaces within it as well. Spierenburg and Wells (2006, pg. 304) quote one staff member from the LNP’s Project Implementation Unit as saying “This is now a national park, agriculture and cattle keeping are officially forbidden in a park [...]” Interviews and conversations I had

during my fieldwork mirror this type of thinking. When I asked one technical advisor about efforts to protect cattle inside of the LNP, he said they want people outside of the park, so why would they do something to protect and improve their livelihoods when they are trying to get those types of activities out (Conversation 06/2012). A member of the TFCA-Unit repeated this as he explained that the reason for resettlement was:

to respect what the law says about national parks. You can't have people inside of a park. The law does not say that people can't live inside a park, but it says that it is prohibited to undertake any activities (Interview 07/2012).

Therefore, it is not only discursive tactics that exclude the domestic, but such exclusion is concretized in park legislation as well.

The construction of the SRV as a space of “wilderness” stems from it being considered an ideal habitat for wildlife and thus an ideal space for tourism (GLTP, 2002; PNL, 2010). Tourism success in the LNP is, of course, dependent on wildlife. Thus, the transformation of the SRV is also occurring through practices connected to and promoting wildlife’s re-colonization of the area for tourism purposes. This brings me more directly to wildlife’s entanglement in a network tied to tourism interests enabling it to take over the SRV and displace communities.

Encouraging wildlife to take over: Opening up the SRV for tourism

In the cases put forward by Lulka (2004), Buller (2008), and Collard (2012), domestic livestock have the more powerful backers in the conflict over conservation and biosecurity. This is evident in the livestock lobby that holds tremendous power economically and politically. As such, livestock have powerful actors acting on their behalf. This is not the case in the SRV, as it is wildlife that have powerful backers

lobbying for their place as they hold important value connected to tourism and conservation interests that are more powerful than the interests of subsistence farmers and livestock raisers.

Given the location of the LNP in Southern Africa, it is not surprising that wildlife have more powerful lobbyists than livestock. Examples abound of the influence of conservation NGOs and tourism interests lobbying for wildlife – often at the expense of people and livestock (Brosius, 1999; Dowie, 2009). For instance, a group of actors lobbying on behalf of wildlife was responsible for stopping the downgrading of the Amboseli National Park in Kenya, which would have opened the space up to livestock and resource use (Brockington & Igoe, 2006). In the Mkomati Reserve in Tanzania, conservationists lobbied for the removal of herders and their livestock from within its boundaries (Brockington, 2002; Neumann, 2002; Dowie, 2009). This is reflective of the typical story of silencing the needs of vulnerable and marginalized populations with little political capital in the face of a more powerful opposition. The presence of international funding for conservation, yet another type of value that wildlife has over cattle, provides an incentive as well (Brosius, 1999). The LNP's and GLTP's supporters indeed hold a significant amount of influence. Arguably the largest influence is held by the Peace Parks Foundation (PPF) who provided the initial funding and vision for the GLTP. Indeed, it was the founder of PPF, Anton Rupert, who initiated talks with Mozambique's President Chissano concerning the development of a TFCA in 1990 (Wolmer, 2003). Conversations I had with people who worked for PPF confirm that its vision is to create transfrontier spaces for wildlife and tourism. One way of doing this is by certain

strategies that enable the “wild’s” re-colonization of the SRV. Two examples are the translocation of almost 4,000 wild animals and the removal of sections of the border fence allowing wildlife from Kruger to move freely into the LNP. Removing the fence allows wildlife to move into the SRV, yet the construction of a new fence limits how far they can go in an effort to protect the buffer zone. If the SRV was designated a “domestic” space like the buffer zone, wildlife would be prevented from entering, as opposed to having their mobility facilitated.

Lobbying behind wildlife is not done simply out of benevolence and a moral standing on conservation. This lobby is closely connected to the increasing trend towards market-oriented conservation (Igoe and Brockington, 2007; Brockington and Duffy, 2010; Igoe et al., 2010; Roth and Dressler, 2012), especially that based on wildlife tourism (Dressler & Büscher, 2008; Duffy and Moore, 2010). Indeed, Wolmer (2003, pg. 365) argues that the GLTP’s “powerful backers” want to harness the potential of tourism investment. He cites the example of the tourism and business lobby in Gonarezhou National Park – Zimbabwe’s portion of the GLTP – and how companies like Price Waterhouse are behind promoting it as a wilderness area through the “restoration of some cattle ranching areas to full-scale multi-use wildlife operation [...]” (Ibid, pg. 272). Such restoration includes, and indeed necessitates changes allowing wildlife to take over spaces occupied by livestock, people, and agriculture. Conversations with existing and potential tourism operators in the LNP and GLTFCA reveal the enormous tourism potential of the LNP as it butts up against Kruger, one of the most iconic and visited national parks in the world with almost 1.5 million visitors per year (SANParks, 2011).

Several people that I spoke with from these companies even said they are investing and operating at a *loss* in hopes that this potential will materialize in the near future. The transformation of the SRV into a wildlife paradise free from agriculture and livestock is perceived as central to achieving this potential. Unlike livestock in Montana (Lulka, 2004) or France (Buller, 2008), in the SRV it is wildlife who are entangled in more powerful animal-human networks. Hence, in the competition for spaces deemed prime wildlife habitat, wildlife are *supported* in their efforts, and even *encouraged*, to take them over even if what makes it most suitable for them is also the reason why people and their livestock are there to begin with – namely, water and pasture. There are several key sites of tourism that are revealing in this sense.

The first is *Bonsweni*, mentioned above, and a tourism concession that overlaps with land used by Massingir Velho that encompasses the most important watering source for the village's cattle. A second site of key importance with regards to tourism development is a watering hole by Nanguene and Macavene villages near the LNP's main entrance. As an LNP official told me,

The idea is that, what I am trying to push for is that there is a nice permanent water-hole nearby and that is I say 15kms from here not even that, probably, as the crow flies, probably 8kms from here so, that would in the future become a game drive link for Albufeira. For the moment there is no game here at Albufeira gates. The idea is that once the barrier fence is in and Macavene, the closest village is resettled, you will have quite a big area in the lower Shingwedzi valley where game can live and that is close to Albufeira camp. So if we can relocate some game there in the winter of next year, from Kruger and from Gorongosa, things like waterbuck, impala, zebra, giraffe, so you have non-threatening animals towards the communities, so not buffalo or lion or elephant. Relocate that and then you have a game product within proximity of Albufeira gate (Interview 06/2012).

Albufeira gate is the main entrance to the LNP. What this particular official is talking about is how the removal of Macavene and Nanguene villages (the location of the water-hole he refers to) creates a substantial area close to the park entrance for wildlife and thus tourism. Indeed, he continued describing this process, saying it “will start to improve the profile of the park actually as a wildlife destination” (Ibid). Macavene and Nanguene of course, are not the only villages in the SRV whose resettlement will transform the area into a wildlife and tourism area, Bonsweni will also (partially) be the product of Massingir Velho’s removal. Furthermore, the same advisor explained how if it was up to the park administration, “we would move Makandazulu, Chimangue, and Machamba first because that is opening up your wildlife and your tourism [...]” (Interview 06/2012). These areas are significantly further into the interior of the park than Macavene or Nanguene so it stands to reason that it is closer to a “wilderness” area to begin with. It is also where new 4x4 tourist camps are being constructed.

What is ironic is that the communities that are being removed to make space for wildlife have actually played a role in making these areas prime sites for wildlife and tourism. As was explained by various officials including the one quoted above, the areas where communities live are the best for wildlife and tourism because of “a combination of better food and [being] better for tourists” (Interview 06/2012). Most herbivores are browsers and eat off the ground because grasses have more nutrients than other plants. They are attracted to areas that are grassy and have been cleared of bushes. The wide-open areas created by clearing fields, pasture, and residential plots also means better visibility for tourists. The landscape created for livestock and agriculture is ideal for

wildlife and wildlife viewing. As a TFCA-Unit official explained when referring to the resettlement of Nanguene's 18 families, "now the vegetation is coming back and animals can go there *without any problem*" (Interview 07/2012, emphasis added). Without the support of the park, and ultimately the state, wildlife would be less able to take over the areas like that of *Bonsweni* and the watering hole by Nanguene and Macavene that are prime tourism areas. Wildlife's taking over of these areas is thus facilitated and contingent upon actions taken by the park, such as removing people from them in the first place. As put by one TFCA-Unit official,

"you need to *create* certain areas within a national park where there is no disturbance of the wildlife and the flora, where you can *promote* a growth of wildlife and a *product* to offer [...] for tourism. And it was seen that the Shingwedzi area was one of the main areas." (Interview 05/2012, emphasis added)

The part of this excerpt to highlight is the need to "create" certain areas and "promote" the growth of wildlife because wildlife are not able to do so on their own. Wild animals do not have the requisite agency needed to transform the SRV into a space of "wilderness" by taking it over that is required for tourism to be successful, nor do they have the ability to displace communities on their own. But, the conditions are created so that they *are* able to because tourism depends on them doing so. This is tourism based on a "pure wildlife experience" that has nothing to do with cattle (Interview with KfW official 07/2012). As I was told, tourists are there to "see *wild* animals" (Interview with TFCA-Unit official 07/2012).

Previous work on the GLTP and TFCAs also demonstrates how – with the backing of the PPF – these spaces are being opened up for investment and tourism.

Wolmer (2003, pg. 305) describes how tourists are given “exclusive rights of access to the space” whereas others (Spierenburg & Wells, 2006, pg. 302) argue, “maps of future TFCA developments open the door to appropriation through private investments in lodges and all the luxury leisure amenities that modern-day tourism requires.” While this is true, I depart slightly from these authors by taking a less anthropocentric approach. I argue that the space of the LNP (apart from its buffer zone) is being opened not for private tourism investment per se, but for a broader network that has wildlife at the heart of it. Not only is the LNP a conservation project with actually very little of its space being allocated to tourism, but in order for tourism to be successful, specific spaces need to first be given to and/or taken over by wild animals. This is the first step in attracting tourism. As such, the “opening up” of the SRV enables the “wild”, in all that it entails, to re-territorialize this space. It may be true that in addition to private investment, “tourists also – literally – take over spaces” (Spierenburg & Wells, 2006, pg. 302), but not before wildlife does. Indeed, there is only one private tourism operator with a 10-bed capacity currently operating in the LNP. The future of tourism development depends on the re-colonization of the SRV by wildlife, but wildlife on their own do not have the agency to do this. Thus, they require support from more powerful human actors that invest value and meaning in them, and ultimately privilege them over their domestic counter parts and related livelihoods. The result is the inversion of the biosecurity hierarchy and the removal of the domestic.

Allowing wildlife to take over and displace: Wildlife as protected and connected to

Kruger

Another part of the network acting to enable wildlife to take over the space is the connection to Kruger and the authoritative shadow that it casts. Kruger's management plan acknowledges that "Kruger is a dominating feature of the landscape" in the GLTP (SANParks, 2006, pg. 20). This is true both ecologically and politically. Some even argue that the entire GLTP "has been very much a South Africa-driven process" (Wolmer, 2003, pg. 270; see also Spierenburg and Wells, 2006; Milgroom & Spierenburg, 2008; Spierenburg et al., 2008). Much of this can be attributed to Kruger's stature and political influence, especially since the LNP is largely dependent on it for wildlife. As such, the merging of the two parks, especially with the removal of the border fence, meant that land-use between the two had to be "harmonized" (Spierenburg and Wells, 2006, pg. 303). In reality this meant that the LNP had to follow Kruger as a model. Originally slated to be a conservation area with multiple land-uses (including agriculture and livestock), the LNP (apart from its buffer zone) was re-designated a national park according to the IUCN's Category II to fit the model of Kruger (Spierenburg and Wells, 2006; Milgroom & Spierenburg, 2008; Interviews 05/2012, 07/2012). This designation had important implications for the status of wildlife and the place of cattle and people within the LNP, further supporting the inversion of the biosecurity hierarchy and facilitating the removal of people and livestock. It also bolsters wildlife's agency as it is one more aspect of the network that wildlife is entangled in that gives it value, meaning, and ultimately protection.

As stated above, belonging to the GLTP means that wildlife management policies have to operate in harmony with those of Kruger (GLTP, 2002). This is particularly important when it comes to managing biosecurity issues like Bovine Tuberculosis (BTB), something that Kruger manages passively. Culling of wildlife to manage disease risk is not undertaken. According to Michel et al. (2006, pg. 96) “bovine tuberculosis is managed in the KNP with minimal interference, meaning no active control efforts have been implemented, but surveillance, monitoring and research activities are conducted.” Wildlife’s ability to evade culling does stem from the powerful lobbyists, including animal rights advocates that push such legislation (Bonner, 1993). Arguably more important, however, is its place of belonging in the GLTP. While BTB may be alien in the GLTP, its host or reservoir in the form of buffalo or other ungulates are not. If we look elsewhere this is not the case. In New Zealand, for example, the “wildlife reservoir [of BTB] is considered an alien species” (Michel et al., 2006, pg. 96). Thus, there are no ethical or ecological concerns regarding culling as a management option for BTB. In the LNP and GLTP, the disease hosts are “native nature” and thus occupy a certain moral standing preventing them from being culled; cattle do not. This status as “native nature” strengthens wildlife’s position of belonging, giving it the ability to evade culling, even though it presents a severe biosecurity risk for livestock and people (and other wild animals). Cattle on the other hand are not “native nature” and thus the management solution to deal with cattle in the LNP infected with BTB is to kill them and offer the owners monetary compensation (Interview 08/2012). Cows are thus deemed expendable,

but wildlife are not, contrary to what the literature would suggest (Lulka, 2004; Buller, 2008; Collard, 2012).

The LNP's designation as a national park also gives wildlife an increased ability to kill via the same park legislation that prohibits any killing of them. This was not the case previous to the establishment of the LNP. This legislation has altered the power dynamics between wildlife and cattle dramatically. As Carlos from Massingir Velho explains,

The wild animals *did not have the right to kill* our domestic animals, they killed one of our domestic animals and we killed it. But now this is not accepted. They kill our animals and we are not able to kill them, we are guilty if we do. Why are we guilty if it kills one of our animals? Does it not do good if we kill it if it kills one of ours? This is what concerns us, the administration of the park, the animals that were here, no one left them here, they were only the country's animals so when those animals came and caused us problems we killed them and there was no problem, but now just for killing an animal you are guilty (Carlos 07/2012, my emphasis).

By virtue of people's ability to kill lions and defend their domestic animals, cattle had a certain ability to compete with the predators while at pasture or drinking. This has changed as cattle are now left defenseless. The same can be said for people's fields when buffalo, elephants or hippos eat their crops. As expressed by Judite,

We have no power against the park. Even when an animal eats our crops we can't do anything. These animals *belong to the park* and the owners of the livestock can't do anything, he can only sit there crying. We can't do much when a lion comes because we are only people. We can climb a tree but a cow can't so the lion kills the cow. *You can't kill the lion, you have to leave it* (Judite 07/2012, my emphasis).

Some residents even express how the protection of wild animals is because they are not from the SRV, but elsewhere, South Africa.

The cattle goes out to eat but sometimes not all of them come back because there are animals like lions that eat our livestock. The guarantee that exists is wildlife,

which is why we needed to talk with the park *when it arrived with these animals* saying that when *your animal kills* one of our livestock you need to pay us. But the park administration doesn't pay (Interview 07/2012, my emphasis).

The park prohibits us from killing the animals, but it really can't prohibit us from eating smaller animals from the bush because *these animals are from here* [not South Africa]. But, with regards to the bigger animals like rhinos and elephants the Park does have the authority, or is within its rights to prohibit the killing of them because these animals *belong to the park* (Interview 07/2012. My emphasis).

Residents of Massingir Velho are quite aware that many of the animals they encounter are not "from here." The 40,000 ha animal sanctuary that held thousand of translocated animals from South Africa overlapped with their land and cut off access to some of the resources they depend on. On many walks I went on with residents of the village they were keen to point out to me where the sanctuary was, and even showed me remnants of the fence that were a mere kilometre or two away from the village centre. They are not only aware of the sanctuary itself and the animals within it, but that the animals come from South Africa. One resident expressed, "what bothers us is the *introduction* of animals into this area" (Interview 07/2012). Another elderly man expressed his frustration saying, "we soon discover that the park and the government are colluding. How does a company that came to ask for a space to keep their animals now tell us the rules of how we should live?" (Interview 06/2012). A former LNP official who worked for the LNP for over a decade starting before its establishment described how "when the LNP and GLTP were first established and consultations with communities were held, people were paid by South Africans, the cars that arrived had South African license plates, and they brought animals from South Africa over on trucks" (Interview 07/2012). So, he argues, it is logical for residents to see the LNP as an expansion of

Kruger. As one resident explained after telling me how eventually Kruger will expand so far that Massingir Velho will most likely end up in Chokwé, some 200 kms away.

The government is fooling us by saying that this is our land when here they only want to put animals. The fence of South Africa is getting closer and closer. Before the limit was Xiphanze [in Mozambique] with Makhove [in South Africa]. They put the fence up and Xiphanze became part of South Africa. From Xiphanze to here was Massingir but the current map of the land shows it closer to here meaning that the government is selling our land. They want to come more in this direction so they are selling the land to the South Africans (Interview 07/2012).

At the risk of reifying national boundaries, the privileging and agency of incoming wildlife in the SRV cannot be disconnected from the fact that they come from South Africa. They are South African animals and thus deserve the same amount of protection as afforded to them in Kruger, hence the need to harmonize land-uses. Indeed, there are those who work for the LNP who refer to it as an “extension” or “buffer” to Kruger (Interviews 06/2012, 07/2012). While this does not add anything that the LNP legislation does not, it helps to explain why the LNP was made a Category II national park thereby revealing another piece of the network in which wildlife is entangled, and the multitude of actors investing in them that ultimately contributes to the inversion of the hierarchy whereby wildlife is at the top, and its ability to take over the SRV and displace cattle, communities, and their livelihoods.

Wildlife are indeed playing an important role in displacement, and the material transformation, and ultimately *re-territorialization* of the SRV. There are two related examples that I wish to use to demonstrate this concretely. The first is the displacement of cattle from areas of pasture, driven largely by conflict with lions. The grazing “areas”

that cattle from Massingir Velho use are not fenced-in delineated areas; they are spaces beyond the residential areas and fields known as *o mato*, or the bush. Despite not having delineated fenced-in grazing areas, there are general areas of pasture that livestock regularly use, return to, and rotate between. It is also while in the bush that lions sometimes attack cattle¹⁵. As Luiz, one resident who owns one of the largest herds in Massingir Velho explained,

the risks that occur in the bush, at pasture, is that the cattle are available to lions, the lions are dangerous, the lions attack and kill the cows. Lions, when they find cows and they are alone, they can kill 10 cows alone (Interview 08/2012).

Now that residents can no longer kill lions and are therefore no longer able to defend their cattle and scare lions from returning, the common strategy to deal with conflict between lions and cattle is to simply stop grazing in an area where too many lion attacks have occurred. Luiz lamented,

the park does not allow us to kill an animal even if has eaten a cow so the strategy we use is that when a cow is killed in a certain area of pasture we move to a different area so that the lion is not able to kill more cows (Interview 08/2012).

Many areas around Massingir Velho commonly used as spaces of pasture are no longer frequented as they are deemed too dangerous in terms of lion-cattle conflict. Lions, by virtue of their physical power over cattle and the agency gained from being protected and “belonging” in the LNP have effectively taken over such areas and displaced cattle and cattle rearing from them.

The second example has to do with agriculture and elephants. One day while driving through the Makandazulu region in the north of the LNP with a park official, we

¹⁵ At times cattle are also attacked at night while in their corrals.

passed a set of abandoned huts across from a large, also, abandoned field. As we passed by, the official told me the story behind the abandonment. An extended family used to live there and farm the field. One day an elephant came into the field, chased the grandmother away and destroyed her crops. She ran into the house and claimed the elephant waited outside of her house so that she could not leave. Eventually the elephant left, but the woman was too afraid so the family packed up and moved to one of the larger villages leaving behind the empty houses and untended field.

As the official finished the story he said that if they can get people to move like this on their own, that would be perfect. It makes the job of resettlement much easier.

As such, the network of the “wild” that is coming in to being in the LNP operates to displace. In both instances, whether it is lions or elephants, park legislation limits how the “domestic” network act. This creates conditions for displacement as this context of insecurity works to force people to choose to resettle outside of the park boundaries. This also brings the “voluntary” nature of resettlement into question¹⁶. Residents of Massingir Velho share the sentiment that this is indeed the case. As Escobar, an elderly man who defended his village during the Renamo conflict told me, “Many animals came with the establishment of the park. They brought elephants that are destroying our crops. The park is taking us to another war. They *want us to leave this area*” (Interview 07/2012).

The reason for wanting wildlife to take over space and displace people and cattle as exemplified above is in line with tourism objectives, but it is also closely tied to

¹⁶ For a specific discussion of this in the context of the LNP see Milgroom & Spierenburg (2008), and for a similar discussion in the context of Vietnam see Roth and Morris-Jung (2010).

conservation objectives, especially those seeking to revive and improve the wildlife population that was slaughtered during Mozambique's civil war from 1977 to 1992. As one TFCA-Unit official explained,

If you want wildlife and flora, if you want the flora to improve and if you want the wildlife to improve you need to also *create* conditions for that to happen. I mean otherwise having people increase their numbers, their areas of crops, their burning activity, their poaching activity, which do not go in hand with that objective of protecting those species of flora and fauna. So, *you need to give that flora and fauna a space and an opportunity to develop* (Interview 05/2012. Emphasis added).

Conservation imperatives privilege the “wild” over the “domestic”.

While wild animals may not necessarily be physically displacing cattle from the SRV themselves (although in some instances they are), this space is being opened for them so that they may now, and in the future, physically take it over. Wild animals are a motivating factor in removing people. Therefore, what we are seeing is a co-produced displacement whereby different actors belonging to the same network re-territorialize and transform the SRV into a space of “wilderness”. One group of actors (park administrators) removes barriers to wildlife's movements, translocates wild animals, denies protection to livestock and crops, and ultimately removes cattle and people. The other (wildlife, tourism investors, tourists) physically take the space over, help to transform it, and prevent any future return of the displaced. None of these actors could do this on their own. Wildlife, as part of this network, thus play an important role not only in the SRV's re-colonization in the ecological sense, but also its re-territorialization as it helps to transform it into a “wilderness” area from one of agriculture and livestock rearing.

Conclusion

I began this chapter by laying out three characteristics that tend to characterize biosecurity interventions. The first is that it is the threat that becomes the subject of the intervention. Second, biosecurity interventions look to separate the “wild” from the “domestic” by either preventing the former from entering into the areas of the latter or by removing it from these areas altogether. The third, and what underlies the two above, is that biosecurity tends to re-enforce the hierarchy between the “wild” and the “domestic” whereby the “domestic”, in the form of people and livestock, is superior and at the top. This is especially the case when the interests of biosecurity and biodiversity conservation collide. Despite these trends, and the fact that they characterize efforts to protect people and livestock in the LNP buffer zone, I show how the use of resettlement in the SRV as a way to keep cattle safe – a biosecurity intervention – acts in contrast to this. Instead, it is livestock, and people that have become the subject of the intervention. Furthermore, while the “wild” and “domestic” are being separated, it is the “domestic”, namely livestock and by extension people and their activities, that are being removed from the SRV now deemed a space of “wilderness”. Finally, the hierarchy between the “wild” and the “domestic” in the SRV has not been re-enforced, but has been inverted so that it is the “wild” that is on top and holds a position of superiority.

Using a post-structural political ecology framework I demonstrate how the inversion of this hierarchy, while important for understanding the shape of the biosecurity intervention and why resettlement was chosen as the option for keeping cattle safe in the SRV, is also intimately tied to wildlife’s ability to contribute to displacement. Despite

arguments put forward by the state and the park that wildlife provoke or are responsible for the displacement of communities, I reveal how wildlife on their own do not possess the agency or ability to take over spaces in the SRV, and destroy local livelihoods to the extent that they actively displace livestock and human populations. Rather, their ability to do so is contingent on their entanglement in certain socio-material networks connected to powerful tourism and conservation interests that invest in them value, meaning, and status. It is these same networks, interests, and the practices behind them that are similarly responsible for the inversion of the hierarchy between the wild and the domestic and the transformation of the relationship between the two. The result is that the space of the SRV is opened up to wildlife with conditions being created so that they may take over the SRV and help transform it into a space of “wilderness”, which leads them to directly or indirectly contribute to the displacement of communities.

This inversion, or upsetting of the “wild” vs. “domestic” hierarchy can thus be pushed further and be conceptualized as a more complex hierarchy in which a network of human-tourism-conservation-wildlife-wilderness trumps a network of human-livestock-agriculture-rural livelihoods. In this sense, the SRV is less of a space, than it is itself a network, and its transformation is not one from a space of “domestic” to one of “wild”, but from a network of human-livestock-agriculture-rural livelihoods to one of human-tourism-conservation-wildlife-wilderness; that is from a “domestic” network to a “wild” network. It is the transformation of this network that also gives wildlife the needed agency or ability to help in this transformation by taking over certain spaces and actively contributing to the displacement of people either leading them to lose their livelihoods

and leave certain areas, or by allowing the state to justify their removal using the pre-text of human-wildlife conflict. With the increasing expansion of conservation areas, and especially transfrontier conservation areas that overlap with land occupied by people, this is an important critique to take note of. At its most basic, it means that wildlife do not necessarily have to displace communities because alternatives meant to protect both humans *and* wildlife can be found without having to resort to the displacement or privileging of one over the other. Indeed, this is the approach taken in the LNP's buffer zone.

A combination of biosecurity and post-structural political ecology thus helps provide a more nuanced understanding of the practice of conservation-induced displacement. While biosecurity helps to provide some initial understanding for animal-animal and animal-human interactions and relations, political ecology is able to provide a lens that focuses more on how these relations are shaped by and shot through with power. Furthermore, a specific use of post-structural political ecology reveals how these are really relations between networks, not independent entities as such. This both complicates and contradicts some of the patterns found in biosecurity literature. Indeed, how biosecurity manifests itself on the ground is a political decision. Furthermore, conservation-induced displacement is revealed to be more than an anthropocentric process with no one group of actors to blame. Rather, displacement emerges from the collision of different networks, networks that contain heterogeneous entities, compete over resources and space, and ultimately reflect power imbalances that shape territorial conservation and related processes of displacement.

Chapter 5 – “Seeing” Cattle Differently: Motivations Behind Communities’ Refusal of a Resettlement Plan

The establishment of protected areas and the related displacement and resettlement of communities that sometimes occurs are not uncontested processes. Many communities who have experienced the transformation of their homeland into a national park have shown varying degrees of resistance, some resisting resettlement itself. In examining cases where this occurs, scholars have revealed the various ways in which communities effectively, or ineffectively, resist their removal from protected areas, and why they do so (Neumann, 1998; Brockington, 2002; Schmidt-Soltau, 2003; Dowie, 2009). Many of these cases revolve largely around political and even legal battles that look to prevent resettlement from happening in the first place through overt actions of resistance. But, what about resistance that is not necessarily targeted at preventing removal from the park, but is more concerned with undermining what the resettlement plan entails after removal? If resistance is not motivated solely by wanting to stay in the park, then what motivates it, and what shape does it take? In this chapter I continue to re-think the role of cattle in the controversies surrounding the GLTP and LNP. Specifically, I demonstrate the significance of cattle in understanding communities’ motivations for resisting the LNP’s resettlement plan.

Unlike the cases explored in a large majority of work focused on resistance to resettlement (Neumann, 1998; Brockington, 2002; Schmidt-Soltau, 2003; Dowie, 2009), the communities in the SRV are not attempting to prevent themselves from being removed. The community of Nanguene has already been resettled, and the others, like

Massingir Velho, accept the reality that they will move when the government decides it is time, even though they prefer not to. The common response from many residents in Massingir Velho when asked why they will accept to move was that they are powerless against the government, so they will move when told to (Interviews 06/2012 & 07/2012). However, communities still resist resettlement via their refusal to accept the state-sponsored resettled plan as they perceive it as having negative consequences for, and being at odds with, their cattle and cattle-based livelihoods. Thus, this chapter is concerned with the LNP resettlement plan in particular, what it entails, and how it seeks to re-organize cattle-based livelihoods. I adopt Jones' (2012) notion of "spaces of refusal" to explain the motivations that lead people to resist the resettlement plan, and offer a more nuanced understanding of resistance connected to conservation-related resettlement in the LNP; an understanding that also has cattle at the heart of it.

Spaces of refusal is an approach to resistance in an effort "to conceptualize everyday actions [...] that disregard the rules of the state [...] but are not politically motivated resistance to sovereignty" (Jones, 2012, pg. 687). Thus, such actions dismiss "the state's claim to define subjects and activities in [certain] spaces", but do not seek structural change (Ibid). This is the case with communities that are being resettled from the LNP. They are not motivated by attempting to change the fact that the park has been designated as such, or that they will or have been resettled outside of its boundaries. Rather, they are more concerned with ensuring the survival of their cattle and ultimately their livelihoods. Put simply, minimizing adverse impacts and changes to cattle and related livelihoods as a result of attempts to spatially and socially re-organize cattle

rearing motivates communities to “disregard the rules of the state” as set out in the resettlement plan (Jones, 2012, pg. 687). This is a different target of resistance than typically focused on in the literature on conservation-induced displacement (Neumann, 1998; Brockington, 2002; Schmidt-Soltau, 2003; Dowie, 2009). It also highlights how nonhumans are integral not only to processes of displacement as explored in the previous chapters, but to resettlement and its contestations as well.

I argue that what motivates residents’ resistance of the resettlement plan emerges from two primary issues. The first stems from losses to their most important asset, cattle. Specifically, communities are concerned about a loss of grazing land, a loss of cattle to theft, and the re-organization of cattle rearing that they perceive as having negative implications for their herds and livelihoods. The second source of motivation stems from what Jones (2012) refers to as a “zone of contact.” A zone of contact is where state plans and practices “interact with alternative ways of seeing, knowing, and being,” thus leading to a “space of refusal” where people resist by “disregard[ing] the rules of the state” (Jones, 2012, pg. 687). I apply this concept to understand how the ways of seeing, knowing, and being with regards to cattle and cattle rearing on the part of the resettlement plan are at odds with and interact with those of communities being resettled. This leads to perceived and real negative impacts on cattle and related livelihoods. It also fails to take into account local histories and important ways of being with and understanding cattle. Hence, communities’ resistance of the LNP’s resettlement plan is intimately tied to and motivated by issues pertaining to cattle and cattle-based livelihoods, both materially

and culturally. To start, I provide an empirical overview of the resettlement plan before outlining the resistance occurring and an analysis of the motivations behind it.

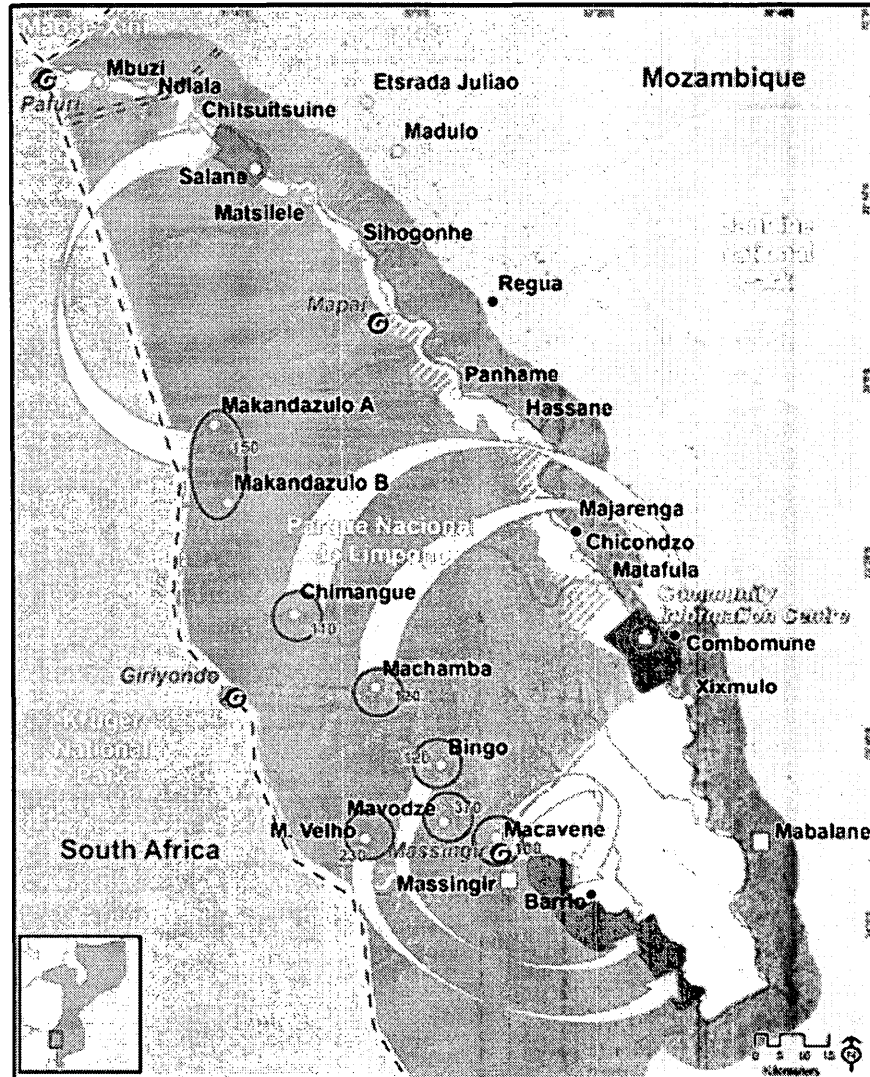
The Resettlement Plan for Communities in the Shingwedzi River Valley

The resettlement plan for the communities of the SRV attempts to address the needs of both humans and their domestic livestock. Following the World Bank's (4.12) protocol on involuntary re-settlement (World Bank, 2001),¹⁷ the LNP administration designed a resettlement action plan that outlines compensation and the conditions that await communities post-resettlement. The eight communities to be resettled will be moved either to the park's buffer zone or to designated areas outside of the LNP (see Map 6). Of all the communities, Nanguene is the only one to have been resettled thus far. Macavene, the community located nearest the park's main entrance is in the process of being resettled at the time of this writing, and Massingir Velho is slated to be resettled sometime within the next year, with Bingo sometime after that (AHEAD-GLTFCA, 2013; Interview with LNP official 06/2012). All four of these communities will be resettled outside of the park (and not in the buffer zone). It is these communities that I focus on for the remainder of the chapter as the context in which they and their livestock will be (or have been) resettled give rise to particular circumstances leading to resistance.

While each community will be moved to a different place, compensation is nearly identical. According to The Resettlement Action Plan (LNP, 2008), each household will

¹⁷ While it has the word involuntary in the title, park administrators', donors, and the Mozambican state are adamant that resettlement is not forced, and is indeed voluntary (Interviews with LNP officials 06/2012; 07/2012). The voluntary nature of the resettlement has, however, been the subject of controversy (Milgroom & Spierenburg, 2008; Lunstrum, 2010).

receive a house (or houses) made of concrete based on the number of dwellings they have (or had) in the park. They will also receive granaries and other structures in accordance with what they have. Furthermore, a plot of land will be allocated to each household for agricultural purposes. In addition, infrastructure such as irrigation, schools, medical clinics, and markets will be built or already exist in the areas where they will be moved to. Of specific importance is that each community will be resettled to an area where a community already exists, referred to as a “receiving” community. For instance, Nanguene was resettled to Chinhangane, just south of the Olifants River that forms the LNP’s southern most boundary. Macavene is being resettled to Banga, and Massingir Velho will be moved south of there to Mukatine (see Map 6). Of course, the resettlement of communities also entails the re-settlement of their livestock. Indeed, as detailed in the two previous chapters, the need to remove cattle is central to the reason for resettlement. Cattle are thus interestingly (and intimately) tied to reasons for resettlement and reasons for resisting resettlement. The specter of the nonhuman in both material and nonmaterial ways permeates the realities of conservation-induced displacement and resettlement from park opening to its aftermath.



Map 6. Current location of communities and the areas where they will be resettled. Map taken from the LNP's Buffer Zone Management Plan (Salas, 2011). The red circles are the present locations of communities in the Shingwedzi River Valley and the yellow arrows represent where they will be resettled. The red areas signify the resettlement areas with the light green being the buffer zone.

The need to accommodate thousands of cows complicates the resettlement plan and has been critical in shaping resettlement negotiations. This largely stems from cattle's spatial needs in terms of grazing land (Interviews with officials from KfW and LNP 07/2012). Grazing lands are so important that two separate DUATS (land leases)

were issued as part of resettlement negotiations¹⁸. Each household will receive a DUAT for their plot of land with their house and a communal DUAT will be issued to each community designating grazing land for cattle (Interviews with LNP officials 06/2012 & 07/2012). To accommodate resettled cattle, the resettlement plan designated the Mbindzo Communal Grazing Area (MCGA). Meant to house the resettled cattle of Massingir Velho, Macavene, and Bingo, the MCGA is a 20,000 ha plot of land located just south of Tihovene on the EN 256 road (LNP, 2008)¹⁹. The MCGA is to act as a fenced-in communal grazing area for the cattle of these three communities as well as for some of the cattle of receiving communities like Banga, who lost part of its traditional grazing land to industrial sugarcane production²⁰ (LNP, 2008). Other provisions in the Resettlement Action Plan concerning cattle include “the provision of water for livestock, possible fencing of areas, improvement of the natural pasture to improve carrying capacity, possible production of fodder crops and the promotion of livestock management” (LNP, 2008, pg. 10). Despite efforts to compensate communities for their removal from the park, they still resist the resettlement plan.

¹⁸ DUAT stands for *Direito de Uso e Aproveitamento de Terra*, translated as Right of Land Use and Benefit. It is a certificate or land title giving the community or individual the right to use and access the lands and resources located within it. There is no private property in Mozambique, so the DUAT acts as a form of land title (GoM, 1997).

¹⁹ Unfortunately no map with the location of the MCGA was available at the time of writing. Despite having seen the location of it on maps, I was denied permission to take photos or get copies of the map. This is most likely due to the fact that the plans are not completely finalized.

²⁰ The original plan was for Macavene, Massingir Velho, and Bingo to share Banga’s grazing land. But, with the loss of over half of Banga’s grazing land an alternative needed to be found, so the MCGA was designated (LNP, 2008).

Current and potential resistance to the resettlement plan

Previous work on Nanguene (Milgroom, 2012) combined with conversations with officials working as part of the resettlement program highlight how some community members resist much of what the resettlement plan has laid out, especially when it comes to cattle. Massingir Velho on the other hand has not been removed. Thus resistance by its residents in regards to the resettlement plan has not happened, but is likely to, as I describe below. Such resistance is also likely to mirror that occurring in Nanguene.

Resistance by residents of Nanguene is manifested in strategies and actions aimed at minimizing negative impacts to cattle and related livelihoods that stem from resettlement as much as it is about continuing with the traditions of cattle-rearing that define a large part of the communities' cultural identity. Milgroom (2012) describes how after being resettled, some residents of Nanguene resisted the resettlement plan's attempts to re-organize cattle rearing by deciding to construct their own corrals beside their homes, as opposed to using the *communal* grazing area located further away as laid out in the resettlement plan. Furthermore, she describes how some residents have even moved their cattle back into the park. Re-iterating the resistance in Nanguene, a former official of the resettlement program was up front with me in saying that yes, some residents of Nanguene keep cattle inside of the park and cross the river daily to take care of them (Interview 07/2012). He went further to say that others, like residents from Massingir Velho, will do the same. Conversations with residents of Massingir Velho further reveal that this type of resistance is likely to happen among its residents.

According to Pedro, a man of about 70 years old, Massingir Velho already once rejected the idea of a communal corral back in 1975, after it had moved from the *Baixa* (area of village by the water) to its current location. He explained,

When we arrived here, the government said that we had to construct our corrals a little away from the areas where we lived to avoid flies and parasites that could contaminate us. Further on, the government thought we should construct a single communal grazing area so that livestock would be kept in the middle, but the community did not accept this position (Interview 07/2012).

The community is still not ready to accept this position. According to the village leader, they did not agree to this in the resettlement negotiations. I asked him if pasture will be shared and his response was “only if things change [...] because the agreement was not this” (Interview 07/2012). He continued to explain his position saying that residents of Massingir Velho “want each individual to have their own field and areas for grazing just like it functions here [in Massingir Velho]” (Ibid). With a history of refusing such initiatives, and their minds already made up that they will not put their cattle in a communal grazing area, we can only wait to see what happens once they are resettled. If Nanguene and the predictions of those who have worked with these communities as part of the resettlement plan are any indication, resistance is likely.

This chapter, though, is less about specific acts of resistance regarding the resettlement plan than it is an attempt to understand what motivates resistance. It is here where cattle once again become central to my analysis. Using the notion of “zones of contact” (Jones, 2012) I locate the motivations behind the resistance outlined above. The ways of seeing, knowing and being with regards to cattle and cattle rearing on the part of the resettlement plan are at odds with those of communities being resettled. This adds an

important cultural, and nonhuman, element to resistance thereby adding to existing literature on resistance (Scott, 1985, 2009; Katz, 2004), and especially that regarding conservation related resettlement (Neumann 1998; Schmidt-Soltau, 2003). This cultural realm of cattle cannot be disconnected from material and livelihood concerns either. Indeed, many of the perceived and real negative impacts on cattle and cattle rearing emerge from the resettlement plan's ignorance of how and why cattle are raised the way that they are. Furthermore, communities have an alternative way of understanding resettlement and its implications than that of the state; an alternative focused on the well-being of cattle meaning that resettlement compensation largely misses the point. Hence, communities' resistance of the LNP's resettlement plan, whether it is manifested in building a corral for one's own cattle beside their house, or keeping cattle in the park, is motivated by and intimately tied to cattle and cattle-based livelihoods, both materially and culturally. It is these motivations that I focus on for the remainder of the chapter.

Zones of Contact: Alternative ways of seeing, knowing, and being with cattle

Re-organizing cattle rearing

Communal, fenced-in, shared with other villages, and located 12-20 kms away from the residential areas where communities are to be resettled, the MCGA looks to spatially and socially re-organize cattle-based livelihoods in a way that does not align with the traditions of cattle rearing in Massingir Velho and the other villages to be resettled. For instance, in Massingir Velho there is no designated grazing area, nor is there a communal grazing area. Each day the young boys take the cattle out beyond the fields of the village to the bush where they spend the day grazing. At the end of the day,

and sometimes before, the cows are then taken to drink, most often to *Bonsweni*. Of specific importance is that each household keeps their cattle in a corral beside their house (see photo 8).



Photo 8. A typical household set-up in Massingir Velho with the corral (on the right) very near the house (photo by author).

Each morning, the young boy in charge of the cows removes them from the corral to go graze and returns them each evening where they spend the night. This way of doing things, or “of being,” with cattle differs from how the MCGA wants households to “be” with their cattle. Officials from the National Directorate of Conservation (DNAC), including the following official from the TFCA-Unit, acknowledge the difference between the proposed plan of the MCGA and the cattle-rearing practices of residents in the park. He stated,

Normally people live with livestock in their house, they do not leave their livestock 5 km or 10 km away from their houses. No, at the end of the day the livestock go back home until the next day. So this [having cattle kept at a distance] screws with their cultural habits (Interview 07/2012).

Not recognizing cultural habits and how they operate in conjunction with the realities of cattle rearing leaves residents with many concerns when it comes to resettlement, as elaborated by Catarina:

I don't know what will happen with or what is promised for livestock. With regards to the fields we are not sure if we will get the same dimensions as we have here or not. I believe that in Manhiça there will be cattle herders because we don't know the area and even those who went to see it are left with some uncertainty of what will happen with livestock. Also, here there is no livestock theft, but there is a worry about livestock theft there. Because we know this area well it will be hard there, we don't know where the livestock will eat or drink because we don't know the area. We also don't know if our livestock will be stolen there (Catarina, 07/2012).

Catarina demonstrates how livestock is central to many of the concerns she has with resettlement, namely lack of space, cattle theft, and the re-organization of cattle-rearing. Her concerns are typical of those held by residents in Massingir Velho that motivate resistance to the resettlement plan.

Taking a step back from the framework of spaces of refusal, Catarina's fears also complement literature focused on how resistance to resettlement as a result of conservation and/or development initiatives stems from the perception of losses to be incurred (Dwivedi, 1999; Schmidt-Soltau, 2003). Schmidt-Soltau (2003), for example, outlines nine risks/losses associated with conservation-induced resettlement in Africa including risk of landlessness, loss of food security, loss of subsistence/income, and risk of social disarticulation, among others. Similarly, Dwivedi (1999) argues that communities attempt to minimize losses as a result of resettlement or as a result of the failure of its proper implementation when a plan is present. The point to stress is that resistance to resettlement is about preventing losses when costs are perceived as greater

than benefits. The perception and reality of losses is largely tied to inadequate and inappropriate compensation (Dwivedi, 1999; Cernea, 2005, 2006; Schmidt-Soltau, 2003). This brings me back to spaces of refusal and the notion of “zones of contact” where practices of the state “interact with alternative ways of seeing, knowing, and being” (Jones, 2012, pg. 687). Ignoring how and why people live and interact with cattle in the ways that they do can lead to inappropriate compensation and material losses. The costs and benefits are misaligned in the eyes of those being resettled, a point I elaborate on further below. Such losses subsequently motivate resistance.

Concerns over a lack of space for cattle – Loss of grazing land

According to the latest census done by the Gaza Provincial Livestock Services, Massingir Velho has 1,352 head of cattle belonging to 70 “herders” (SPP, July 31st 2011). Two years later, the number is certain to have increased. Despite the large number of livestock, residents in Massingir Velho have not had an issue with grazing space. They have substantial space as they graze their cattle in the bush, shared only with wildlife, as the nearest village is 17 kms away. Frederico put it best when he said, “here we have *extensive* areas for pasturing our livestock” (Interview 07/2012). However, resistance is less about the extensive space that exists in the park than it is with the perceived loss of space for grazing with the resettlement plan. Again, this relates back to Schmidt-Soltau’s (2003) focus on the risk of loss of land as a motivating factor for resisting resettlement. Land in the case of Massingir Velho, is specifically about land for cattle. This also aligns with the loss of food security and loss of subsistence/income as these two things depend on the well-being of cattle, which ultimately depend on grazing.

Residents who do not know the area of Mukatine, the area where Massingir Velho will be resettled to, base the fear of loss of grazing space on an uncertainty concerning space for cattle, such as Catarina quoted above. Others, who *do* know Mukatine and the resettlement plan, base their fear of loss of grazing land on their *certainty* that there will not be enough space for their cows. As Escobar explained, “We know Mukatine. Mukatine is not a good area for us to live. Our cattle will not find enough space for grazing” (Interview 08/2012). His views are reflective of others that also know Mukatine and what the resettlement plan entails. Paulo, for instance, also acknowledged that a space for cattle exists in the resettlement plan, but that “space is very small and we testified that the space is insufficient for our cattle” (Interview 06/2012). Another elderly man, Manuel, re-iterated, “I went to see the space. I went there three times. I found that the area we were given is small and it is not enough for our cattle [...]. The space is not enough for grazing (Interview 06/2012). Apart from highlighting their perception that there will not be enough grazing land, what the excerpts by Manuel and Escobar also reveal is that their way of seeing and knowing the grazing space set aside in the resettlement plan conflicts with that of the resettlement plan itself and those in charge of it, namely the LNP and the Mozambican state. The resettlement plan, based on carrying capacity studies (Interview 06/2012; Milgroom 2012), sees the MCGA and other grazing space as sufficient, while those being resettled do not.

Fear about insufficient pasture is not only about the amount of space available. It also has to do with the fact that cattle from Massingir Velho, and other communities, will not be going to an “empty” space, but one already occupied by cattle. According to the

same 2011 census cited above, in Mukatine alone there are 1,843 head of cattle belonging to 127 herders (SPP, 2011). While the resettlement plan does not see this as an issue, residents of Massingir Velho are uncertain and skeptical of the ability of all cattle to share resources. As Caetano expressed,

We know the land, but we think there would not be enough space for people and cattle. We know that land. It is a small piece of land. Even this land where we live is a small piece of land. We don't want entire communities to come from other areas to live with us. If other communities come there would be pressure on the resources (Interview 07/2012).

While there has been some discrepancy about the carrying capacity of the MCGA and other communal grazing areas (and the actual size of these areas) (Milgroom, 2012²¹), the resettlement plan, along with most state officials and park administration, remain confident that there is enough space for the cattle of all communities²². Again, the ways of understanding the space available for cattle differ between cattle owners being resettled and those in charge of setting aside space for them.

Loss of Cattle – Multiple fears of theft stemming from the resettlement plan

Apart from the concerns about pasture, one of the primary reasons why residents resist the resettlement plan is loss of cattle to theft. Henrique, for example, states “I only have the fear that there, in that land, it seems that they steal a lot. I am afraid that they will steal our things and our livestock” (Interview 08/0212). This was reiterated over and over again by many of the residents I spoke with. Carlos’ juxtaposition between theft in Mukatine and a lack of theft in Massingir Velho is particularly illuminating:

²¹ See especially Chapter 6 for a detailed analysis of these negotiations and the carrying capacity studies.

²² There are some LNP officials that have doubts about whether or not there will be enough space available for the cattle of all communities (Interviews 06/2012 & 07/2012).

There are people that live in Chinhangane and Mukatine where we are going. Those people make a living off of theft. So when we think of going to live there, this scares us a lot. Here in Massingir Velho we have never heard of anyone having cattle stolen. When there was theft it happened during the Renamo war. They appeared in the village, took people out, and made people leave and then took our livestock. That was when it was a big problem. Before then and after there was not a problem (Carlos 07/2012).

Carlos' mention of the "civil" war that lasted from 1977 to 1992 is also important as it represents a local history of cattle raising that shapes many of their concerns, namely experience with the hardships of livestock theft²³. Speaking about raising cattle during the "civil" war, Sonia said "they [Renamo] took all of our cattle and left us with nothing" (Interview 08/2012). Other residents echoed this sentiment painfully expressing how the theft of their livestock meant re-starting their lives.

Before the war we had a lot of livestock, even the poor had livestock. After the war the number of cattle was so pitiful because they stole all that we had. Myself, I had a lot of livestock but as they stole everything I had to re-start everything from scratch (Gustavo 07/2012).

I don't know very well what made Renamo take the little livestock we had, but this happened every time they came here. Every time they came here they would shoot and we would run away to spend the night in our hideouts and Renamo would take the livestock with it [...] even the little livestock that we have now, it exists because we restarted livestock rearing (Emerico 07/2012).

Such painful memories of theft during the Renamo conflict make potential loss of cattle to theft that much more important for residents as starting over once is difficult enough.

In her article exploring linkages between history, memory, and claims to space in Massingir Velho, Lunstrum (2010) effectively demonstrates how residents become

²³ The war was not really a "civil" war in any conventional or simple way as the opposing Renamo forces were supported by Rhodesia and more importantly and increasingly by anti-communist South Africa (see Lunstrum, 2009 for more detail).

deeply worried and fearful when they connect the lived experience of cattle theft under Renamo with the future risk of cattle theft after resettlement. She argues, “what residents lost because of the war – and what they worked so hard to recover – they are poised to lose yet again” (Ibid, pg. 139). Residents’ new found concerns with theft do not come from Renamo though, but have to do with the resettlement plan.

The first concern of theft under the resettlement plan stems from the integration of communities into more “urban” or “modern” settings. The resettlement plan and officials from the park and TFCA-Unit see this as teeming with benefits like being close to markets, towns, and having access to paved roads (Interviews 05/2012 & 06/2012). Many residents of Massingir Velho, however, do not see the area in this way. Rather, they compare the higher levels of cattle theft in the resettlement area with the lack of theft in the park. Manuel explained that “the area that the administration wants us to go is full of thieves”, whereas “you will not hear that there are thieves in Massingir Velho” (Interview 06/2012).

Massingir Velho is geographically more remote. It is 17 kms away from the nearest village, 40 kms from the nearest town and market (Massigir Town/Tihovene), and is insulated by the Olifants River to the south, and the South African border and Kruger to the west. Further, it is essentially surrounded by the bush and there is only one very rough sandy road that passes through it. This setting makes livestock theft non-existent in the village. As Frederico explained,

Here in the park it is very hard to steal livestock because for someone to succeed in leaving with an animal they need to have a guide, and it is hard to steal an animal that way. There are two cases that were reported. They tried to do it and they didn’t

even succeed leaving the bush of the park. They were immediately captured before leaving the boundary of the park (Interview 07/2012).

This picture contrasts greatly with the MCGA and Mukatine where cattle from at least four communities will share space. The MCGA is located right on the main highway going to Massingir Village/Tihovene and to the urban centre of Chokwé in the other direction where there is a substantial market for livestock and livestock products. It is also within walking distance and is accessible by car and truck from Massingir Village/Tihovene and surrounding villages. As a shared space with other villages, the MCGA will increase the chances of cattle theft. Manuel put it simply, “if cattle will be mixed with cattle from other areas, there will be theft” (Interview 06/2012). Maria, talking in response to the government’s plans for the MCGA reiterated this same concern when she said, “we heard that they intend to build a fence to put the cattle in and this worries us because they want to put all of the cattle of everyone in this fence, and they will end up being stolen” (Interview 07/2012).

Looking at the literature on resistance of rural people to states’ attempts to integrate them into more “urban” areas, the ways of perceiving resettlement to Mukatine and other areas outside of the park (along with the anxiety associated with this on the part of park residents) are not surprising. Scott (2009), for example, details how hill people in Southeast Asia and elsewhere chose to remain in remote rural areas to resist not only incorporation into the state apparatus, but bandits as well. It was the harsh and remote areas that they lived in that gave them this ability and level of protection. Scott refers to this as the “gradient of accessibility.” Whereas those in charge of resettlement view the

low gradient of accessibility of Massingir Velho as a hindrance to development, and the high gradient of accessibility in Mukatine as bringing many benefits, residents of Massingir Velho do not necessarily agree. This is, in part, because the lens through which they analyze these gradients of accessibility (and being in the park versus being in Mukatine) is one focused on their most important asset, cattle. This is in contrast to the resettlement program that is guided more by the lens of a modernization paradigm of development (see also Milgroom & Spierenburg, 2008). As one TFCA-Unit official told me, an alternative to having people remain in the park and deal with wildlife conflict is “giving people an area where they can urbanize, develop and live lives in much better health, with better education, and better accessibility to markets; to give space for people to urbanize and develop” (Interview 05/2012). In the eyes of residents of Massingir Velho, cattle are much more insulated and protected from theft where Massingir Velho currently is. As put by Bartolomeu when talking about Mukatine, “[there] they steal a lot. There we run a great risk that they [thieves] will take what little we have” (Interview 07/2012). This is not to say that residents do not want any aspect or benefits of “modernization” or the purported benefits of resettlement. Indeed, most residents welcome the access to medical facilities and education. However, they do not want to these benefits to come at the expense of their cattle’s well-being.

Theft *is* a very real problem in the resettlement areas outside of the park (Interview with official from SPP; Milgroom 2012). In her study of Nanguene, Milgroom (2012) writes about the problem of cattle theft that residents encountered after resettlement. In one instance she describes how a man had three cows stolen from his

corral. She also explicitly states that cattle theft was not an issue in Nanguene before resettlement and that it was these instances of theft that motivated members of the community to build their own corrals beside their homes just as they used to in the park²⁴. Furthermore, a former official from the resettlement program explained how the moving of cattle back into the park by Nanguene is definitely driven by concerns of livestock theft, along with access to better grazing. He continued by saying other communities will do the same because in the park cattle are more insulated from theft, as described above (Interview 07/2012).

The history of cattle theft and the ways in which cattle are tied up in social and material relations that can increase the risk of theft are ignored by the resettlement plan. As such, peoples' fears with regards to their cattle have not been adequately addressed, ultimately motivating people to resist the resettlement plan. This is one more example of how the resettlement plan's and the residents' ways of seeing resettlement and its purported benefits do not align.

Missing the point: Alternative visions of resettlement and compensation

There is a bigger picture though, which goes back to the notion of a "zone of contact" where the vision of the resettlement plan and what it provides conflicts, or interacts (Jones, 2012) with alternative visions of what is important for people being resettled from the SRV. While already mentioned in brief, it is here where the cultural

²⁴ Not only does keeping cattle by your house allow people to keep watch on their cattle or hear if something happens, but most households also have dogs that will bark if something is askew. In addition, if a corral is within the residential area of the village and beside someone's house, it discourages theft and predation in the first place.

differences and the importance of cattle to residents' ways of life are most highlighted. The costs and benefits that the resettlement plan envisions do not align with those envisioned, and ultimately experienced, by people who are resettled. Residents see, imagine, and experience resettlement and post-resettlement through what it means for cattle, their most important asset and a large part of their cultural identity. This way of seeing resettlement and possible benefits associated with it are best expressed by Luiz with the following excerpt:

I don't know if we can have some benefits because the big benefit that we have here in our lives, that we can see is that which we have in Massingir Velho. The issue of animals, livestock rearing is important to our whole life so I am not able to see any benefit outside of livestock rearing. This will take a lot of time to study other strategies to bring about other benefits. But this benefit of livestock rearing we learn from the time we are born so that the cows can be raised. For this we still don't know if there will be benefits there or not or something else. The great wealth that I have is here. In case that something happens I can sell 10 cows and do what I want. This is the greatest benefit that I have (Luiz 08/2012).

This is a different way of seeing resettlement than that of the park administration and the state. The concerns that residents have about cattle are largely left unaddressed, or are even dismissed for a different view of "development." Milgroom & Spierenburg (2008, pg. 440), for example, quote one former LNP official as saying, "people will learn that it is better to have a job than cattle." One former official who I spoke with told me that the resettlement plan entails a broader vision of development based on reducing livestock rearing in Massingir District and integrating people into the wage labour market (Interview 07/2012). Manuel, a resident of Massingir Velho, also reflected the lack of concern that resettlement has in terms of cattle. When I asked him how the government has responded to the community's concerns, he replied, "we tried but the government did

not want to hear our views. Many of us are illiterate. Our future depends on cattle, but they don't want to understand our positions" (Interview 06/2012).

An official with one of the major donors funding resettlement acknowledged the importance of cattle in a conversation we had, saying that cattle and cattle grazing is the main issue that "will make people happy or unhappy" (Interview 07/2012). Yet, this is not what the resettlement plan reflects as its vision of cattle rearing and what life post-resettlement should entail is at odds with that of residents'. Despite the designation of the MCGA, the government has largely reduced the problem of compensation in resettlement to houses. One former official of the resettlement program said that the government has essentially said to people slated to be resettled, "look, you will have better houses, concrete houses, so you will be better off" (Interview 07/2012). Meanwhile, residents are focused on their cattle. Resettlement could have material benefits not associated with cattle, and indeed the compensation package attempts to ensure this, but this misses the point. Cattle have a place in the lives and culture of communities that the resettlement plan, willingly or unwillingly, simply does not understand or accept.

The misaligned focus of the resettlement plan might be partly explained by who is in charge of the resettlement project, the National Institute for Disaster Management (INGC), led by civil engineers (Interviews 07/2012). At first glance it may seem a logical choice to have INGC leading the resettlement effort. It does have experience with resettlement and relocating populations affected by natural disasters. However, the process of obligatory resettlement from a national park and the resettlement of communities who have lost everything to a hurricane or flooding are different; so are the

needs and concerns of those being resettled. It is likely that housing and infrastructure *are* priorities for those who have lost everything in a disaster. The residents in Massingir Velho, however, have not lost everything. Instead, they are being forced to give up what they have and what they have worked and fought for. In return, they would like compensation and assurance that their well-being will be taken care of. Such assurances do not come in the form of housing, which dominates the talk of compensation and benefits thus far, but must centre on cattle. This led one former official of the resettlement program to say that the focus on housing by INGC and the resettlement plan in general is an “error of approach” (Interview 07/2012). Another DNAC official said, “knowledge of how to build a house does not make you qualified to design a resettlement plan” (Interview 07/2012). He then went on to explain how people in charge of resettlement should be anthropologists or others who know the communities being resettled, their culture, and what is important to them.

Residents themselves revealed the lack of importance they attribute to houses in comparison to cattle, and other assets. A short survey I conducted with 42 households in Massingir Velho confirms that houses are at the bottom of the list of priorities for residents. Even those households that had no cattle ranked housing last with cattle being more important. Only 4 households ranked “house” as more important compared to 32 who ranked cattle as most important. The same official from the resettlement program quoted above supported these findings when he referred to houses in the resettlement plan as a “non-issue,” arguing that people are not in the park, nor will they resist resettlement and return to the park because of houses, they are there because of

livelihoods. The park is where their cattle and cattle-based livelihoods are secure (Interview 07/2012).

By failing to acknowledging this, residents will engage in acts of resistance such as keeping cattle in the park, taking their cattle to the park to graze, and possibly even moving back to the park altogether. Indeed residents of Nanguene are already taking these actions. These are not overt political acts of resistance to the state or its authority. While they do resist and subvert the state's desires, such actions are primarily motivated by limiting losses and negative impacts related to cattle and related livelihoods. Adopting the notion of zones of contact also reveals an important cultural element underlying resistance to resettlement. This has to do with alternative ways of understanding and interacting with cattle that have persisted for generations. These are not just cultural preferences and "empty" traditions, but are connected to local histories and lived experience. As such, perceptions and realities of material losses, and resistance itself, cannot be disconnected from this cultural element that defines how and why cattle are raised in the ways that they are and the place they hold in people's lives.

Conclusion

Employing the notion of spaces of refusal, and specifically *zones of contact*, I use this chapter to analyze the motivations behind resistance, and likely future resistance, to the resettlement plan on the part of those communities being resettled from the LNP. I argue that residents' resistance of the resettlement plan is directly connected to its spatial and social reorganization of cattle rearing and emerges from two inter-connected issues. The first has to do with the perceived, potential, and real losses to cattle and cattle-based

livelihoods. Residents' concerns are primarily focused on the loss of grazing land resulting from the resettlement plan and the loss of cattle itself due to theft. These concerns are not mere perceptions held by community members, but are indeed real problems emerging from attempts to re-organize cattle rearing and integrate communities into more urban and accessible locales. The second source of refusal is what Jones (2012) refers to as a "zone of contact." A zone of contact is where the ways of seeing, knowing, and being and the plans and practices of the state interact with "alternative ways of seeing, knowing, and being" held by people (Ibid, pg. 687). In the case of the resettlement plan, this interaction is again centred on cattle rearing and cattle-based livelihoods. At its most basic, the ways in which the resettlement plan envisions and understands cattle-based livelihoods and how it expects communities to "be" with cattle conflicts with the understanding and ways of being with cattle held by communities. This is in part responsible for the real, perceived, and potential negative implications that resettlement holds for cattle and related livelihoods.

There is also a broader zone of contact that characterizes the resettlement plan as a whole, and that leads to the misalignment of costs and benefits resulting from resettlement. Specifically, residents' perception and experience of the resettlement plan is through the lens of what it means for their most important asset, the basis of their livelihoods, and a large part of their culture, cattle. This, however, is not the same lens used by those who designed, envisioned, and are in charge of resettlement.

Thus, in keeping with the overarching theme of this thesis, I highlight how resistance to the resettlement plan that is currently occurring and likely to occur in the

near future is intimately tied to nonhumans, specifically cattle. A comprehensive understanding of this resistance cannot be fully understood without bringing the nonhuman into the analysis. While I do not make the same argument as in Chapter 4 about animal agency, cattle and the way in which they are entangled in people's lives, the resettlement plan, and ideas about well-being, security, and development are necessary to understanding the zones of contact that motivate resistance. Indeed, not understanding the place and importance of cattle is precisely what underlies resident's resistance in the first place and puts the resettlement plan in jeopardy.

By adopting the notion of spaces of refusal and bringing it into a discussion of conservation-induced displacement, I go beyond bringing in the nonhuman to offer a more nuanced understanding of resistance to resettlement. Complementing some of the more influential work on resistance to resettlement and national parks (Neumann, 1998; Brockington, 2002; Dowie, 2009), and of peasants more generally (Scott, 1985, 2009), I show that not all resistance, or acts that subvert the state are politically motivated or political in nature. Indeed, residents' resistance of the LNP's resettlement plan has much more to do with minimizing losses and negative impacts tied to the well-being of their cattle, and ultimately their own well-being. Furthermore, I bring in an important cultural element that underlies how resettlement is understood. This contributes to our understanding of why communities resist that moves beyond, yet is still connected to, material losses. Second, my analysis also reveals how resisting resettlement does not necessarily mean actions taken to prevent removal from the park in the first place.

Communities in the SRV, like Massingir Velho and Nanguene, accept their removal and resettlement, yet do not accept the resettlement plans that await them.

From spaces of refusal also comes hope with respect to resettlement planning, as there is a lesson to be learned. Learning from these zones of contact and losses having to do with cattle means that resistance can be avoided. In the case of the LNP, this means re-thinking resettlement to adjust for the realities of cattle-based livelihoods and aligning resettlement plans with the ways of seeing, knowing, and being with cattle and cattle-rearing held by communities like Massingir Velho. In other contexts around the globe this may not have anything to do with cattle, but the same principle applies as zones of contact, whether they be about cattle or not, can be avoided. This is not, however, an endorsement of resettlement or conservation-induced displacement. Just because communities accept their removal from the park in the sense that they are not actively trying to prevent it does not mean that they are in favour of resettlement. Indeed, my many conversation with residents of Massingir Velho are quite conclusive in the fact that they are not happy about being removed from the park as they would much rather continue their lives where they are. However, in cases where displacement and resettlement are occurring, understanding the realities of these zones of contact and their important nonhuman elements can hopefully lead to a better co-existence between conservation initiatives, realities of resettlement, and communities affected by both. In the case in question, this would prove not only beneficial for communities and their cattle, and ultimately the well-being of those being forced to move, but for the resettlement plan and the broader future of the Limpopo National Park. Indeed, it would

ensure that resettlement adequately addresses the needs of those being resettled thereby limiting resistance and feelings of resentment towards the park and conservation more generally.

Chapter Six – Conclusion

While analyses of conservation-induced displacement has long been a mainstay of political ecology (Neumann, 1998; Brockington, 2002; Brockington & Igoe, 2006; Agrawal & Redford, 2009), I have approached the issue from a different lens, a more-than-human lens. I start from the assumption that nonhumans and the ways in which they are entangled in different networks do contribute to, or have a role to play in displacement and resettlement from the LNP and elsewhere. This is in keeping with a strong, and growing body of work on more-than-human geographies and post-human political ecologies that assert the importance of nonhuman actors in socio/political-ecological processes (Emel et al., 2002; Mitchell, 2002; Whatmore, 2002; Braun, 2004; Hobson, 2007; Sundberg, 2011; Hovorka, 2012). As such, I engage in an ontological shift that seeks to bring wildlife and cattle more fully into our understanding of these processes, namely the displacement and removal of some 7,000 people from the interior of the LNP and their subsequent resistance to resettlement. Indeed, whether through wildlife's contribution to the production of insecure space, the need to protect them, the ways in which wild and domestic animals are imbued with value and meaning, the place cattle hold in people's livelihoods and culture, and the networks in which each are embedded, nonhuman animals matter.

Starting with a brief overview of the LNP and outlining my conceptual framework, Chapter 1 set the stage for the thesis and the analysis that follows. Built around three main bodies of literature – biosecurity, post-structural political ecology, and resistance literature – I pull each into conversation with the others, complement, and add

to the respective literatures. The result is a more nuanced understanding of conservation-induced displacement and resettlement that places wildlife, cattle, and their respective species-species and species-human relations at the centre.

Chapter 2 explains how I collected my data by elaborating on my research design and methodology based largely on qualitative and ethnographic-based methodologies. Splitting my time between the village of Massingir Velho located in the interior of the LNP, known as the SRV, and talking to key informants from the LNP and government institutions, my research and subsequent analysis revolves around a case-study of Massingir Velho in the context of the LNP, the broader GLTP, and the encompassing region more generally. Chapters 3 - 5 consisted of my original analysis and conclusions. It is in these chapters where I addressed my over-arching objective detailed above and the following guiding questions:

1. In what ways are nonhuman subjects, namely wildlife and cattle, implicated in the displacement and removal of communities from the Shingwedzi River Valley?
2. How does the focus on animal subjects, the socio-material networks in which they are integrated, and the relations between them reveal distinct processes of power inherent in wildlife conservation and displacement, and how are they shaped by them?
3. How does cattle inform and shape resistance to resettlement and the resettlement plan?

The establishment of the GLTP and the subsequent removal of sections of the international border fence, the translocation of thousands of large mammals, and the inability of residents to defend their livestock from predators because of park legislation have produced an insecure space for cattle in the SRV. This insecurity is characterized by

biosecurity risks of livestock predation and disease transmission from wild ungulates to cattle that have emerged with the transformation of networks in which wildlife and livestock are embedded and interact with each other. Literature on biosecurity has extensively documented relations between subjects, both human and nonhuman, revealing how risks and insecure space are an emergent phenomenon stemming from mediations of these relations and the networks in which each are embedded (Lulka, 2004; Braun, 2007; Bingham et al., 2008; Donaldson, 2008; Collard, 2012).

The risks in the SRV extend beyond cattle to affect human health, livelihoods, and economies. As such, there is an imperative to minimize these risks – an imperative that is used in part to justify the removal of communities from the SRV. Conservation-induced displacement, then, can be partially understood as a biosecurity intervention whereby cattle and people are essentially removed from the network in which biosecurity risks emerge. Indeed, this is one way of reducing human-wildlife conflict. But why solve the problem in this way, as opposed to either preventing the SRV from becoming an insecure space to begin with, or taking actions to making it more secure, both of which are occurring in the park's buffer zone?

It is here where we start to see power relations at work in animal-animal and animal-human relations. These relations underlie much of how biosecurity and ultimately displacement are occurring in the SRV. In short, wildlife have come to be privileged and occupy a status superior to that of cattle in the SRV. Wild animals thus have power over domestic animals and even residents living in the SRV that is evidenced by human-wildlife conflict that residents are unable to defend their livestock and crops from, the

opening up of areas and resources for wildlife, and the taking over and ultimate re-territorialization of certain spaces by wildlife that ultimately lead to displacement on small and large scales. In the competition for space and resources, wildlife have the upper hand.

Of course, any species, wild or domestic, like other actors, do not operate or exist on their own as completely distinct and autonomous entities (Latour, 1993; 2005; Whatmore, 2002). Rather, they are entangled in networks – networks that invest in them value and meaning tied to certain interests that are more or less powerful in relation to others. It is here where I locate the agency of wildlife in contributing to conservation-induced displacement. Wild animals exist in a network of human-tourism-conservation-wildlife-wilderness that trumps the network of human-livestock-agriculture-rural livelihoods in which we find cattle. It is thus less about wild animals vs. domestic animals, and more of a “wild” network vs. a “domestic” network that contributes to human-wildlife conflict, the transformation of the SRV, and ultimately the displacement of communities and their livestock. Because of their positionalities in these respective networks, wild animals are privileged over domestic animals in the SRV, as it is being “opened-up” and transformed into a space of “wilderness” via multiple material and discursive practices. It is here where a post-structural political ecology and biosecurity framework work in tandem to help broaden our understanding of biosecurity and conservation-induced displacement and how they operate.

Indeed, a promising area for future research is precisely biosecurity itself in combination with political-ecology. The bridging of these two approaches could provide

valuable insight into other biosecurity contexts, conservation or otherwise, to reveal how power works across scale through different entities and networks, especially with regards to species-species and species-human entanglements. For instance, I upset the biosecurity hierarchy and the presumption in the literature that biosecurity is about controlling the threat. In what other contexts might this be happening? And what does this mean for communities and their livelihoods more broadly with the increasing overlap of conservation and livelihood spaces, and specifically the rise and push for ever larger and more expansive inter-connected conservation spaces across political boundaries?

Perhaps though, thinking about these spaces can be done in a different, more productive way by conceptualizing them less as particular types of *spaces* than as *networks*. While not the focus of the thesis per se, I make an attempt to do so by conceptualizing displacement from the SRV as one network (human-tourism-conservation-wildlife-wilderness) taking over and displacing another (human-livestock-agriculture-rural livelihoods), with all of the independent entities within in it as well. However, there is room and reason to strengthen this conceptualization and see how it can be used in different and productive ways. Such a networked approach to thinking about certain spaces and relations within them would be especially useful in multi-scalar and interdisciplinary contexts that tend to characterize political-ecological research.

With displacement and resettlement often comes resistance. Resistance is often tied to the fears and reality of losses and hardships incurred, such as loss of access to resources (Dwivedi, 1999; Schmidt-Soltau, 2003). Hence, the target of resistance is often on preventing removal (Brockington, 2002; Dowie, 2009). In the case of the LNP, resistance

is occurring, but it is not aimed at preventing removal, but at refusing the resettlement plan and what it entails, especially when it comes to the spatial and social re-organization of cattle-rearing and cattle-based livelihoods. Here my analysis comes back to cattle and highlights the importance of taking the nonhuman seriously in political-ecological research. Indeed, the place and influence of cattle and the ways in which people are entangled with them in cultural and material ways is central to understanding what motivates people in the LNP to resist the resettlement plan.

While I move away from questions of agency and relations between nonhumans, a focus on cattle helps us to understand why resistance is occurring and where it comes from. First, communities are concerned about material losses that affect the well-being of their herds and their cattle-based livelihoods. Such losses pertain to grazing space and a loss of cows to theft. Second, and going outside of political ecology, I adopt the notion of spaces of refusal (Jones, 2012). In doing so I highlight a cultural realm to resistance less talked about in the literature on conservation-induced displacement and resistance. This cultural realm again concerns the nonhuman as I focus on zones of contact (Jones, 2012) whereby the resettlement plan's ways of seeing, knowing, and being with cattle are at odds with those of residents. This point of friction not only further helps to explain why residents specifically, and communities in general resist the resettlement plan, but why there are negative material impacts on cattle-based livelihoods in the first place. Quite simply, resistance of the resettlement plan is intimately tied to cattle in material and cultural ways.

This analysis of resistance further re-enforces the need to take nonhumans seriously in the context of the LNP and elsewhere, and not just from a scholarly or theoretical point of view either. Indeed, a failure to understand the importance of cattle and how people live with them on the part of practitioners, and park and government officials is precisely what has contributed to resistance. It also threatens to undermine the resettlement plan, people's livelihoods, and further strain relations between communities on the one hand, and the state, park, and conservation on the other.

The findings of my research do not contradict or entail the throwing out of previous work to some of the common questions of political ecology having to do with conservation, protected area establishment, human-environment relations, and ultimately displacement. I would even hesitate to say that I offer an *alternative* explanation or understanding. To be sure, I see my research as building off of and contributing to, as opposed to contradicting or competing with what has come before me. My research would not be possible without the insights gained from what others have already written. What I hope my research has done is illuminate how giving more space and attention to nonhumans can augment our understanding of some of the phenomenon that political ecologists, geographers, and others have called attention to in the past and continue to do so today. Not only does this have practical and empirical value, such as with the case of resettlement planning and addressing the problem of human-wildlife conflict, but it has the potential to make important theoretical contributions as well by adding nuance and different layers to our understanding of displacement, human-wildlife conflict, resistance, and biosecurity.

Displacement, and the removal of communities are, as many have pointed out, tied to tourism and conservation objectives driven by humans (Neumann, 1998; Brockington, 2002; Dowie, 2009). Yet such interests do not act in isolation or on their own, and they are not void of important nonhuman influences and contributions. A focus on wildlife and cattle in this case allows us to understand displacement in a more networked sense, as something that emerges from the interaction and competition between different networks of heterogeneous actors and processes, human and nonhuman alike. Conservation-induced displacement and resettlement is thus a hybrid-geography of sorts, or, at the very least, it is most definitely a more-than-human geography. Not acknowledging this risks a less than holistic understanding of conservation efforts, displacement, and resettlement, as well as other processes – political, social, ecological and everywhere in between.

Coda: Recent Developments in the GLTP and LNP

My period of field research ended in September of 2012. Since then, some important issues have arisen with regards to the LNP and GLTP. Arguably of most importance is the continued increase in rhino poaching in South Africa – the vast majority of which is occurring in Kruger – and related efforts aimed at addressing the problem. To date there have been over 446 rhinos killed in South Africa in 2013, with at least 280 of these poaching incidents occurring in Kruger (SANParks, 2013). This high rate of poaching is a trend that started back in 2008, and has been worsening since. Importantly, this dramatic increase in rhino poaching is connected to both the GLTP and relocation.

The large majority of poachers responsible for killing rhinos in Kruger come from Mozambique. Men are recruited from villages within (and near) the LNP by middle-men who work between them and the buyers and exporters of rhino horn. The men cross on foot into Kruger, shoot a rhino, cut off its horn, and then return across the border to Mozambique where security forces in Kruger are not able to follow and where anti-poaching legislation and enforcement is lax. What has recently become clear is that rhino poaching provides a new rationale for the relocation of communities in the interior of the LNP.

While coming to light after my research, this is an issue worth taking note of and commenting on as it has shifted much of the discourse surrounding relocation, which now includes the need to remove communities as a way to reduce rhino poaching (News24, 2013). The argument is that as long as villages remain in the LNP it is too easy for them to cross into Kruger to kill a rhino and return, as many of these villages are only 20 kms away from the border separating the two parks. With relocation, communities will be much further away from the border, and thus Kruger and its rhinos²⁵. Furthermore, a fence will be built between the park and resettled communities “to protect the park from incursions” (Yeld, 2013). Whether or not this is referring to the same barrier fence as mentioned in Chapter 4 is, for the moment, unknown. Second, as long as communities are living in the park, they are, of course, *allowed* to be in the park. This makes law enforcement and the apprehension of poachers quite difficult, as rangers cannot simply

²⁵ Distance to the border and Kruger depends on the site of relocation, but most will be anywhere from 50 to 80 kms away from the international border after resettlement.

apprehend people walking in the park. Anyone caught walking could be going to visit another village, or be looking for a lost cow. Once removed, anyone caught walking in the bush of the park can automatically be apprehended and prevented from crossing into Kruger.

Like biosecurity, this is a new dimension to relocation that is relatively unexplored in work on political ecology and political geography; that is the use of relocation as an anti-poaching strategy to deal with a *specific* poaching crisis. It is also – once again like biosecurity – a de-politicized argument that is employed to justify the relocation of communities. Similar to the argument I put forward in my thesis with regards to the removal of communities, this new rationale for removing communities is also intimately linked to the GLTP as a transfrontier space. One rationale for resettlement is that dangerous animal bodies are moving from Kruger to the LNP and endangering livestock, people, and agricultural based livelihoods. A new rationale is that dangerous human bodies are crossing from the LNP into Kruger and endangering rhino populations. The cross-border movement of bodies in a conservation space is thus central to the discourses of community relocation whether it is for protecting them and their livestock, or specific animal populations.

Bibliography

- Adams, W. (2003). Nature and the colonial mind. In W. Adams, and M. Mulligan (Eds.) *Decolonizing Nature: Strategies for Conservation in a Post-Colonial Era* (pp. 16-50). London, Earthscan.
- Adams, W. & Hutton, J. (2007). People, parks and poverty: Political ecology and biodiversity conservation. *Conservation and Society*, 5(2), pp. 147-183.
- Agrawal, A., & Redford, K. (2009). Conservation and displacement: An overview. *Conservation and Society*, 7(1), 1.
- AHEAD-GLTFCA. (2013). The AHEAD-GLTFCA Monthly Newsletter. Update on the Limpopo National Park. February, 2013. AHEAD-GLTFCA.
- Ali, S. H. (2007). *Peace parks: conservation and conflict resolution*: Cambridge, MA: MIT Press.
- Amoore, L. (2006). Biometric borders: Governing mobilities in the war on terror. *Political geography*, 25(3), 336-351.
- Barker, K. (2008). Flexible boundaries in biosecurity: accommodating gorse in *Aotearoa* New Zealand. *Environment and Planning A*, 40(7), 1598-1614.
- Barker, K. (2010). Biosecure citizenship: politicising symbiotic associations and the construction of biological threat. *Transactions of the Institute of British Geographers*, 35(3), 350-363.
- Benjaminsen, T. A., & Bryceson, I. (2012). Conservation, green/blue grabbing and accumulation by dispossession in Tanzania. *Journal of Peasant Studies*, 39(2), 335-355.
- Bingham, N., Enticott, G., & Hinchliffe, S. (2008). Biosecurity: spaces, practices, and boundaries. *Environment and Planning A*, 40(7), 1528-1533.
- Blaikie, P., & Brookfield, H. (1987). *Land degradation and society*: London: Methuen & Co. Ltd.
- Bonner, R. (1993). *At the hand of man: peril and hope for Africa's wildlife*: Simon and Schuster International Group.
- Brahmbhatt, D. P., Fosgate, G. T., Dyason, E., Budke, C. M., Gummow, B., Jori, F., et al. (2012). Contacts between domestic livestock and wildlife at the Kruger National Park Interface of the Republic of South Africa. *Preventive veterinary medicine*, 103(1), 16-21.
- Braun, B. (2004). Querying posthumanisms. *Geoforum*, 35(3), 269-273.
- Braun, B. (2007). Biopolitics and the molecularization of life. *Cultural Geographies*, 14(1), 6-28.
- Braun, B. (2009). Nature. In N. Castree, D. Demeritt, D. Liverman and B. Rhoads (Eds.) *A Companion to Environmental Geography* (pp.19-36). West Sussex, UK: Blackwell Publishing Ltd.
- Brockington, D. (2002). *Fortress conservation: the preservation of the Mkomazi Game Reserve, Tanzania*: Bloomington, Indiana: Indiana University Press.
- Brockington, D., & Duffy, R. (2010). Capitalism and conservation: the production and reproduction of biodiversity conservation. *Antipode*, 42(3), 469-484.
- Brockington, D., & Igoe, J. (2006). Eviction for conservation: A global overview. *Conservation and Society*, 4(3), 424.
- Brockington, D., & Schmidt-Soltau, K. (2004). The social and environmental impacts of wilderness and development. *Oryx*, 38(2), 140-142.
- Brosius, J. P. (1999). Analyses and interventions - Anthropological engagements with environmentalism. *Current Anthropology*, 40(3), 277-309.
- Bruckner, G., Vosloo, W., Plessis, B., Kloock, P., Connaway, L., Ekron, M., et al. (2002). Foot and mouth disease: the experience of South Africa. *Revue scientifique et technique-Office international des épizooties*, 21(3), 751-761.
- Buller, H. (2008). Safe from the wolf: biosecurity, biodiversity, and competing philosophies of nature. *Environment and Planning A*, 40(7), 1583-1597.

- Büscher, B., & Schoon, M. (2009). Competition over conservation: collective action and negotiating transfrontier conservation in southern Africa. *Journal of International Wildlife Law & Policy*, 12(1-2), 33-59.
- Callon, M. (1986). Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fishermen of St. Briec Bay. In J. Law (Ed.) *Power, Action and Belief: A New Sociology of Knowledge*. London: Routledge.
- Carruthers, J. (1995). *The Kruger National Park: a social and political history*. Pietermaritzburg: University of Natal Press.
- Castree, N. (2002). False antitheses? Marxism, nature and actor-networks. *Antipode*, 34(1), 111-146.
- Cernea, M. M. (2005). Population displacement inside protected areas: A redefinition of concepts in conservation politics. *Policy Matters*, 14, 8-26.
- Cernea, M. M. (2006). Re-examining "displacement": A redefinition of concepts in development and conservation policies. *Social Change*, 36(1), 8-35.
- Collard, R. (2012). Cougar-human entanglements and the biopolitical unmaking of safe space. *Environment and Planning D: Society and Space*, 30, 23-42.
- Corson, C. (2011). Territorialization, enclosure and neoliberalism: non-state influence in struggles over Madagascar's forests. *Journal of Peasant Studies*, 38(4), 703-726.
- Costa, R. (2008). Foot and mouth disease situation in Mozambique: Development of an epidemiological network for monitoring the dynamics of Foot-and-Mouth Disease within the GLTFCA. Kick-off meeting February 28th and 29th, Pilansberg National Park, South Africa.
- Cronon, W. (1996). The trouble with wilderness: or, getting back to the wrong nature. *Environmental History*, 1(1), 7-28.
- Cumming, D. H. M. (2004) *Sustaining Animal Health and Ecosystem Services in Large Landscapes*. 2nd Draft, March 2004. Concept for a Programme to Address Wildlife, Livestock and Related Human and Ecosystem Health Issues in the Greater Limpopo Trans-frontier Conservation Area. 24pp. Prepared on behalf of the AHEAD-GLTFCA Working Group and the Wildlife Conservation Society.
http://www.wcs-agead.org/workinggrps_limpopo.html
- Desncombe, M. (2007). *The Good Research Guide for Small-scale Social Research Projects*. Third Edition. New York, NY: Open University Press.
- de Garine-Wichatitsky, M., Miguel, E., Cornélis, V., Grosbois, F., Foggin, C., Jori, F., Hofmeyr, M., Caron, A. (2011). Contacts between domestic cattle and African buffalo in the Great Limpopo Transfrontier Conservation Area: potential for disease spread. Savanna Science Network Meeting, 14-18 of March 2011, KNP, South Africa.
- De Vos, V., Bengis, R. G., Kriek, N., Michel, A. L., Keet, D., Raath, J., et al. (2001). The epidemiology of tuberculosis in free-ranging African buffalo (*Syncerus caffer*) in the Kruger National Park, South Africa.
- Dillon, M. (2007). Governing Terror: The State of Emergency of Biopolitical Emergence. *International Political Sociology*, 1(1), 7-28.
- Dillon, M., & Lobo-Guerrero, L. (2008). Biopolitics of security in the 21st century: an introduction. *Review of International Studies*, 34(2), 265-292.
- Donaldson, A. (2008). Biosecurity after the event: risk politics and animal disease. *Environment and Planning A*, 40(7), 1552-1567.
- Donaldson, A., & Wood, D. (2004). Surveilling strange materialities: categorisation in the evolving geographies of FMD biosecurity. *Environment and Planning D-Society & Space*, 22(3), 373-391.

- Dowie, M. (2009). *Conservation refugees: The hundred-year conflict between global conservation and native peoples*: Cambridge, MA: MIT Press.
- Dowling, R. (2005). Power, subjectivity, and ethics in qualitative research. In Ian Hay (ed.). *Qualitative Research Methods in Human Geography*. (pp. 19-29). Oxford University Press. Australia.
- Dressler, W., & Büscher, B. (2008). Market triumphalism and the CBNRM 'crises' at the South African section of the Great Limpopo Transfrontier Park. *Geoforum*, 39(1), 452-465.
- Duffy, R., & Moore, L. (2010). Neoliberalising Nature? Elephant-Back Tourism in Thailand and Botswana. *Antipode*, 42(3), 742-766.
- Du Toit, J.T., Sinclair, A. R., Walker, B., Biggs, H. C., & Rogers, K. H. (2003). *The Kruger experience: ecology and management of savanna heterogeneity*: Washington, D.C.: Island Press.
- Dwivedi, R. (1999). Displacement, risks and resistance: Local perceptions and actions in the Sardar Sarovar. *Development and Change*, 30, 43-78.
- Emel, J., Wilbert, C., & Wolch, J. (2002). Animal Geographies. *Society and Animals*, 10(4), 407-412.
- England, K. (1994). Getting personal: reflexivity, positionality, and feminist research. *The Professional Geographer*, 46(1), 80-90.
- Enticott, G. (2008). The spaces of biosecurity: prescribing and negotiating solutions to bovine tuberculosis. *Environment and Planning A*, 40(7), 1568-1582.
- Escobar, A. (1996). Construction nature: Elements for a post-structuralist political ecology. *Futures*, 28(4), 325-343.
- FAO. (2003). *Biosecurity in Food and Agriculture*. Committee on Agriculture 17th Session. Rome, 31 March To 4 April, 2003.
- Ferguson, K., & Hanks, J. (2010). Fencing impacts: A review of the environmental, social and economic impacts of game and veterinary fencing in Africa with particular reference to the Great Limpopo and Kavango-Zambezi Transfrontier Conservation Areas. *Pretoria: Mammal Research Institute*.
- Fletcher, R. (2010). Neoliberal environmentalism: Towards a poststructuralist political ecology of the conservation debate. *Conservation and Society*, 8(3), 171.
- Fontana, A. & Frey, J. (2000). The interview: From structured questions to negotiated text. In N. Denzin, and Y. Lincoln, (eds.) *Handbook of Qualitative Research, Second Edition*. London: Sage Publications, Inc.
- Geisler, C. (2003). A new kind of trouble: evictions in Eden. *International Social Science Journal*, 55(175), 69-78.
- Geoghegan, C. (2010). Pathogens, parks and people: Assessing the role of disease in Trans-frontier conservation area development. Final Seed Grant Report, 2009/10 prepared for the Animal and Human Health for the Environment and Development Great Limpopo Transfrontier Conservation Area.
- Ghimire, K. B. (1994). Parks and people: livelihood issues in national parks management in Thailand and Madagascar. *Development and Change*, 25(1), 195-229.
- Gilbert, E. (2007). Leaky borders and solid citizens: governing security, prosperity and quality of life in a North American partnership. *Antipode*, 39(1), 77-98.
- GLTP. (2002). The Great Limpopo Transfrontier Park Management Plan. Great Limpopo Transfrontier Park.
- Goldman, M. (2009). Constructing connectivity: conservation corridors and conservation politics in East African rangelands. *Annals of the Association of American Geographers*, 99(2), 335-359.
- GoM. (1997). Land Law Regulations. Decree 66/98 of 8 December. Chapter III. *Government Of Mozambique*.

- Hanks, J. (2003). Transfrontier Conservation Areas (TFCAs) in Southern Africa. *Journal of Sustainable Forestry*, 17(1-2), 127-148.
- Haraway, D. (2008). *When Species Meet*. Minneapolis MN: University of Minnesota Press.
- Hinchliffe, S., & Bingham, N. (2008). Securing life: the emerging practices of biosecurity. *Environment and Planning A*, 40(7), 1534-1551.
- Hobson, K. (2007). Political animals? On animals as subjects in an enlarged political geography. *Political Geography*, 26(3), 250-267.
- Horowitz, L. S. (1998). Integrating indigenous resource management with wildlife conservation: A case study of Batang Ai National Park, Sarawak, Malaysia. *Human Ecology*, 26(3), 371-403.
- Hovorka, A. (2012). Women/chicken vs. men/cattle: Insights on gender-species intersectionality. *Geoforum*, 43(2012), 875-884.
- Huchzermeyer, H., Bruckner, G., Van Heer-Den, A., Kleeberg, H., Van Rensburg, I., Koen, P., & Loveday, R. (1994). Tuberculosis. In A. Coetzer, Thomson, G., and R. Tustin (Eds.), *Infectious diseases of livestock with special reference to southern Africa*. Cape Town: Oxford University Press: pp. 1425-1444.
- Hutton, J., Adams, W. M., & Murombedzi, J. C. (2005). *Back to the barriers? Changing narratives in biodiversity conservation*. Paper presented at the Forum for Development Studies.
- Igoe, J., & Brockington, D. (2007). Neoliberal conservation: A brief introduction. *Conservation and Society*, 5(4), 432.
- Igoe, J., Neves, K., & Brockington, D. (2010). A spectacular eco-tour around the historic bloc: Theorising the convergence of biodiversity conservation and capitalist expansion. *Antipode*, 42(3), 486-512.
- IIRR. (1998). *Participatory Methods in Community-Based Coastal Resource Management*. 3 vols. International Institute of Rural Reconstruction, Silang, Cavite, Philippines.
- IUCN. (2005). IUCN guidelines for the prevention of biodiversity loss caused by alien invasive species. Information Paper on the Fifth Meeting of the Conference of the Parties to the Convention on Biological Diversity, Nairobi, Kenya May 15-26 2000. The World Union for Conservation (IUCN). May 2000.
- Jones, S. (2006). A political ecology of wildlife conservation in Africa. *Review of African Political Economy*, 33(109), 483-495.
- Jones, R. (2012). Spaces of Refusal: Rethinking sovereign power and resistance at the border. *Annals of the Association of American Geographers*, 102(3), 685-699.
- King, B. (2009). Conservation Geographies in Sub-Saharan Africa: The Politics of National Parks, Community Conservation and Peace Parks. *Geography Compass*, 4(1), 14-27.
- King, B., & Wilcox, S. (2008). Peace Parks and jaguar trails: transboundary conservation in a globalizing world. *GeoJournal*, 71(4), 221-231.
- Latour, B. (1993). *We have never been modern*: Cambridge, MA. Harvard University Press.
- Latour, B. (1999). *Pandora's hope: essays on the reality of science studies*: Harvard University Press.
- Latour, B. (2003). Is re-modernization occurring-and if so, how to prove it? A commentary on Ulrich Beck. *Theory, culture & society*, 20(2), 35-48.
- Latour, B. (2005). *Reassembling the Social-An Introduction to Actor-Network-Theory*. Oxford: Oxford University Press.
- Lebel, S. (2011). *Mission report in Mozambique. Short-term consultancy in human-wildlife conflicts resolution in the Limpopo National Park*. Buffer zone community development programme. Massingir, March 30 – April 21, 2011. First report, May 2011.
- Lebel, S. and La Grange, M. (2011). *Mission report in Mozambique. Short-term consultancy in human-wildlife conflicts resolution in the Limpopo National Park, Second Part*. Buffer zone community development programme. Massingir, November 7 – 19, 2011. Second

Report.

- LNP. (n/a) Limpopo National Park Management and Development Plan. Draft. Limpopo National Park. Massingir, Mozambique.
- LNP. (2008). Resettlement of people living in the Shingwedzi River Valley: Resettlement action plan for Macavane Village. Draft. April 4 2008. Limpopo National Park Resettlement Programme. Park Headquarters, Macavane.
- LNP. (2010). Limpopo National Park Helicopter Census: 12th to 19th of November 2010. *Limpopo National Park*.
- LNP. (2010b). Aldeias do Parque Nacional do Limpopo. July 2010, *Limpopo National Park*.
- LNP. (2010c). Limpopo National Park Annual Report 2010. *Limpopo National Park*.
- LTP. (2011). Livestock security focusing on the target areas of the Limpopo Transboundary Programme. Report on the regional seminar on livestock security held at Hakamela, Malilangwe, Chiredzi Zimbabwe. *Limpopo Transboundary Programme*.
- Lulka, D. (2004). Stabilizing the herd: fixing the identity of nonhumans. *Environment and Planning D-Society & Space*, 22(3), 439-463.
- Lunstrum, E. (2008). Mozambique, neoliberal land reform, and the Limpopo National Park. *Geographical Review*, 98(3), 339-355.
- Lunstrum, E. (2009). Terror, Territory, and Deterritorialization: Landscapes of Terror and the Unmaking of State Power in the Mozambican "Civil" War. *Annals of the Association of American Geographers*, 99(5), 884-892.
- Lunstrum, E. (2010). Reconstructing history, grounding claims to space: History, memory, and displacement in the Great Limpopo Transfrontier Park. *South African Geographical Journal*, 92(2), 129-143.
- Lunstrum, E. (2013). Articulated sovereignty: Extending Mozambican state power through the Great Limpopo Transfrontier Park. *Political Geography*, 36(2013), 1-11.
- Marshall, L. (2013). Worsening rhino war strains countries' relations. *National Geographic*, April 30th, 2013. Available at <http://newswatch.nationalgeographic.com/2013/04/30/worsening-rhino-war-strains-countries-relations%E2%80%A8%E2%80%A8%E2%80%A8/>. Last accessed May 8th 2013.
- Major, C. (2008). Affect work and infected bodies: biosecurity in an age of emerging infectious disease. *Environment and Planning A*, 40(7), 1633-1646.
- Mbeki, T. (2006). Address by the President of the Republic of South Africa, T. Mbeki, at the opening of the Giryondo access facility, the Great Limpopo Transfrontier Park, South Africa and Mozambique, 16 August 2006. Available from <http://www.dfa.gov.za/docs/speeches/2006/mbek0816.htm> [last accessed June 6th 2013].
- Metcalfe, S., & 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. *The Journal of Environment & Development*, 17(2), 99-117.
- Michel, A. L. (2002). Implications of tuberculosis in African wildlife and livestock. *Annals of the New York Academy of Sciences*, 969(1), 251-255.
- Michel, A. L., Bengis, R. G., Keet, D., Hofmeyr, M., Klerk, L. d., Cross, P. C., et al. (2006). Wildlife tuberculosis in South African conservation areas: implications and challenges. *Veterinary microbiology*, 112(2), 91-100.
- Milgroom, J., & Spierenburg, M. (2008). Induced volition: Resettlement from the Limpopo National Park, Mozambique. *Journal of Contemporary African Studies*, 26(4), 435-448.
- MINAG & MINTUR. (2007). Wildlife veterinary activities in Limpopo National Park: Rapid assessment study and workshop. Draft. Chokwe, May 31st – June 2nd 2007. Ministry of

- Agriculture and Ministry of Tourism.
- Mitchell, T. (2002). Can the mosquito speak? In T. Mitchell, *Rule of Experts: Egypt Techno-politics, Modernity* (pp. 19-53). Berkely, CA: University of California Press.
- Moore, D. S. (2005). *Suffering for territory: Race, place, and power in Zimbabwe*: Cambridge Univ Press.
- Munthali, S. M. (2007). *Transfrontier conservation areas: Integrating biodiversity and poverty alleviation in Southern Africa*. Paper presented at the Natural resources forum.
- N.A. (2002). Workshop on Community Options for Livelihoods in Limpopo National Park. February 27th 2002, Maputo, Mozambique.
- Naughton-Treves, L., and A. Treves. (2005). Socio-ecological factors shaping local attitudes to wildlife in rural Africa. In Woodroffe, R. et al. (eds) *People and Wildlife: Conflict and Coexistence*. pp. 253-277. Cambridge University Press.
- Neumann, R. P. (1996). Dukes, earls, and ersatz Edens: aristocratic nature preservationists in colonial Africa. *Environment and Planning D*, 14, 79-98.
- Neumann, R. P. (1998). *Imposing wilderness: Struggles over livelihood and nature preservation in Africa*. Berkely, CA: University of California Press.
- Neumann, R. P. (2001). Africa's 'last wilderness' reordering space for political and economic control in colonial Tanzania. *Africa*, 71(4), 641-665.
- Neumann, R. P. (2004). Moral and discursive geographies in the war for biodiversity in Africa. *Political Geography*, 23(7), 813-837.
- Neumann, R.P. 2004a. Nature-state-territory: Towards a critical theorization of conservation enclosures. In R. Peet, and M. Watts (Eds.) *Liberation Ecologies: Environment, Development, Social Movements* (pp. 179-199). London, UK: Routledge.
- Neumann, R. P. (2005). *Making Political Ecology: Human Geography in the Making*: New York: Oxford University Press.
- Noe, C. (2010). Spatiality and “borderlessness” in transfrontier conservation areas. *South African Geographical Journal*, 92, 144–159.
- News24. (2013). Rhino Poaching: Ministers in ‘Frank’ Talks. June 15th 2013. *News24*. Available at <http://www.news24.com/Green/News/Rhino-poaching-Ministers-in-frank-talks-20130615#>. Last accessed 9/07/2013.
- OIE. (2003). The Terrestrial Animal Health Code. Paris, Office International des Epizooties
- OIE. (2006). Mozambique country report for 2006. *Animal Health Information Department – World Organization for Animal Health*.
- OIE. (2009). Theileriosis technical disease card. *World Organization for Animal Health (OIE)*. Paris, France. Available at [http://www.oie.int/fileadmin/Home/eng/Animal Health in the World/docs/pdf/THEILERIOSIS_FINAL.pdf](http://www.oie.int/fileadmin/Home/eng/Animal_Health_in_the_World/docs/pdf/THEILERIOSIS_FINAL.pdf)
- OIE. (2012). Information received on 19/06/2012 from Dr Bothle Michael Modisane, Chief Director , Department of Agriculture, Forestry and Fisheries, Animal Production and Health, PRETORIA, South Africa. World Organization for Animal Health, June 16th 2012. Available at <http://www.oie.int/wahis2/public/wahid.php/Reviewreport/Review?reportid=11986>. Last accessed September 2nd 2012.
- OIE. (2012b). Bovine tuberculosis disease information summary. *World Organization for Animal Health (OIE)*. Paris, France. Available at [http://www.oie.int/fileadmin/Home/eng/Media Center/docs/pdf/Disease cards/BOVINE-TB-EN.pdf](http://www.oie.int/fileadmin/Home/eng/Media_Center/docs/pdf/Disease_cards/BOVINE-TB-EN.pdf)

- OIE. (2012c). Brucellosis disease information summary. *World Organization for Animal Health (OIE)*. Paris, France. Available at http://www.oie.int/fileadmin/Home/eng/Media_Center/docs/pdf/Disease_cards/BCLS-EN.pdf
- OIE. (2012d). Foot and Mouth disease information summary. *World Organization for Animal Health*. Paris, France. Available at http://www.oie.int/fileadmin/Home/eng/Animal_Health_in_the_World/docs/pdf/FMD-EN.pdf
- Olwoch, J. M., Reyers, B., Engelbrecht, F. A., & Erasmus, B. F. N. (2008). Climate change and the tick-borne disease, Theileriosis (East Coast fever) in sub-Saharan Africa. *Journal of Arid Environments*, 72(2), 108-120.
- Peet, R., & Watts, M. (2004). *Liberation ecologies*: New York, NY: Routledge.
- Peluso, N. L. (1993). Coercing conservation?: The politics of state resource control. *Global environmental change*, 3(2), 199-217.
- PNL. (2007). Location of communities and infrastructure. Retrieved from www.limpopopn.gov.mz/. Parque Nacional do Limpopo.
- PNL. (2010). Parque Nacional do Limpopo: Plano Estratégico para a comercialização do turismo. Dezembro 2010. Elaborado para Governo de Moçambique, Ministério do Turismo, Administração do Parque Nacional do Limpopo.
- PNL. (2010b). Aldeias do Parque Nacional Do Limpopo. *Parque Nacional do Limpopo*.
- Ramutsindela, M. (2002). The perfect way to end a painful past? Makuleke land deal in South Africa. *Geoforum*, 33, pp. 15-24.
- Ramutsindela, M. (2004). Glocalisation and Nature Conservation Strategies in 21st-Century Southern Africa. *Tijdschrift voor Economische en Sociale Geografie*, 95(1), 61-72.
- Ramutsindela, M. (2007). *Transfrontier Conservation in Africa: at the confluence of capital, politics and nature*: CABI.
- Rangarajan, M., & Shahabuddin, G. (2006). Displacement and relocation from protected areas: Towards a biological and historical synthesis. *Conservation and Society*, 4(3), 359.
- Robbins, P. (2004). Comparing invasive networks: Cultural and political biographies of invasive species. *Geographical Review*, 94(2), 139-156.
- Robbins, P. (2011). *Political ecology: A critical introduction*. Malden, MA: Blackwell Publishing.
- Roth, R. (2004). Spatial organization of environmental knowledge: conservation conflicts in the inhabited forest of northern Thailand. *Ecology and Society*, 9(3), 5.
- Roth, R. J. (2008). "Fixing" the forest: The spatiality of conservation conflict in Thailand. *Annals of the Association of American Geographers*, 98(2), 373-391.
- Roth, R. J., & Dressler, W. (2012). Market-oriented conservation governance: The particularities of place. *Geoforum*.
- Roth, R., & Morris-Jung, J. (2010). The blurred boundaries of voluntary resettlement: The case of Cat Tien National Park in Vietnam. *Journal of Sustainable Forestry*, 29(2-4), 202-220.
- RPP. (2002). A park for the people? Community consultation in Coutada 16, Mozambique. Report produced for the Refugee Research Programme of the
- SADC. (2008). Achieving compatibility between the Trans-frontier Conservation Area (TFCA) concept and the international standards for the management of Trans-boundary Animal Diseases (TADs). Report of the workshop held at Chobe Marina Lodge, Kasane, Botswana, November 11-14, 2008. South African Development Community (SADC) FMD Project, Gaborone.
- Salas, E. (2011). Parque Nacional do Limpopo. Plano de manejo e desenvolvimento da zona

- tampao. Proposta. Abril 2011. Proposta elaborada pelo Programa de Apoio Comunitário com a assistência técnica de AFD através de AMBERO. Ministerio do Turismo e Direcção Nacional de Áreas de Conservação.
- SANParks. (N/A). GLTP plains game relocations. Available at [http://www.sanparks.org/conservation/veterinary/docs/GLTP Plains Game Relocation Summary.pdf](http://www.sanparks.org/conservation/veterinary/docs/GLTP_Plains_Game_Relocation_Summary.pdf). Last accessed 29/08/2012.
- SANParks. (N/Ab). Transfrontier Parks. Available at <http://www.sanparks.org/conservation/veterinary/about/transfrontier.php>. Last accessed 29/08/2012.
- SANParks. (2006a). Kruger National Park: Park Management Plan. October 2006.
- SANParks. (2006b). Media Release: Minor anthrax outbreak in KNP. June 9th 2006. Available At <http://www.sanparks.org/about/news/default.php?id=199>. Last accessed Feb. 19th 2013.
- SANParks. (2011). South African National Parks (SANParks) Annual Report 2010/2011.
- SANParks. (2012a). Media Release: KNP to demolish its artificial water holes. October 23rd 2012. Available at <http://www.sanparks.org/about/news/default.php?id=55351>. Last accessed December 21st 2012.
- SANParks. (2012b). Media release: KNP to get answer on Bovine Tuberculosis. 07/02/2012. Available at <http://www.sanparks.org/parks/kruger/news.php?id=55212PHPSESSID=4b8bv2mlvsc3p8bjo568tgds36>. Last accessed 29/08/2012.
- SANParks. (2012c). Media Release: Anthrax outbreak in the north of the KNP. 28/09/2012. Available at <http://www.sanparks.org/about/news/default.php?id=55269>. Last accessed 30/08/2012.
- SANParks. (2012d). "Fence line maps" [map]. 1:20. Skukuza, Kruger National Park, SA: SANParks Scientific Services (2012). Map from Sandra Macfadyen, GIS/RS Analyst, Scientific Services, SANParks.
- SANParks. (2013). Media release: Rhino poaching update. June 26th 2013. Available at <http://www.sanparks.org/about/news/default.php?id=55594>. Last accessed 9/07/2013.
- Scheyvens, R., Nowak, B., & Scheyvens, H. (2003). Ethical issues. In R. Scheyvens and D. Storey (Eds.). *Development Fieldwork: A Practical Guide*. (pp. 139-166). SAGE Publications Ltd. Thousand Oaks, California.
- Schiebe, K. (2009). Behaviour of wild animals against humans in reservations, sanctuaries, and hunted areas – review and theoretical approach. In. J. Harris, & P. Borwn (Eds.) *Wildlife: Destruction, Conservation and Biodiversity* (pp. 223-237). New York, NY: Nova Science Publishers Inc.
- Schutt, R. (2009). *Investigating the Social World: The Process and Practice of Research. Sixth Edition*. Thousand Oaks, California: Pine Forge Press,
- Scott, J. (1985). *Weapons of the weak: Everyday forms of peasant resistance*. Yale University Press.
- Scott, J. (2009). *The art of not being governed: An anarchist history of upland Southeast Asia*. Yale University Press.
- SEDAE. (2012). *Relatório mensal das actividades desenvolvidas durante o mês de Julho de 2012*. República de Moçambique, Provincia de Gaza, Governo do Distrito de Massingir, Serviço Distrital de Actividades Económicas, Sector de Pecuária. Massingir, 11 de Julho, 2012.
- SEDAE. (2012b). *Relatório mensal das actividades desenvolvidas durante o mês de Agosto de 2012*. República de Moçambique, Provincia de Gaza, Governo do Distrito de Massingir, Serviço Distrital de Actividades Económicas, Sector de Pecuária. Massingir, 13 de

Agosto, 2012.

- Seymour, M. & Wolch, J. (2010). "A little bird told me...": Approaching animals through qualitative methods. In Delyser, D., S. Herbert, Aitken, S., M., Crang, L., McDowell (Eds.). *The SAGE Handbook of Qualitative Geography*. (pp. 305-320). Thousand Oaks, CA: SAGE Publications Ltd.
- Snijders, D. (2012). Wild property and its boundaries—on wildlife policy and rural consequences in South Africa. *Journal of Peasant Studies*, 39(2), 503-520.
- Spierenburg, M., & Wels, H. (2006). "Securing Space" Mapping and Fencing in Transfrontier Conservation in Southern Africa. *Space and Culture*, 9(3), 294-312.
- Spierenburg, M., Steenkamp, C., & Wels, H. (2008). Enclosing the local for the global commons: Community land rights in the Great Limpopo Transfrontier Conservation Area. *Conservation and Society*, 6(1), 87.
- SPP Gaza. (2011). *Arrolamento geral dos gados existentes em 31 de Julho de 2011*. Republica de Moçambique, Direcção Nacional de Pecuaria, Serviços Provincias de Pecuaria de Gaza.
- Sundberg, J. (2011). Diabolic Caminos in the Desert and Cat Fights on the Rio: A Posthumanist Political Ecology of Boundary Enforcement in the United States-Mexico Borderlands. *Annals of the Association of American Geographers*, 101(2), 318-336.
- Thomson, G., Tambi, E., Hargreaves, S., Leyland, T., Catley, A., van't Klooster, G., et al. (2004). International trade in livestock and livestock products: the need for a commodity-based approach. *The Veterinary Record*, 155(14), 429-433.
- Treves, A. and Naughton-Treves, L. (2005). Evaluating Lethal Control in the Management of Human-Wildlife Conflict. In Woodroffe, R. et al. (Eds.) *People and Wildlife: Conflict and Coexistence* (pp. 86-106). Cambridge, UK: Cambridge University Press.
- Vallat, B. (n/a). Biosafety, biosecurity and prevention of diseases. World Organisation For Animal Health (OIE). Available at <http://www.oie.int/en/for-the-media/editorials/detail/article/biosafety-biosecurity-and-prevention-of-diseases/>. Last accessed December 20th, 2012.
- Van Amerom, M., & Büscher, B. (2005). Peace Parks in Southern Africa: Bringers of an African Renaissance? *The Journal of Modern African Studies*, 43(2), 159–182.
- Vanderveest, P., & Peluso, N. L. (1995). Territorialization and state power in Thailand. *Theory and Society*, 24(3), 385-426.
- Vayda, A. P., & Walters, B. B. (1999). Against political ecology. *Human Ecology*, 27(1), 167-179.
- Vosloo, W., Bastos, A., & Boshoff, C. (2006). Retrospective genetic analysis of SAT-1 type foot-and-mouth disease outbreaks in southern Africa. *Archives of virology*, 151(2), 285-298.
- Vosloo, W., Boshoff, K., Dwarka, R., & Bastos, A. (2002). The Possible Role That Buffalo Played in the Recent Outbreaks of Foot-and-Mouth Disease in South Africa. *Annals of the New York Academy of Sciences*, 969(1), 187-190.
- Walker, P. A. (2005). Political ecology: where is the ecology. *Progress in Human Geography*, 29(1), 73-82.
- Watson, A., & Till, K. (2010). Ethnography and participant observation. In Delyser, D., S. Herbert, Aitken, S., M., Crang, L., McDowell (Eds.) *The SAGE Handbook of Qualitative Geography* (pp. 121-137). Thousand Oaks, CA: SAGE Publications Ltd.
- West, P., Igoe, J., & Brockington, D. (2006). Parks and peoples: the social impact of protected areas. *Annu. Rev. Anthropol.*, 35, 251-277.
- Whatmore, S. (2002). *Hybrid geographies: natures cultures spaces*: Thousand Oaks, CA: SAGE Publications Ltd.
- Whitehead, M., Jones, R., & Jones, M. (2007). *The nature of the state: excavating the political ecologies*

- of the modern state*: Oxford, UK: Oxford University Press.
- Whyte, I, and Swanepoel, B. (2006). An aerial census of the Shingwedzi Basin area of the Parque Nacional do Limpopo (Limpopo National Park) in Mozambique. October 16th – 21st, 2006.
- Wolmer, W. (2003). Transboundary conservation: the politics of ecological integrity in the Great Limpopo Transfrontier Park. *Journal of Southern African Studies*, 29(1), 261-278.
- World Bank. (2001). Operational Policy 4.12 – Involuntary Resettlement. OP 4.12 December, 2001. Available at <http://go.worldbank.org/96LQB2JT50>. Last accessed February 19th 2013.
- Yeld, J. (2013). Kruger fence will not be restored – Molewa. July 5th 2013. *ioL Scitech*. Available at http://www.iol.co.za/scitech/science/environment/kruger-fence-will-not-be-restored-molewa-1.1542827#.UdboI_msh8E. Last accessed 9/07/2013.

Appendix 1. Questionnaire for Households in Massingir Velho

Q1. From the following list can you please rank from most important to least important which animal is most important in terms of human-wildlife conflict.

- Buffalo
- Crocodile
- Elephant
- Hippo
- Leopard
- Lion

Q2. Which of the following contributes more to increasing levels of human-wildlife conflict?

- The prohibition on killing wild animals
- The increasing number of wild animals

Q3. From the following list can you please rank from most to least important which assets are most important to your household.

- Cattle
- Chickens
- Fields
- Goats
- House

Q4. Which of the following has a greater impact on the well-being of your cattle?

- Quality of pasture
- Distance needed to travel to pasture/water

Q5. From the following list can you please rank from most to least important which of the following are your biggest concerns with regards to your cattle.

- Disease
- Getting lost
- Access to land and water
- Predation
- Theft

Q6. From the following list can you please rank from most to least important which of these issues is of most concern to you with regards to the establishment of the park.

- Crop Damage
- Difficulty migrating to South Africa
- Prohibition on hunting
- Livestock predation
- Resettlement