

**Dynamics of conservation and society: the case of
Maputaland, South Africa**

by

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Dynamics of conservation and society: the case of Maputaland, South Africa

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Abstract

Current conservation practices in the developing world are conceptualized as tools to simultaneously protect biodiversity and provide rural economic development. Conservation's responsibility or ability to contribute to poverty alleviation and maintain its primary function of biodiversity protection is widely debated. Regardless if one chooses to prioritize conservation over poverty or *vice versa*, human well being at the global scale and local livelihoods at the micro scale are dependent on natural resources, making it is impossible to separate environment and development issues.

In South Africa, conservation has largely been pursued in protected areas, particularly fenced parks devoid of human settlement. The benefits of parks are well known (*i.e.* biodiversity and ecosystem services), but the impacts on local livelihoods are not well documented. The Maputaland region located in northeast KwaZulu-Natal contains exceptional biodiversity alongside massive poverty and has been the subject of conservation and development projects marketed as win-win solutions. Yet, conservation in Maputaland is driven by global external agendas and epistemologies based on

misconceptions of rural land use patterns and livelihoods, while the costs of implementation are borne locally. Nature-based tourism, participatory community schemes, and pro-poor policies have been designed to facilitate economic development, but the benefits have been minimal and slow to materialize. Uneven levels of power between rural residents and external institutions, as well as within the local tribal government, have resulted in the inequitable distribution of benefits and decision-making power.

Development strategy in Maputaland continues to focus on conservation, including the expansion of protected areas to form transboundary peace parks linking reserves in South Africa, Mozambique, and Swaziland. However, expanded conservation is likely to result in household resettlement, lost access to socio-cultural and natural resources, and an increased risk of conflict over land use between conservation authorities and local residents. Complicating the success of any conservation and/or development scheme in Maputaland is the massive HIV/AIDS prevalence. With more than one third of residents infected, the disease will deepen poverty, decimate local capacity and leadership, and lead to an increased risk of resource degradation and land use conflict that ultimately undermines the long-term security of both biodiversity and local livelihoods.

Declaration

I, the undersigned, hereby declare that this thesis, submitted for the degree of Doctor of Philosophy (Environment and Society), is my own and original work except where acknowledged. This work has not been submitted for a degree at any other tertiary institution.

Jennifer Lee Jones

Disclaimer

This thesis consists of a series of chapters that have been prepared for submission to, or publication in, a range of scientific journals. As a result, styles may vary between chapters in the thesis and overlap may occur to secure publishable entities.

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CHAPTER 1

General Introduction

The relationship between people and the environment is increasingly recognized as a set of complex and interdependent interactions. While natural ecosystems and human societies have co-evolved for thousands of years, our understanding of the relationship initially moved from one of human survival based on natural resource use, to one of societal development based on exploitation of resources for maximum human economic growth and prosperity (Diamond, 1998). The 20th century witnessed rapid advancement in scientific knowledge and the emergence of an environmental protectionism movement. Focus then shifted from notions of earth stewardship as a moral and ethical human obligation to the mainstreaming of ‘sustainable development’ into policy and prescription (UN, 1992). Current theory has moved further by envisioning the environment not as a simple bundle of natural resources to be managed; rather, it views biodiversity as a set of ecosystem services that provide raw materials (*i.e.* food, timber) and associated processes (*i.e.* water purification, soil fertility). Subsequently, the dialogue has come full circle. The use of nature by humans is not simply a tool for economic development; biodiversity and ecosystems are fundamental to human survival (*i.e.* physical, social, cultural and spiritual) (MA, 2005).

As perceptions of the society-environment nexus change, theory and practice of how to manage and conserve biodiversity and ecosystems services for human development have evolved simultaneously. There has been a historical progression from ‘conservation *or* development’ (*i.e.* preservationist style fortress parks) to ‘conservation *and* development’ (*i.e.* integrated symbiotic management programs) to what I term ‘conservation *through* development’. The latter has emerged as protected areas, particularly in the developing

world, are perceived to be threatened by impoverished neighboring rural communities whose subsistence livelihoods endanger parks. A ‘conservation through development’ praxis seeks to protect natural resources by using them to stimulate local economic development thus reducing degrading behaviors and relieving pressure on park resources.

These varied theoretical approaches, framed under the broad catchall term of conservation and development, have been subject to intense scrutiny and debate. The 2003 World Parks Congress hosted in Durban, South Africa, recognized that ‘many costs of protected areas are borne locally – particularly by poor communities – while benefits accrue globally and remain under-appreciated’ and that protected area management should strive to reduce poverty, but at the very least must in no way exacerbate it (IUCN, 2003). These statements highlight conservation’s historical, and in some places on-going, negative impacts on local people via forced removals from protected areas and lost access to land and natural resources. By acknowledging historical trends and current conditions in the developing world, one of the primary stated goals of conservation and development schemes has been poverty alleviation. However, there are questions as to whether conservation and poverty alleviation goals should be coupled or if parks are in the business of contributing to local economic development (Ferraro, 2002; Kiss, 2004). Others maintain that addressing poverty is critical to the long-term success of conservation (Roe, 2004). The ultimate ability of conservation, specifically protected areas, to contribute to rural economic development is unknown, and the expectation for it to do so remains a contentious subject.

In tandem with poverty alleviation, the Durban Accord issued at the 2003 World Parks Congress also urged for a ‘commitment to involve local communities, indigenous and mobile peoples in the creation, proclamation and management of protected areas’ (IUCN, 2003). The accord recognized that inequitable approaches to conservation often exclude local people. Current theory advocates a rights-based approach that empowers local people’s access to protected area management and allows for increased benefits stemming from conservation. Subsequently, conservation projects throughout the world today, whether rhetorically or actually grounded in practice, promote paradigms of ‘local’ and ‘community’.

Such projects may be politically correct, but often ignore epistemological differences in the very conception of conservation. Many programs are based on global (*i.e.* stemming from the developed world) constructs of protecting nature. Global priorities tend to focus on indirect and nonuse values associated with biodiversity and ecosystem services’ contribution to human well being (MA, 2005). Local conservation priorities are likely to focus on direct use values that support rural livelihoods (Vermeulen, 2004). Programs, particularly ‘community-based conservation’, may be implemented at the local level, but global epistemologies of natural resources continue to dominate. Community-based conservation is framed as a quintessential mutualistic form of conservation and development- biodiversity protection with local participation resulting in direct income flows to local communities- but has many detractors. Biologists worry about the small size of many projects and their temporal uncertainty, while social scientists deal with the

complexity and heterogeneity intrinsic in local people that project donors and park managers tend to lump together as ‘community’ (Brockington, 2005).

An Interdisciplinary Research Approach

Any dialogue about conservation and society raises many questions. While biodiversity and poverty alleviation are distinct and laudable goals, should they necessarily be intertwined? Is it the job of conservation to contribute to local economic development and does poverty need to be mainstreamed into all aspects of environment? What are the benefits stemming from conservation (*i.e.* economic, material, spiritual, and cultural)? How should costs and benefits be distributed? What role should local people and local epistemologies play in conservation? How will current landscapes of rural poverty and inequitable power versus global economic expansion and governance structures affect future conservation?

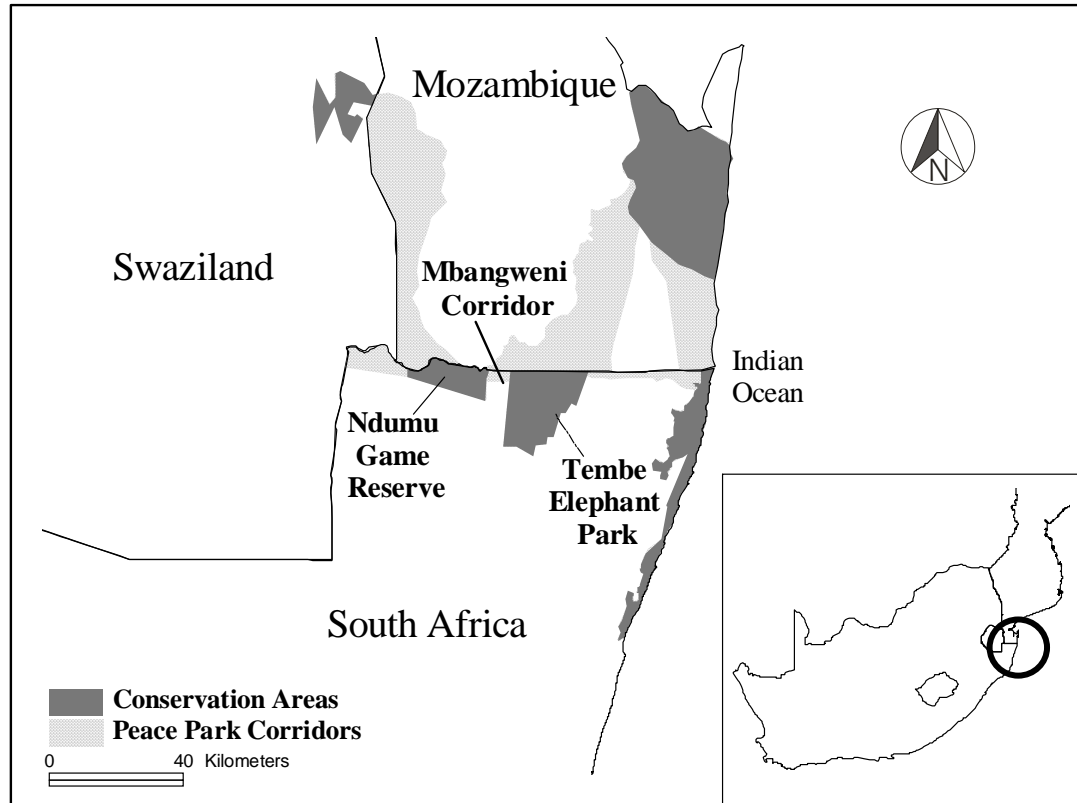
There are no simple answers to the questions posed, and indeed, each question raises several others. A single thesis could never hope to tackle such a myriad of loaded issues in one small and neat package; but it can attempt to shed light by examining the concepts in context of each other. Thus, dynamics of conservation and society must be explored holistically using multiple disciplines across spatial and temporal scales. Too often a division among the sciences and their methodologies has resulted in biologists researching patterns and processes of biodiversity in isolation while social scientists explore macro socio-economic drivers or local livelihoods. Regardless if conservation is solely perceived as either a biodiversity issue or a development issue, the one constant is

the human component inherent in both: humans are users, shapers, consumers, recipients, managers, and protectors of the environment. However, the respective approaches are rarely merged as a research process and applied to a single case study. The goal here is to employ an interdisciplinary research methodology to examine the drivers and impacts of the conceptualization and implementation of conservation and society in Maputaland, South Africa.

Dynamics of Conservation and Society in Maputaland, South Africa

Maputaland, in the northeast of KwaZulu-Natal, South Africa (Figure 1) provides an exemplary opportunity to explore the dynamics between people and nature across scale and time. The region contains some of the world's most important biodiversity and was recently designated a globally important conservation "hotspot" (CI, 2005). This designation indicates not only its high biodiversity value, but implies it is under severe threat of degradation. Currently, 27% of the landscape is formally protected in fenced reserves managed by the provincial conservation agency. Outside of the parks, the landscape is dominated by poor rural communities that reside on communal land under the guidance of tribal leadership. Economic development is severely lacking in the region and between 70%-80% of residents live below the national poverty line (Fenske, 2004).

Figure 1: The Maputaland study area in northeast KwaZulu-Natal, South Africa, bordering Mozambique and Swaziland.



Livelihoods in Maputaland are primarily dependent on subsistence agriculture, a small informal economy, and government grants (*i.e.* pension and child care payments). The region has one of the highest HIV/AIDS prevalence rates in South Africa with up to 38% of the total population infected (Hlongwe, 2003). Unsurprisingly, Maputaland's high biodiversity and broad-scale poverty have been the subject of various conservation and development schemes.

To provide a comprehensive treatment, this thesis presents a group of independent, yet interlinked chapters that cover a wide range of issues. The research and results presented are based on more than five months of fieldwork in the region conducted between late 2001 to late 2003. While each chapter stands individually, together they provide a holistic view from an interdisciplinary approach. **Chapter two** introduces the novel use of Community-integrated Geographic Information Systems (CiGIS) methodologies to study conservation and land reform in South Africa. CiGIS is employed as a research process, not necessarily a research product. By incorporating participatory methods and advanced geospatial technologies, CiGIS supports the merging of 'local' and so-called 'expert' knowledge. Participatory aerial photograph interpretation and other CiGIS techniques were useful for uncovering hidden political ecologies driving the struggle for land between conservation and local communities. While the chapter demonstrates the CiGIS process by investigating land reform in Maputaland, the CiGIS methodologies presented are used as interdisciplinary research tools in subsequent chapters.

Chapter Three focuses on the political ecology of biodiversity in Maputaland. It explores the social, ideological, economic, and political drivers of conservation across scales and examines their implementation at the local level. In Maputaland, nature-based tourism has been touted as the primary tool for economic growth. However, its ability to provide significant returns is debatable. Control over resources, epistemological disparities, and differing levels of power, capital, and capacity have resulted in uneven benefit distribution further complicating the conservation and development debate.

Chapter Four explores misconceptions about the relationship between local people and biodiversity. High human population densities are generally thought to occur in regions of high biodiversity and protected areas are often perceived to be under threat from neighboring dense and rapidly growing communal areas. To examine the livelihood and demographic drivers of land use in Maputaland, statistical analyses were conducted using human population density, land tenure, land cover, and biodiversity values. Results were contrary to popular expectations; high population growth on communal lands or areas in close proximity to parks is not always the norm. Households throughout the region are declining in size, leading to increased resource use per capita. The chapter concludes by exploring the biggest threat to both biodiversity and economic development in Maputaland- the HIV/AIDS pandemic.

Conservation-induced resettlement is the focus of **Chapter Five**. Contrary to the forced and often violent displacements of the past, future resettlement schemes in Maputaland are hoped to voluntarily entice local communities away from their land to make way for

expanded conservation and potential benefit sharing. Resettlement research in developing countries has traditionally used simple economic cost-benefit analyses for large development programs, such as dams, while ignoring impacts on local livelihoods. To explore potential voluntary resettlement of the Mbangweni community in Maputaland, a two-stage analysis was conducted on both quantitative and qualitative household impacts. First, Geographic Information Systems were used to spatially model household locations before and after displacement based on a set of parameters from existing settlement patterns and dimensions of the proposed conservation expansion. To qualify the spatial results, the Impoverishment Risks and Reconstruction (IRR) model developed for the World Bank was employed. Results indicate that, in addition to disruption of economic livelihoods, resettlement is likely to have significant social implications in the community and throughout the greater region.

Chapter Six investigates transboundary protected areas, mega Peace Parks that cross international borders, as one of the latest conservation and development paradigms in Southern Africa. Peace Parks have gained considerable financial donor support, but their ability to create sustainable local economic development has been little researched. This chapter provides an empirical case study of the Lubombo Peace Park encompassing areas in South Africa, Mozambique, and Swaziland. Impoverished rural communities whose livelihoods are directly linked to local nature and dependent on porous international borders could face decreased access to social, economic, and natural resources.

The final chapter, **Chapter Seven**, presents a general discussion drawn from the thesis. The dynamics of conservation and society in Maputaland are reviewed as independent and interlinked components. A review of the interdisciplinary case study approach highlights the complexity inherent in understanding the human-environment nexus.

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CHAPTER 2

Using Community-integrated geographic information systems to study land reform in South Africa

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Abstract

South Africa has one of the most sophisticated infrastructures for Geographic Information Systems in Africa. This has proven to be quite valuable for post-1994 development planning that necessitates fundamental change in the nation's space-economy. Development planning in South Africa is also increasingly employing participatory field methods that incorporate community perspectives about land use. Unfortunately, there are few examples of participatory methods being merged with advanced geo-spatial technologies. Here I present a case study to demonstrate Community-integrated GIS applications to study post-apartheid land reform in the province of KwaZulu-Natal, South Africa. Community-integrated GIS methodologies are envisaged as a process, not as a final product. Of particular focus was the relationship between rural societies and biodiversity conservation. Traditional participatory rural appraisal techniques, as well as the more novel use of community interpretation of aerial photographs, complemented spatial analyses in geographic information systems. In KwaZulu-Natal, the CiGIS process revealed that seemingly clear relationships between people and parks are not always as they seem. Current political ecologies, shaped by past discrimination, are embedded in the ideological, cultural, economic, and ultimately, spatial struggle for land between rural communities and conservation authorities.

Introduction

Geographic Information Systems (GIS) in South Africa have their origins with the military; racial segregation in apartheid South Africa was, of course, an intensely geographic project. As a result, control over space was viewed within a military domain. Geo-spatial technologies, in their multiple and evolving forms have, therefore, been an important part of the politics of space in contemporary South Africa.

In the late 1980s, the South African state began to privatize, and the state-GIS industry dissolved into multiple consulting and NGO entities. Many government parastatals (i.e. semi-autonomous government agencies such as the Center for Scientific and Industrial Research) also further developed their GIS capabilities. During the same time, ESRI (the leading international GIS software company) came to southern Africa. At this time, there was also a rapid change away from REGIS software, which was developed by the South African military, to ESRI products that were already globally competitive. As a result, when Nelson Mandela took power in 1994, South Africa was well equipped with the infrastructure and human capital to implement sophisticated GIS applications. Land reform was one of many GIS applications that the new state endorsed.

The case study presented here demonstrates how Community-integrated GIS (CiGIS) methodologies might contribute to land reform research and implementation. As such, CiGIS is envisioned as a process, not a product. Most land reform research has been conducted by means of independent academic disciplines; anthropologists collect ethnographies and detail local histories while geographers collect spatial information for mapping and analysis. Rarely have different disciplines been integrated to provide a

holistic assessment of the struggle for land in South Africa. Therefore, the central theme here is to highlight a multidisciplinary experience of merging participatory rural appraisal techniques, community interpretation of aerial photographs, and GIS analysis to explore the relationships between residents of a poor rural community and neighboring protected areas from which they were forcibly removed in the past. The case study presented here is the result of more than two years of biodiversity conservation and land reform research in the region. While a few analytical results about these relationships obtained using the CiGIS process are presented, they simply illustrate the techniques for employing CiGIS methodologies for land reform research. The primary aim of the paper is to highlight the potential benefits of a CiGIS method and demonstrate their application in field-based research of land reform issues in KwaZulu-Natal. I begin with a review of the GIS and Society literature and then introduce land reform in South Africa and the study site. The remainder of the paper highlights the methods used and lessons learned.

Background of GIS and Society

Concerns over the social implications of GIS are certainly not new (Harley, 1990; Yapa, 1991; Smith, 1992; Sheppard, 1993; Lake, 1993; Pickles, 1995) and an exhaustive review of them is outside the focus of this chapter. However, it is necessary to address the importance of understanding technology “as a social process” (Sheppard, 1995, p.7). Traditionally, GIS technology has been accessible mainly to scholars, technicians, and bureaucrats of developed countries due to high costs of operation, complex design, and a steep learning curve. Public participation was minimal and usually limited to the final

steps in a project (*i.e.* feedback). In the context of underdeveloped regions, this reality is magnified, and entire segments of the population are excluded from GIS technologies and related map and spatial analysis products (Harris et al., 1995).

To fill the gap, Community-integrated GIS and the more generalized ‘Participatory GIS’ were conceptualized to incorporate community perceptions, ideas, and multiple realities into subsequent analyses. Weiner and Harris’s (2003) South Africa research also showed how research questions could even be shaped by community involvement. They integrated GIS into a South African community with a history of land struggles, noting that it can both empower and marginalize communities. For example, elders, youth and women’s groups were able to identify where land dispossession took place (processes of empowerment), but local planning agencies were unable to adequately use the information to promote the types of land reform that many community members desired. Some politically connected community members (mostly elders connected to the tribal authority) received land, while others did not. The processes of empowerment and marginalization with Participatory GIS are complex and are only now being understood (Craig et al., 2001). But there are many cases where the intersection of GIS and community development has been beneficial, such as indigenous community perspectives on mapping and GIS in Canada (Bird, 1995; Kemp and Brooke, 1995) and ethnographic data incorporated into GIS to assist indigenous communities in Panama (Chapin et al., 1995).

In addition to addressing equity, democratization, and social justice through the inclusion of communities in GIS analyses, indigenous knowledge can enhance our understanding of the environment, underpin culturally appropriate development

opportunities, and provide a more holistic perspective for planning and policy (Harmsworth, 1998). But local knowledge, particularly those regarding values and perceptions, should not be construed as discrete and homogenous. Kottack (1985 in Hutchinson 1993, 454) critiqued 68 World Bank projects and concluded most of the projects reviewed were not successful due to “a tendency to see participants in projects not as heterogeneous actors... but as undifferentiated ‘beneficiaries’ or ‘target groups’”. Instead, local knowledge should be viewed as consisting of a set of multiple realities of the landscape, resulting from variations in culture, gender, race, politics, ethnicity, location, history, etc., which capture the everyday life experiences of a diverse social grouping (Weiner et al.1995; Ceccato and Snickars 2000). However, when attempting to represent socially differentiated knowledge, there is still the risk of overrepresentation for certain sampled groups to the detriment of others that must be considered (Ceccato and Snickars, 2000). It is also important to recognize that formal GIS data can be inaccurate and communities can help to improve such traditional databases. GIS is not always value free since it is dependent upon human choices and constraints regarding the selection of coverages, attributes, scale, analytical procedure, and the resulting decisions (Harris and Weiner, 1998). When researching human-environment relations, such as land use, spatial technologies cannot always relieve the researcher or policy-maker from determining whether possible impacts stem from social, economic and/or political factors (Brodniq et al., 2000).

Using GIS in the land reform process is relatively new. Only a few studies have documented how engaging beneficiaries with land information helps to shape their perceptions, knowledge, and use of their newly obtained resource (see Macdevette et al.,

1999; Jordan, 2002; Weiner and Harris, 2003). In fact, few beneficiaries have even seen a map or aerial photograph of their land. GIS can assist in land reform by merging local knowledge with expert information. In an earlier paper, Weiner and Harris argue that

linking narratives, oral histories, photographs, moving images, and animation to GIS provides enormous capability to increase not only the richness and diversity of the information available but also more closely parallel the manner in which communities know or conceive of their space. We propose, therefore, not a replacement of existing agency responsibility for local GIS but a redefining of what such systems might “look” like and how they might be extended into communities to achieve greater public participation and ownership (Weiner and Harris, 2003, p.63).

A community-integrated GIS in which local stakeholders share their knowledge can assist land reform in the planning phase by incorporating a more detailed understanding of local needs and in long-term sustainability by ensuring that the mechanisms local people have to operate within are actually palatable to them. Land reform projects based upon a local understanding of local needs are much more likely to be sustained by local people.

Land Reform in South Africa

Land alienation in South Africa did not begin with the 1913 Native Lands Act, but that act did codify previously disparate laws and statutes into an overarching and draconian system that facilitated African land dispossession. In reality, alienation had

been occurring since the first colonial wars in the Cape. In the late 19th and early 20th century, the concentration of power into the hands of the white minority and the process of consolidation of state authority into the rural areas gave rise to fears among white farmers over lack of labor. At that time, the range of agricultural activities open to Africans was considerably wider than after the enactment of the 1913 and 1936 land acts. Africans could engage in peasant agricultural production on land titled to them or on communal land, become a labor tenant, sharecrop, become a farm laborer, or occupy and farm state land.

The concrete expression of the various land laws was forced, and often, violent removals of Africans from their land ensued. In many cases, this was ancestral land and in other cases it was land individuals and communities had ‘purchased’ prior to the 1913 alienation. The timbre of the forced removals was sharpest from the early 1960s to the mid-1970s. The 1927 Bantu Administration Act, described above, gave the state sweeping powers of removal. Generally, the landlessness currently experienced by so many people is a result of the enforcement of that act.

Africans were either physically forced into homelands or homeland boundaries were redrawn to incorporate Africans into them, a process of forced nationalization. All land in South Africa was scheduled for specific racial groups. Where residents did not coincide with the ascribed racial-geographic classification, the state stepped in to ‘correct’ the situation. Of course, the ‘correction’ was always at the expense of Africans. The process of consolidation of the homelands (and later ‘independent’ states) in the 1970s further aggravated the already acute problem of landlessness.

With the framework for land reform in South Africa laid in the early 1990's, the formal process of redressing one of apartheid's most grossly obvious distortions, land distribution, began in 1994. Immediately the new government realized the need for reform in three areas. The restitution program sought to compensate individuals and groups for land that had been illegally seized during apartheid, usually through forced removals, while the redistribution program sought to correct the historical land imbalance in the country through a 'willing-buyer, willing-seller' program. The third reform program centered on land tenure. Conflicting tenure arrangements are the norm in the former homelands and little action has been undertaken in sorting out the contradictory authorities, claims, and occupants. A new communal land tenure bill might begin to address some fundamental tenure issues, but has been criticized for giving too much power to traditional authorities and insufficiently providing for women's rights (Cousins and Claasens, 2003).

The case study presented here focuses on restitution of land in KwaZulu-Natal that was forcibly seized during apartheid for nature conservation. In northern KwaZulu-Natal, the government established the Ndumu Game Reserve in 1924 on land it claimed had always belonged to the state (previously the province of Natal). The region contained exceptional natural features and wildlife, including an important hippopotamus population. Customary to conservation trends of the era and inline with Apartheid policies, the park was designed as a nature reserve devoid of permanent human settlement and was to be managed by provincial authorities with no involvement of local people or neighboring communities. By invoking racially discriminatory laws and practices between the 1940s and 1960s, conservation authorities forcibly removed local people

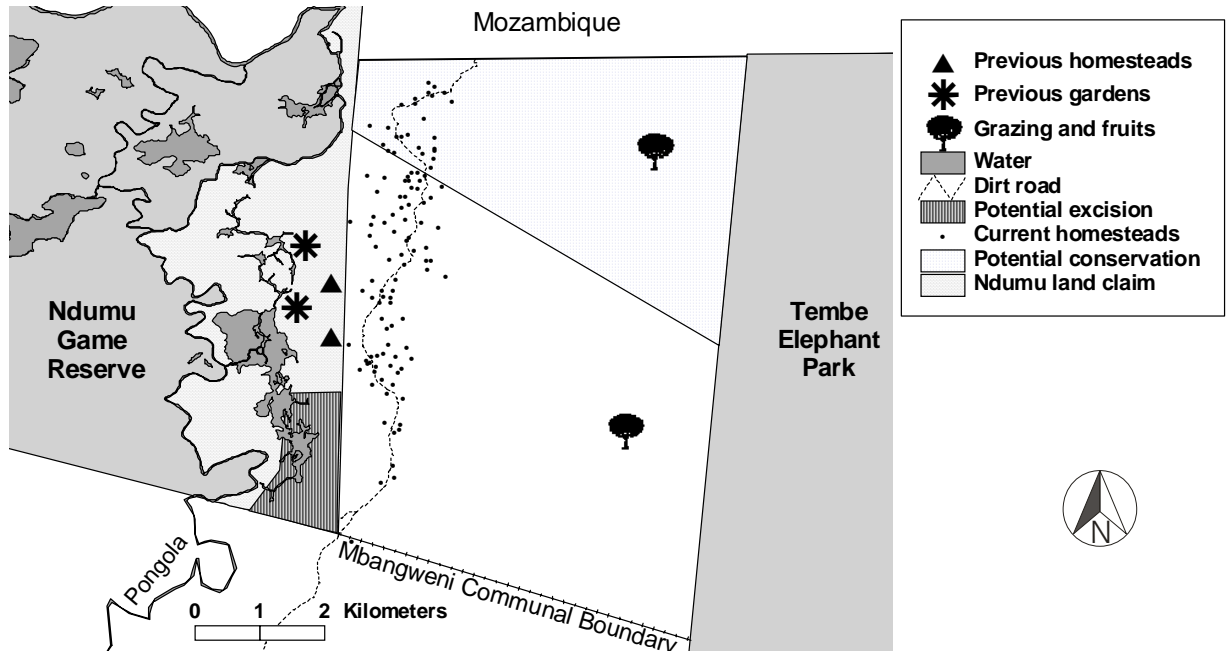
from the land inside the newly proclaimed protected area (Tong, Ca. 2002). The creation of nature reserves where local settlements previously resided continues to have an important impact on land relations in the area. In recent years under the new land restitution laws, local people have bitterly contested the forced removals and have sought legal redress.

Study Site

The Tembe Traditional Authority (TTA), the largest communal area in South Africa, was part of the former KwaZulu homeland. All land in the TTA has communal tenure under the leadership of the patriarchal Tembe chief (*inkosi*) who oversees 42 communities managed by his sub-chiefs (*izinduna*). The region is characterized by extreme poverty and sparse rural development. Most residents are dependent on local natural resource utilization for at least a portion of their livelihood. Several large protected areas that cover 24% of all communal land dominate the TTA landscape (Jones, 2005a). The parks are fenced in reserves mostly devoid of human settlement. Local people have minimal and highly regulated access to collect resources inside the parks, mainly fish and reeds for construction.

Residents of the Mbangweni community (Figure 1) were forcibly removed from Ndumu Game Reserve during the 1940s-1960s and a style of fortress conservation ensued which limited access to natural, social, economic, and cultural resources inside park boundaries (Tong, ca. 2002). Today, 118 Mbangweni households occupy a 45km² piece of land between Tembe Elephant Park and Ndumu Game Reserve (Jones, 2005b).

Figure 1: Ndumu Game Reserve and land use in the Mbangweni community.



Subsequent to post-democratic land reform legislation, the Tembe Traditional Authority filed a land claim for parts of the game reserve. The claim was investigated by the Department of Land Affairs who analyzed historical documents and conducted local interviews. Although the community was awarded legal ownership of some land in a 2000 settlement, the land was required to continue as conservation under the guidance of the provincial conservation agency, Ezemvelo KwaZulu-natal Wildlife (Tong, ca. 2002). The settlement also stipulated that in the future the parties would agree to a separate management arrangement to determine the sharing of revenue and benefits stemming from the claimed area. Furthermore, they agreed to negotiate turning a portion of currently occupied Mbangweni land into a conservation corridor linking Tembe Elephant Park and Ndumu Game Reserve. The consolidated Tembe-Ndumu Park would then become part of the larger transboundary Lubombo Peace Park linking conservation areas in South Africa, Mozambique, and Swaziland (PPF, 2002). Conservation authorities hope the mega park will provide increased biodiversity protection and attract much needed tourism revenues to the region. Implementing the conservation corridor to link the two parks would require resettling households off the land so it could become a fenced conservation area. In exchange, the community would get a portion of highly productive agricultural land to be excised from Ndumu Game Reserve as well as additional incentives, such as nature-based tourism concessions (Jones, 2005a). Since 2000, negotiations have not produced a final management agreement for the land claim area inside Ndumu or determined the details of a potential conservation corridor. Protracted negotiations have become increasingly hostile and contributed to ongoing land struggles.

As economic development in the Maputaland region is largely promoted through the use of nature-based tourism, other land claims have arisen against existing protected areas by local communities seeking to capitalize on potential economic development. In 2002, The Tembe Traditional Authority filed a land claim against Tembe Elephant Park. The park resides on communal land that was ‘willingly’ designated as a conservation area in the 1980s. However, the traditional authority claims the apartheid-era negotiations were not equitable and that they have received minimal benefits since the park’s creation. Subsequently, they called for a moratorium on all development inside the park (including road and tourism facility expansion) while they seek acknowledgment and restoration of co-management rights, as well as increased access to future tourism concessionaire opportunities inside the park (Tembe, 2003). Such ‘conservation and development’ land tenure issues highlight the need to understand and incorporate local histories, epistemologies, settlement patterns, and land use paradigms for equitable and sustainable future land use decision-making in the Tembe Traditional Authority.

Community-integrated GIS in Practice

The Community-integrated GIS process uses a suite of complementary methods to collect qualitative, quantitative, spatial, temporal, and participatory data. Traditional community research methods often fall under Participatory Rural Appraisal (PRA), a widely used bundle of tools, including mapping, modeling, diagramming, matrix scoring, transect walks, and seasonal calendars (Chambers, 1994; Binns, et al., 1997). Over the course of more than 20 weeks in the study region visited periodically throughout 2002-3, I built on PRA and other well-documented qualitative methods by using aerial

photographs and GIS analysis to investigate the socio-spatial components of land reform and biodiversity conservation in South Africa. Images are rarely used as participatory tools in the field, but taking the images to the communities for participatory interpretation, provided complex histories, narratives and spatial articulation of the local dynamics driving land claims and the relationship between local actors. Before detailing the use of community interpretation of aerial photographs, I briefly describe the other PRA techniques upon which the CiGIS methodological process was built.

Geo-referenced surveys

In 2002, geo-referenced surveys were gathered for all 118 households in Mbangweni. The survey was composed of both qualitative (*e.g.* perceptions and values) and quantitative (*e.g.* resource consumption and cash expenditures) questions regarding local livelihoods and their relationships to the neighboring parks. The surveys were completed by research assistants employed from the local communities who used a semi-structured interview technique to record the answers to compensate for poor literary skills in the communities. One family member at each household was interviewed based on availability allowing the collection of socially differentiated knowledge by age, gender, position in household, etc. (*i.e.* first wife, daughter, father). Global Positioning System (GPS) coordinates were gathered at each of the 118 homesteads and used to map current community settlement patterns. Household coordinates were also used in conjunction with additional GPS data to perform spatial analysis.

GPS and personal observation

GPS coordinates and personal observation were useful for spatially articulating other forms of household-related activities. Throughout the field visits between 2002-3, location and observational notes were collected regarding settlement features (*i.e.* roads, schools, markets), local resource use, customs, habits, and collection methods employed. The coordinates could then be visualized and analyzed using GIS to calculate spatial patterns and distance proximities to other community features (*i.e.* distance from a household to the Mozambique border). Mapping household coordinates alongside the location of important community features provided insight into the spatial dynamics driving current community patterns. These spatial dynamics were then qualified with the participatory techniques described below.

Interviews and participatory map interpretation

After initial introduction to the study site and approval from relevant local authorities where necessary, interviews were used to identify land reform issues, collect quantitative and qualitative data and provide iterative feedback to verify survey data. In-depth interviews were conducted with dozens of community members, key informants from conservation and tribal agencies, and other regional residents. Cultural norms dictated that small group interviews of local residents usually consisted of cohorts from a community subgroup (*i.e.* old women or young men). Interviews were sometimes independent, other times they were used in combination with or as a precursory step to other methods, such as mental mapping or aerial photograph interpretation.

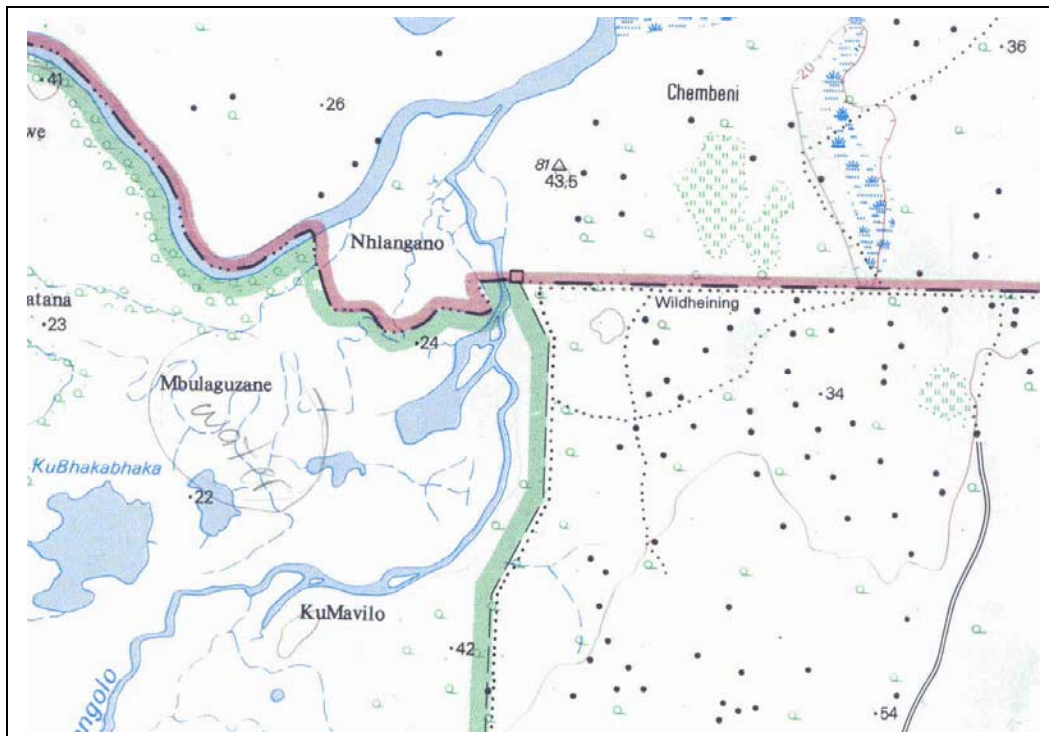
Mental mapping has become a common feature of PRA projects, particularly when investigating natural resource planning and management and the documentation of indigenous knowledge systems (Weiner et al. 1995; Zanetell & Knuth 2002; Mohamed and Ventura 2000). I found that the drawing of mental maps by community members proved to be useful for residents to identify the primary land and resource issues in the initial stages of research. When possible, participants were asked to draw mental maps, either as individuals or groups, before looking at professional topographic maps or aerial photographs of the region.

Participatory techniques were also used to interpret traditional printed topographic maps (1:50,000) (Figure 2). Residents related personal narratives stemming from the maps and marked locations of historical and current land issues, such as previous community settlement patterns and areas of forced removals.

Community interpretation of aerial photographs

While there is an abundance of literature on the use of more traditional participatory techniques, community interpretation of aerial photographs has only recently become well documented (Jordan, 2002; Fox, et al., 2003; Rindfuss, et al., 2003). A unique strength of visual media is their ability to draw people into discussions. Even in areas of poor literacy, community members oriented to visual media very quickly and openly discussed ideas and information, which had been difficult to capture from normal interviews.

Figure 2: Standard 1:50,000 topographic map (1984 series, map #2632CD; obtained from Chief Directorate: Surveys and Mapping, South Africa) used for participatory investigation of land use issues in Mbangweni, Ndumu Game Reserve and Mozambique. Community participants related historical narratives, identified resource collection locations and shared perceptions of attitudes generated from details on the map.



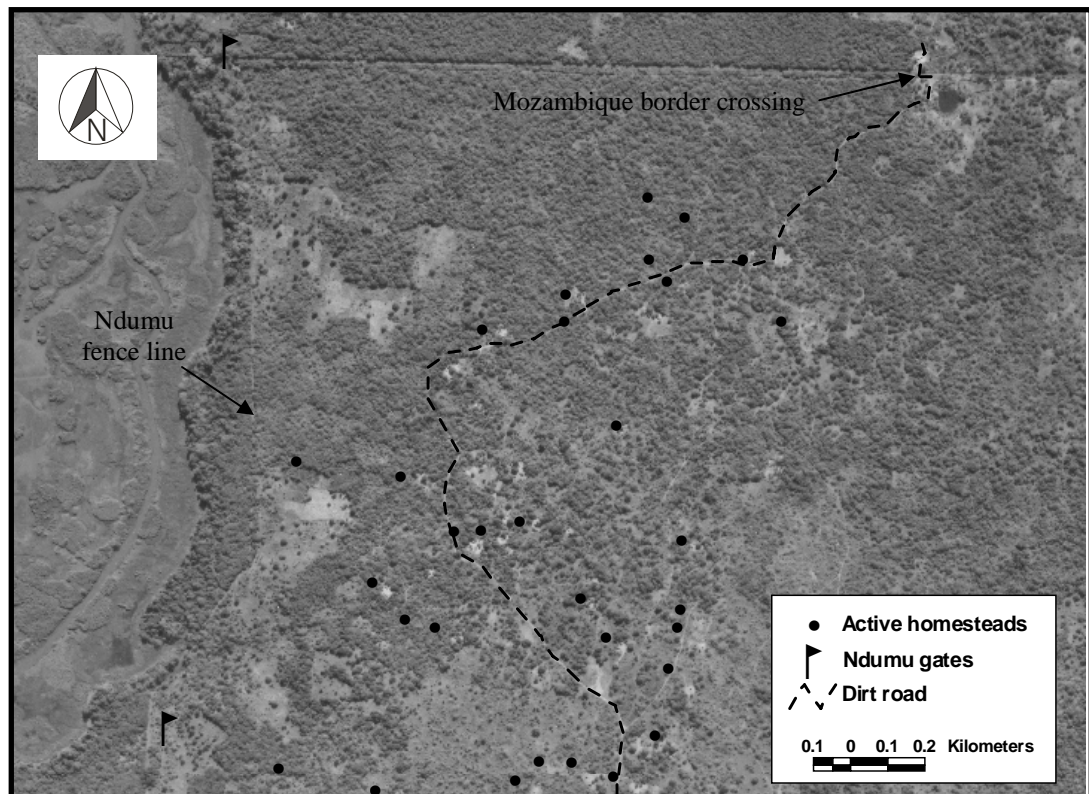
When a portion of Ndumu Game Reserve (1262ha) was restituted to the Tembe Traditional Authority in 2000, the Land Claim Commission decided the community never actually resided on the land, but had historically accessed it for resource collection (Tong, ca. 2002). Conservation authorities support this position, but community members maintain they and their ancestors did indeed occupy homesteads on the land. To explore these issues using participatory methods, archived aerial photographs were obtained (from 1942-2002 in scales ranging from 1:30,000-1:50,000) from the South African Department of Survey and Mapping for a nominal fee (\$0.50 per photo). The photographs were scanned using a personal computer and digital files (JPEGs) were created. The images were printed in poster size, useful for group situations, and laminated for field use. For community interpretation exercises, the poster images were merely enlarged prints; no image processing, such as geo-rectification was necessary, and no geographic coordinate system was added to the print. Community residents evaluated resource locations and access represented on the images, related narratives of historical locations and patterns of settlement and movement, discussed land cover change, and identified communal resource conflict areas (Figure 3). Depending on the scale of the photograph and quality of the scan, participants were easily able to identify features as small as individual homesteads and dirt footpaths. For subsequent desktop analysis the digital aerial photographs were geo-rectified in GIS allowing the overlay of the locations of community features and households gathered via the geo-referenced surveys and additional GPS coordinates (Figure 4).

During aerial photograph interpretation, Mbangweni residents identified specific locations within the restituted land area they claim had both homesteads and subsistence

Figure 3: Participatory aerial photograph interpretation with Mbangweni residents.



Figure 4: Aerial photograph of Mbangweni, Ndumu Game Reserve and Mozambique border. GPS coordinates of community features were added for spatial



gardens. They assert these areas were occupied on a full-time basis and not just used for occasional resource collection. On the aerial photos taken before and during forced removals, residents identified what appear to be human influenced landscapes, including areas cleared for homesteads and footpaths leading to river access points. As the land claim is officially settled, the point is legally moot. But it reflects, and potentially supports, the community's larger feelings of resentment and disfranchisement over land reform issues.

This disparity in viewpoints has been a driver in the tension surrounding ongoing negotiations to implement a conservation corridor on Mbangweni land. Negotiating the land swap between the community and conservation authorities (1650 ha of communal land in exchange for 200ha of productive floodplain land) has essentially postponed joining Tembe and Ndumu parks, and thus merging them with the greater Lubombo Peace Park. They have yet to determine how the parks and the community might construct a co-management agreement, what tangible benefits the community will receive, how tourism revenues would be distributed, and numerous other factors influencing the design and implementation of an expanded conservation area. The resettlement of households out of the conservation corridor has also not yet been determined. Any household resettlement would have important impacts and consequences for local livelihoods, including disrupted access to natural resources and fragmentation of social and cultural networks (Jones, 2005a). Building on data gathered by PRA and aerial photograph interpretation, it was possible to construct potential resettlement models in GIS using the quantitative and qualitative data as modeling parameters (i.e. resettled households had to be a certain distance from the road and

arranged in a pattern suitable to local socio-cultural norms) (Jones, 2005b). Various resettlement schemes were subsequently analyzed under different sets of parameters. Specific results are presented in subsequent chapters. The point to make here is that incorporating community data into the GIS analysis provided context and depth not usually found in spatial assessment and planning.

Conclusion

Geographic Information Systems contributed to the planning of the Grand Apartheid landscape in South Africa. In the more than ten years since transformation began, the process of redressing this past of racial inequality is proceeding slowly but steadily. While redressing the past has led to an array of participatory methods for the reconstruction process in South Africa, the intersection of community participation and GIS in South Africa remains in its infancy. CiGIS moves beyond a narrow research approach and provides a process for multidisciplinary research and a holistic understanding of land reform. Employing various CiGIS methodologies in KwaZulu-Natal revealed complexities inherent in the land reform of the 'new' South Africa.

The CiGIS process is not simply used to amalgamate assorted data and interpret the results as one story. Data collected via different methodologies, while largely complementary, was sometimes contradictory. In these instances, iterative and critical analysis of all the data helped to uncover conflicting, multiple or hidden interpretations of the landscape. To that end, the CiGIS process is not conceptualized as a fixed linear progression with distinct steps to complete. The CiGIS methodological process is a holistic set of iterative techniques that may indeed produce contradictory knowledges

representative of real-world struggles manifest in the landscape. Methods can be participatory, field-based or desk-bound and capture data that is qualitative, quantitative, spatial, temporal, and multi-scale (Table 1). The various methods can be used to confirm, contrast or explain data gathered via other steps. For example, GPS coordinates collected for households can be used to map community settlement patterns. Aerial photograph interpretation and interviews can then reveal the impacts of forced removals, cultural norms and other social customs driving settlement patterns.

Land in post-apartheid South Africa remains a fiercely contested resource. Restitution, redistribution, and tenure change are important tools to address ongoing uneven levels of development. However, research must not only focus on the institutional components of land reform, but also the local social drivers. In the Tembe Traditional Authority, the complementarity of participatory methods revealed contrasting epistemologies, attitudes and perceptions, and local histories and undercurrents between rural communities and conservation authorities. CiGIS methodologies provided a process to understand how social drivers are embedded in land struggles and to investigate the complexities of the socio-spatial conservation and development landscape. The CiGIS process revealed that the ability of conservation areas to achieve both community and biodiversity sustainability are inextricably linked to the long-term success of land reform as a tool for creating equitable land use systems. Community-integrated Geographic Information Systems, envisioned as a holistic process and not a final product, may present an opportunity for integrated analysis of biodiversity conservation and land reform research as well as the identification and mitigation of future land tenure, planning, and management issues.

Table 1: Community-integrated GIS techniques. CiGIS is conceptualized as an iterative process that produces both complementary and conflicting data representative of different interpretations of the landscape. CiGIS techniques are not inherently independent; one method can be used to confirm, contrast, or explain data gathered with a different method. For example, interviews and survey data from Mbangweni revealed strong community resentment stemming from historical forced removals from Ndumu Game Reserve. Subsequent aerial photograph interpretation by community members provided spatially explicit perceptions of historical community settlement in Ndumu that were contrary to those of conservation authorities.

Technique	Data	Type of Method
Survey questionnaire, interviews	Livelihoods: resource use, collection and management strategies; household socio-economics and demographics; attitudes and perceptions; research issue and problem identification; historical influences; ethnographies	Participatory, quantitative, qualitative, temporal
Aerial photograph, GPS locations	Land cover/use; land cover/use change; settlement patterns; resource use areas	Spatial, temporal
Aerial photograph and topographic map interpretation	Livelihoods; attitudes and perceptions; historical influences; ethnographies; resource use and land conflict issue identification	Participatory, qualitative, spatial, temporal

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CHAPTER 3

Who Benefits from ‘Conservation and Development’? The Political Ecology of Biodiversity in KwaZulu-Natal, South Africa

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Abstract

Northeast KwaZulu-Natal is one of the most underdeveloped regions in South Africa. The production of community nature-based tourism stemming from biodiversity conservation is marketed by exogenous institutions as a form of local poverty alleviation that contributes to social equity, particularly relevant in post-apartheid South Africa. Many of the protected areas in the region occupy communal lands and the Tembe Traditional Authority is under pressure to provide additional land for conservation to be managed by the provincial conservation authority. Augmented by the globalization of biodiversity management, I argue that conversion of communal land to conservation as a land use has become a commodity that is marketed based on anticipated returns from tourism-related development. A political ecology approach and commodity chain analysis is used here to examine the drivers, costs, and benefits of conservation and development for the Tembe Traditional Authority. A multi-scale approach highlights how conservation and development are socially, ideologically, economically, and politically created products driven by external agendas and paradigms of states, NGOs, multilateral institutions, and conservation agencies. Differing epistemologies, power inequities, and limited access to alternative development options have meant that local land use shifts to conservation support external actors while the capture of benefits by local people in the Tembe Traditional Authority remain questionable.

Introduction

Governments, NGOs, multilateral institutions, and conservation authorities in South Africa perceive conservation as a tool for both biodiversity protection and economic development in impoverished rural areas. ‘Conservation and development’ paradigms precipitate land use change to conservation by promoting the potential benefits of nature-based tourism, including job creation, increased local capacity and equity, and sustainable development. I argue that augmented by the globalization of biodiversity management paradigms, conservation as a land use has essentially become commodified within a Northern (i.e. highly developed country) land use framework. Political ecology and commodity chain analysis provide the theoretical platform to examine conservation land use, and its impact on rural development, as a socially, ideologically, economically, and politically created product. While conservation in the form of protected areas is inherently local, the principal drivers of conservation operate primarily beyond the local scale. Various contextual drivers of conservation and development in the Tembe Traditional Authority, South Africa, including local histories, differing epistemologies, and unequal power structures are examined. Specifically, the roles of nature-based tourism, multilateral development institutions, NGOs, and conservation agencies are explored. Skewed access to capital, capacity, and information has resulted in uneven levels of power and a pervasive influence of Northern-hemisphere conservation paradigms over local or indigenous practices. Local residents have legal control over communal land, but powerful external land use drivers and limited residential control of land use mechanisms have resulted in minimal local benefits from conservation and

development schemes. First, political ecology and commodity chain analysis as research frameworks are introduced.

Political ecology recognizes that ‘ecological arguments are never socially neutral anymore than socio-political arguments are ecologically neutral’.¹ A political ecology approach addresses relationships and causalities between local resources and their linkages to large-scale political and economic processes, particularly capitalistic market pressure on resources in the post-colonial Third World.² Today, capitalist systems are viewed through a broad political and economic lens, while the neo-Marxist views embedded in early political ecology offered a means to link environmental change to social oppression.³ However, much of the emphasis in political ecology was, and continues to be, on the juxtaposition of Northern scientific and indigenous epistemologies, the role of unequal power, and the use of historical perspectives to provide context to current situations.⁴

A political ecology approach is complemented in this paper by using commodity chain analysis to understand who benefits and how they benefit from natural resources by examining a resource commodity as it passes through a series of interlinked exchanges from harvesting, through production, to its final use.⁵ Actors, markets, distribution of power, political and social institutions, and access to the resource and market structures are examined along the chain of those who benefit from the resource. In the commodity chain approach adopted here, resources are viewed as a productive ability to benefit and not just the right to benefit.⁶

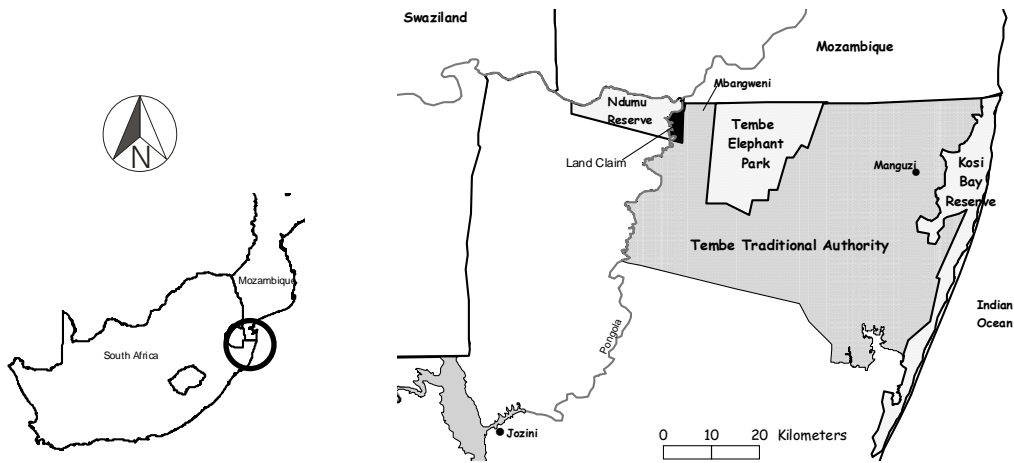
The Tembe Traditional Authority

The Tembe Traditional Authority (TTA) is located in the northeast part of the KwaZulu-Natal province, South Africa (Figure 1). The TTA is the largest communal area in South Africa, covering 2,240km² with approximately 90,000 residents in 42 separate traditional wards (hereafter referred to as communities). An *Inkosi* (chief), a patriarchal descendent of previous Tembe Kings, governs the traditional authority.⁷ The *Inkosi* administers traditional laws and customs and is regarded as a cultural figurehead of the Tembe people. The TTA was part of the former semi-autonomous KwaZulu *Bantustan* (black homeland) of the apartheid era. Current traditional structures are in part legacies of apartheid homeland governance tools. ‘Tribal’ authorities of the era were established by the apartheid government in communal areas with a traditional rule that was authoritarian and did not encompass the ‘elements of popular representation and accountability which had existed within pre-colonial political systems’.⁸ These imposed structures continue to affect conservation and development processes in the region.

Rural development in northern KwaZulu-Natal was neglected for many years and the area is characterized by extreme poverty and low levels of economic development, with most residents largely dependent on local natural resource use to support their livelihoods.⁹ Homesteads are constructed using traditional materials and methods, and are dependent on local fuel wood collection. There is no access to electricity or sanitation, and water is obtained from communal taps or local rivers sometimes located kilometers from homesteads.¹⁰ HIV/AIDS is a major health and development issue in the region. Prevalence estimates for South Africa range between 18.5% and 37.5%, while

anecdotal evidence for the Maputaland region suggests 38% of the entire population is infected.¹¹

Figure 1: Study area of the Tembe Traditional Authority, province of KwaZulu-Natal, South Africa.



Competing Conservation Epistemologies

Ecologically, the Maputaland region supports considerable biodiversity and contains numerous protected areas. The current conservation landscape in the province of KwaZulu-Natal is a classical juxtaposition between formal protected areas and indigenous resource user paradigms. The province of KwaZulu-Natal was created through an amalgamation of the former KwaZulu black homeland and the Natal Province in a post 1994 democratic South Africa.¹² Conservation and environmental epistemologies in South Africa were historically divided along racial lines. The indigenous people of KwaZulu-Natal have engaged in communal land tenure and pursued conservation strategies on communal lands for generations.¹³ These efforts reflected a stratified tribal life that guaranteed people access to communal resources required for livelihoods.¹⁴ The apartheid KwaZulu homeland managed its formal conservation efforts through its Bureau of Natural Resources. In the former province of Natal, conservation practices and land tenure both reflected a more capitalist Northern paradigm, including ownership of private land titles. In the late 19th century in Natal, white hunters began a preservationist conservation policy similar to western models of the time to conserve depleted wildlife that culminated in the establishment of the Natal Parks Board. In some cases, indigenous residents were forcibly removed from portions of newly proclaimed government land to make way for conservation areas. Today, the amalgamated KwaZulu-Natal is a patchwork of private, government, and communal land, reflecting a disparity of epistemologies regarding land tenure, resource access, and conservation efforts.¹⁵ Ezemvelo KwaZulu-Natal Wildlife, borne from the union of the former Natal

Parks Board and KwaZulu Bureau of Natural Resources, presently manages protected areas in the region.

In the Tembe Traditional Authority, approximately 24% of the communal land lies within fenced conservation areas.¹⁶ The larger parks form part of the international Lubombo Transfrontier Conservation Area (i.e. Peace Park) initiative linking conservation in South Africa, Mozambique, and Swaziland.¹⁷ While the land belongs to the traditional authority, Ezemvelo KwaZulu-Natal Wildlife manages the parks. Tembe Elephant Park, the largest conservation area (30,000 hectares) in the traditional authority, was negotiated in the 1980's. Several communities were resettled outside of the new park and, in exchange, the Tembe chief, as head of the TTA, received portions of park revenue. Because the agreements were enacted during the apartheid era, the TTA has recently challenged the agreement in order to negotiate for increased decision-making powers and benefits from the parks. The TTA also has ties with the Ndumu Game Reserve to its west. Since its creation in the 1920s until recently, all of Ndumu was under government ownership. It was originally managed by the Natal Parks Board, later by the KwaZulu Bureau of Natural Resources, and today Ndumu is managed by Ezemvelo KwaZulu-Natal Wildlife. Under post-apartheid land restitution procedures the TTA filed a land claim in 1995 for the east side of Ndumu Game Reserve demarcated by the Pongola river, citing forced removals and discriminatory practices from the 1940s-1960s.¹⁸ To investigate the land claim, the Department of Land Affairs (DLA) conducted interviews and examined historical documents. Due to the complex issues involved, the DLA wished to avoid a protracted court case and instead pursued an out of court decision. Ezemvelo KwaZulu-Natal Wildlife proposed a partnership between themselves

and the Mbangweni community in regards to managing the land. The community would not be allowed to resettle the land inside the park, but they would be allowed to pursue the right to operate nature-based tourism and conservation projects stemming from the land. In 2000, the DLA approved a general settlement of the land claim that stipulated the parties agreed to negotiate a management plan in the future.¹⁹ Essentially, while the settlement was officially proclaimed, it postponed the negotiation of the actual mechanisms of managing the land and benefit sharing to a future unspecified date. Negotiating these details have proved to be a major stumbling block in the relationship between the community and the conservation agency.

The Commodification of Conservation

Consumptive practices are not limited to tangible resources, but may include ideas and nonmaterial items that create use value and can be conceptually examined as commodities.²⁰ Conservation ideologies, values, and practices are not products that pass through conventional extraction and production. Yet, the management of natural resources has resulted in the capitalization of biodiversity.²¹ Subsequently, conservation land use as a commodity has become an instrument of development that is marketed and sold, based on expected earnings to the land user. Thus, it is clear that a historical progression has occurred from ‘conservation *or* development’ (fortress conservation) to ‘conservation *and* development’ (Integrated Conservation and Development Programmes), and finally to what I term ‘conservation *through* development’ (community-based strategies).²² However, many conservation and development projects

continue to lean heavily towards conservation and not sufficiently on poverty alleviation²³, a process referred to some authors as ‘conservation by distraction’.²⁴

Today, nature-based tourism benefits are a premise for the creation and management of protected areas. This anticipated synergy is reflected in the name of South Africa’s Department of Environmental Affairs and Tourism. Nature-based tourism is promoted globally as a development panacea for undeveloped regions, such as the Tembe Traditional Authority. The rationale is that biodiversity is protected by local people whose livelihoods are boosted by tourism directly dependent on healthy natural resources. However, there are questions whether nature-based tourism contributes to either biodiversity protection or to increased rural development.²⁵ Furthermore, the capital-intensive and notoriously fickle nature of tourism, together with a dependence on foreign tourists (the case in South Africa) has added to this skepticism.²⁶

In the Tembe Traditional Authority, conservation passes through a commodity chain comparable to tangible goods: 1) harvesting of conservation as a resource by a change in land use; 2) production of the resource through nature-based tourism; 3) end use of the resource in potential delivery of development and biodiversity goals. It is the land use, not necessarily land tenure or ownership, which becomes the commodity. While it is possible to change tenure relative to conservation status (*e.g.* private land sold to a government conservation agency), it is also possible for tenure to remain the same, but for ‘access’ or ‘control’ of the resource to change. Such practices are increasing in South Africa as portions of communal land are willingly designated as conservation areas and subsequently managed or co-managed by government conservation agencies. Although the community still ‘owns’ the land, they forgo certain rights or abilities to occupy,

develop, or harvest resources. But, while property is an important component of the commodity chain, it is just one mechanism in the commodity chain.²⁷ Multi-scale political, economic, social, and cultural contexts are important since they affect local access to other mechanisms required to benefit from a commodity. Therefore, ownership of a resource is not sufficient if local people do not have the ability or access to capital, production, and marketing mechanisms. In the Tembe Traditional Authority, limited access to capital and capacity regarding nature-based tourism development, the devolution of power and differing epistemologies are important mechanisms affecting land use production.

Community Based, Globally Driven

Globalization drives natural resource theory and management through the economic and societal integration of the flow of goods, services, and capital, as well as people and ideas.²⁸ A global post-modern geopolitical landscape suggests that local resources and conservation in South Africa are part of the global commons which are simultaneously valued by locals as well as people not directly linked to local resources. Northern epistemologies of sustainable development and community theory permeate conservation paradigms in developing countries. Although sustainable development attempts to de-politicize environment and development issues, ultimately the environment is reinvented as a source of capital to be sustained, while not necessarily protecting the nonmaterial values of nature.²⁹

The neo-Marxist paradigm argues that sustainable development cannot overcome economic oppression in developing countries because First World levels of development

are only achieved through maximum resource exploitation in a capitalist system.³⁰ Theoretically, without maximum exploitation of resources, often resulting in environmental and social degradation, sustainable development cannot close the gap between developing and developed countries, as developed countries have a big head start. In South Africa, sustainable conservation and development programmes are driven by external international donor agendas.³¹ While protected areas are fundamentally locally produced products, the costs of providing conservation are more intensely endured at the local level, particularly by poor communities, and the benefits frequently accrued globally.³² Research has shown that global interventions actually encroach on local communities and that a complex web of globalization processes are driving land use change more than the ‘myths’ of local population growth and poverty.³³ The ubiquitous nature of globalization means that while the Tembe Traditional Authority may not have a direct conduit to global processes, it is affected by residual Northern paradigms of conservation and development that have spread across the world. These may be in direct contrast to local views of conservation and needs. As part of my research in the region, a survey of 648 residents of the TTA was conducted during 2002-3. Research assistants employed from the local communities completed the surveys using semi-structured interview techniques to record the answers from one member at each household. Results revealed most local people do not view conservation as a tool for development. Only 17% of respondents thought that Tembe Elephant Park and Ndumu Game Reserve were ‘good’ because they provide jobs and tourism spin-offs. The most common reason given why the parks were ‘good’ was because they keep dangerous animals away from people, 76% and 51% for Ndumu and Tembe, respectively.

Multilateral Institutions

Globalization has contributed to expanded democratization and increased economic liberalization in post-colonial Africa. However, economic liberalization of natural resources has not created the free market of neoclassical theory.³⁴ Access to markets, production, and capital remains skewed. A network of external institutions, particularly Bretton Woods, sought to fill gaps in the ability of states to provide for social welfare and development. However, external mitigation effectively reduced states' capacity to take charge of their own development responsibilities.³⁵

The Global Environment Facility (GEF) is the primary multilateral biodiversity conservation donor instrument in South Africa. GEF is an independent financial organization designed as a funding mechanism for global environmental issues, such as those covered by the Convention on Biological Diversity (CBD) and the United Nations Framework Convention on Climate Change (South Africa has ratified both). GEF is co-managed by the World Bank, the United Nations' Development Programme (UNDP), and the United Nations Environment Programme (UNEP). Since 1996, GEF has contributed US\$222 million in grants to South Africa and the southern Africa region.³⁶ In South Africa, grants are managed by the South African Department of Environmental Affairs and Tourism, provincial departments of environment, conservation authorities, and NGOs such as the World Wide Fund for Nature (WWF).

Grant making by GEF in South Africa empowers not only the recipients, but the donors themselves. Multilateral institutions coerce conservation management by requiring the state's ratification of environmental treaties and protocols as a prerequisite for donor assistance. Subsequently, predominantly Northern paradigms and objectives

have become ensconced in South African environmental policy and practice. In this manner, the true power of GEF financial backers lies in their ability to influence the trajectory of development.³⁷ Although GEF funds have not been directly spent in the TTA, their influence is evident in the style of conservation and development pursued in the region. The World Bank and other multilateral donors also directly fund and support NGOs as the primary voice of civil society.³⁸

NGOS: Is Local Lekker?

In a poststructuralist paradigm, development and conservation institutions have adopted the politically correct mantra of bottom-up development through decentralization. Yet, Northern ideas about the ‘primitiveness of non-western people’ continue to permeate management conservation policies and there are concerns over the establishment of ‘environmental managerialism’ where Northern science speaks for the entire planet.³⁹ There is an additional concern that the geographically large ecoregional approach adopted by many transnational NGOs subverts grassroots conservation initiatives.⁴⁰

In post-apartheid South Africa, the ‘local’ mantra is particularly significant due to the country’s history of racial exclusion and oppression. Building on the bottom-up approach, there is a surge in South Africa to raise national pride and economic development with aggressive marketing of homegrown goods and services through the ‘*Local is Lekker*’ (Local is Nice/Good) campaign. Falling under the umbrella programme, ‘Proudly South African’, the campaign is designed to promote local companies, products and services. It is in line with a global trend to validate and promote the use of local and indigenous knowledge; the ‘Local is Lekker’ campaign thus transcends the promotion of

consumer goods, and membership is open to NGOs, government departments, health organizations, and individuals.⁴¹ Thus, non-material goods, values, and ideas can be marketed as local. Yet, the degree of localness is questionable when campaign members include local branches and/or subsidiaries of large multinationals. Such an analogy can also be made for conservation organizations in South Africa with strong linkages to foreign organizations.

Transnational NGO local affiliates may have a certain degree of autonomy and can become institutionalized within a local setting. Yet, their ethos are mostly inherited from the parent organization. Partnerships between locally based NGOs and international NGOs are becoming the standard; but the unevenness of power between actors has been questioned. The larger international partner, usually a source of revenue, focuses on determining policy, agenda, and networking strategies, leaving the local partner to implement prescribed projects.⁴² Thus, influence on local policy and practice is derived from outside the theatre of local conservation operations, a typical globalization phenomenon. Nonetheless, these agencies are marketed as local institutions responding to local issues. Even if an organization is 'homegrown' with minimal direct external influence, it is still subject to global cultural, market, and socio-political contexts which influence how and why they manage resources.⁴³

Even if an institution is truly local, it begs the question of whose 'local' civil societies are represented within the 'Rainbow Nation' of South Africa. Extreme income disparity and livelihood diversification between black and white is evident in the country's dualistic economy. Environmental causes are largely a white upper class minority preoccupation; civil society institutions follow this trend. The four most

prominent South African conservation NGOs all have white male directors/chairmen who control operating budgets and assets worth more than ZAR300 million.⁴⁴ There is, thus, a risk of an over representation of white minority paradigms in NGOs acting as a voice of civil society.

NGOs influence government policy as states seize the agendas and moral ideologies of the global conservation movement to control local resources.⁴⁵ Government policy is often written to accommodate pre-existing NGO objectives. South Africa's Department of Environmental Affairs and Tourism (DEAT), The Southern African Development Community (SADC) and the New Partnership for Africa's Development (NEPAD)⁴⁶ have policies that support specific and long-standing NGO conservation objectives. The SADC Protocol on Wildlife Conservation and Law Enforcement refers to 'transfrontier conservation areas' terminology developed and used by the South African based Peace Parks Foundation.⁴⁷

Nature-based tourism: If you build it, will they come?

In northern KwaZulu-Natal, government is attempting to increase development via the Lubombo Spatial Development Initiative (SDI), one of 14 such ventures in South Africa. The Lubombo SDI represents a coordinated regional effort by South Africa (via the Department of Trade and Industry and the Department of Environmental Affairs and Tourism), Mozambique, and Swaziland to encourage private investment in the area. Under this initiative, Government attempts to attract private investment by increasing the basic infrastructure in the region. In the Tembe Traditional Authority, the Lubombo SDI's push for private investment has focused on nature-based tourism development.

In general, South Africa has witnessed a shift to community-based tourism strategies, particularly nature-based ventures, as the trickle down assumption of traditional tourism has failed to materialize.⁴⁸ Community-based strategies are envisioned to result in a two-pronged success: 1) local empowerment and development through the creation of jobs and cash stemming from conservation; 2) increased protection of resources by local communities whose jobs and livelihoods are dependent on the resource. However, there have been few successful examples of community nature-based tourism projects in Southern Africa.⁴⁹ Criticisms include inequitable distribution of benefits⁵⁰, doubts about long-term profitability⁵¹, divergent epistemologies⁵², revenue leakage⁵³, and negligible biodiversity protection.⁵⁴

According to Ezemvelo KwaZulu-Natal Wildlife there have been numerous community nature-based tourism projects in the region, but these have not yet achieved long-term sustainability.⁵⁵ This failure is attributed to indigenous social, cultural and economic organization, resentment about historical discrimination, and distrust by local people who believe government is more concerned with biodiversity protection than local livelihoods, often to the detriment of the latter.⁵⁶ Other researchers in the Tembe region noted “the impression that a number of the old guard conservators in the KZNNCS do not support initiatives that involve...communities situated on the periphery of their parks”.⁵⁷

Wilderness Safaris has operated two lodges in the region for the past decade using a pro-poor community strategy. They formed contractual relationships with surrounding communities⁵⁸, including partial ownership of the operation and a dividend-sharing scheme. While neither lodge is directly affiliated with the Tembe Traditional Authority, the operations provide a useful example of the difficulties inherent in operating nature-

based tourism operations in the region. The lodge inside Ndumu Game Reserve opened in 1995 and part of the operation was divested to the Mathenjwa Traditional Authority bordering the western boundary of the TTA. Although the TTA has been awarded legal ownership of part of Ndumu Game Reserve since the lodge was initially opened, the Mathenjwa Traditional Authority borders most of the park and is thus considered the primary neighbouring community. The Rocktail Bay lodge, opened in 1992, is situated on coastal forest land belonging to the Mqobela Traditional Authority. Both lodges cater for the luxury market with beds costing between US\$240 - \$350 per person per night (pppn). Although Wilderness Safaris is an acknowledged successful nature-based tourism operator throughout Southern Africa, both operations have been plagued with various problems, including lack of profits, allegations of corruption in the traditional authorities, and disagreements with conservation authorities over park management policies which influence the ability of these less well-known reserves to attract tourists.

The ownership and management structures of the lodges are extremely complex because of legal requirements for a private company to operate on communal land in partnership with traditional authorities. Essentially, ownership of the lodges, as well as lodge management companies established to run them, is shared between an umbrella nonprofit organization that was granted to legal permission to occupy the land, Wilderness Safaris, a local lending agent (a bank), and the local communities. Wilderness Safaris provided most of the start up capital and capacity and thus bears most of the financial risk. Shares in the both the lodge ownership and lodge operating companies were divested to local communities in line with a pro-poor strategy. Prior to making a profit, Wilderness Safaris paid the communities yearly 'dividends' in an effort to

maintain goodwill and demonstrate the potential of nature-based tourism to contribute to local development. But the success of the lodges for both private shareholders and local communities has been mixed. While some local people have benefited from job creation, the community 'dividends' have averaged between US\$1 and US\$2 per person per year.⁵⁹ The dividends are to be used for general community development projects (*i.e.* schools, clinics, roads), but allegations of mismanagement and corruption have plagued the community trusts and/or the committees established to oversee the funds. The Poultney and Spencely (2001) study found that between 1996 and 2001 the Ndumu lodge created 21 jobs for a community of approximately 20,000 people (0.1%) and paid approximately US\$16,000 to the Mathenjwa Traditional Authority. Rocktail Bay created 29 jobs for a community of 1,566 residents (1.9%) and paid approximately US\$19,000 to the Mqobela Traditional Authority. While some development projects have benefited that otherwise might not have, residents have been disappointed with low revenues, lack of visible community development, and unaccountability and corruption in the management of the community funds. The ability of one dollar per person per year to contribute to meaningful development is a contentious issue in the face of a near complete lack of other development initiatives. However, a primary negative impact of these experiences has been the unreal expectations created in the communities regarding the ability of conservation-related enterprises to contribute to local development.⁶⁰

The low profits generated by Wilderness Safaris are not unique. Many private operators in state and private game reserves the region are struggling to make a profit, possibly due to a time lag in profitability resulting from an extended start-up investment phase. One survey of tourist operations in northern KwaZulu-Natal reported that low

occupancy rates have resulted in small revenue turnover. Occupancy rates range from 22% for small private reserves to 47% for larger provincial parks.⁶¹ Wilderness Safari's Ndumu operation has particularly struggled with low occupancy. Numerous causes have been proposed, including poor management at the corporate head office, the remote location of the park, and a lack of new products to attract visitors.⁶² Strategies of how to best to attract visitors to the park have caused severe conflict between the lodge and conservation authorities who manage the reserve. Ndumu Game Reserve is best known as a prime birding destination due to its high species richness. The park is abundant in large mammals, including an overpopulation of antelope. Wilderness Safaris wants conservation authorities to introduce currently lacking predator species (*i.e.* lions) into the park.⁶³ Predators would help control high antelope numbers and serve as an additional attraction for tourists. However, conservation authorities are reluctant to introduce predators because containing them in the park is difficult; the park's northern boundary with Mozambique is a river that wild animals can cross into neighbouring communities. Conservation authorities prefer to continue a culling policy to manage the antelope. As the conflict between the lodge and park authorities continues, Wilderness Safaris has temporarily closed operations in Ndumu Game Reserve while they negotiate possible solutions with park authorities.

The scenario described above highlights the complexity inherent in the conservation-development nexus. Stakeholders have different and often conflicting interests. Profit driven tourism is attempting to drive natural resource management whose historical goals have been biodiversity protection, not poverty alleviation. However, Wilderness Safaris' efforts to influence ecological practices that might attract tourists is

bolstered by the claim that the lodge is also partially owned by a community severely lacking economic development. To some extent, profit making by Wilderness Safaris is insulated by a contractual agreement to contribute to rural poverty alleviation in its partner communities. While such a pro-poor strategy is conceptualized as a win-win for all participants, different groups of actors and the individuals within the groups are pursuing potentially incompatible interests and are equipped with uneven levels of power. This is particularly true for local rural communities versus sophisticated tourism and conservation agencies, as well as individual community residents in the face of powerful traditional chiefs.

Expanding Conservation to Attract Economic Development

The Ndumu and Rocktail Bay tourism operations attempt to capitalize on existing protected areas as a source untapped tourism revenue. However, nature-based tourism is also used as a reason to expand conservation onto previously unprotected lands. Ezemvelo KwaZulu-Natal responded to each scenario based on its unique characteristics. They continue to support the role of private nature-based tourism to the extent that it can provide benefits to communities. As the manager of the conservation areas to be included in the Lubombo Peace Park, supported by the Peace Parks Foundation, they are using the idea of potential nature-based tourism returns to garner support from communities. The Peace Parks Foundation has identified particular portions of occupied Tembe communal land necessary to consolidate the currently fragmented South African parks identified for inclusion in the Lubombo Peace Park.⁶⁴ The community of Mbangweni (Figure 1) is situated on a 45km² parcel of land between

Ndumu Game Reserve and Tembe Elephant Park. The Peace Parks would like a portion of Mbangweni land to join the two parks in South Africa. Later the consolidated Ndumu-Tembe conservation area will be joined to parks in Mozambique and Swaziland by removing any fence lines. In exchange for some or all Mbangweni households resettling elsewhere and allowing the communal land to become a fenced conservation corridor, various forms of compensation have been promoted, including a stake in new nature-based tourism ventures. Yet, aside from the previously identified difficulties associated with nature-based tourism, research in northern KwaZulu-Natal suggests that dropping fences to expand conservation areas would result in a minimal increase in visitors or tourist expenditures.⁶⁵ If economically sustainable tourism was developed, further questions remain regarding the equitable distribution of benefits. Some individuals and groups are better positioned to capitalize on such opportunities. One effort to achieve more equitable community participation and decision-making over conservation efforts in northern KwaZulu-Natal has been the development of local conservation boards. However, their ability to service the interests of the larger local population is questionable.

Local Participation: Devolution or Institutionalization?

As described earlier, conservation has moved from a fortress approach to ‘conservation through development’ paradigms. Driven by calls for increased democracy, representation, and equity in land use, community-based natural resource management (CBNRM) has been envisaged as a vehicle to serve the needs of both poor local residents and biodiversity. Yet, notions of what and who constitutes ‘community’ at the ground

level remain ambiguous. Donors and external actors often perceive community interests as heterogeneous and interdependent; as long as it is local it must be lekker. However, participants in CBNRM activities are not always representative of broader community interests.⁶⁶ At the local level, there are political, economic, and ideological struggles that run the spectrum of community diversity. While participatory schemes may satisfy the needs of donors and conservation agencies, they do not necessarily recognize the existence of multiple realities, incorporate social differentiation, or overcome cultural bias towards gender, age, and social status. In Maputaland, local conservation boards are CBNRM-like tools designed to devolve power from conservation authorities to local people. Rather than achieving true and meaningful community management of local resources, the boards have institutionalized uneven power, unequal benefit sharing, and marginalization within communities themselves.

The Case of Local Conservation Boards in Maputaland

When the Tembe Elephant Park was initially established in the 1980s, the TTA was promised a 25% share of gross tourism revenues, but mistakenly received 25% of the park's total budget.⁶⁷ The error was later corrected but established a considerable expectation within the traditional authority. In 1997 a new conservation management decision by Ezemvelo KwaZulu-Natal Wildlife created statutory Local Conservation Boards, including one for the Tembe-Ndumu complex. The local boards were designed to promote local decision-making and the integration of conservation activities into surrounding communities. They are composed of representatives from the traditional authority, business, tourism, agriculture, special interest, and NGOs. Individuals are

nominated and then approved for a three-year term by the KwaZulu-Natal Minister for Agriculture and Environmental Affairs in consultation with the KwaZulu-Natal Conservation Board.⁶⁸ The boards were also established to administer the Community Levy Fund that replaced direct payment to the traditional authorities. The levy, a small fee paid by tourists who enter the parks, generates cash for local development. Ninety percent of the levy fund must be used for community development projects approved by the local conservation board. The new policy upset the traditional authority because they no longer directly received the money, which was substantially less under the new scheme, but also because disbursement required the approval of the local board. The creation of local boards was hailed as a mechanism for supporting community partnerships and more inclusive local decision-making, but there is a danger that local boards could serve only to rubber stamp policies created by other parties. The community levy was designed to help decrease corruption in the traditional system and create a more economically sustainable system, but gate keeping of fund disbursement remains a potential obstacle.

Conservation authorities have bypassed the local board as a means to achieve conservation goals. Whereas in Ndumu the conservation agency opposed introducing predators to the park, in 2002 they supported the introduction of lions into Tembe Elephant Park. The park is well fenced and the risk of animals escaping is minimal. The addition of lions to the park's repertoire of mammals would allow it to become a 'Big Five' (lion, elephant, buffalo, rhino, leopard) tourist destination enhancing its marketability. Neighbouring communities were not consulted about the possible introduction of lions and as word spread, local residents expressed fear, confusion and

discontent about possible dangers. They were unclear how the lions would affect their safety and ability to gather resources in the park or about risks to themselves and their livestock in the event of lions escaping. Rather than consulting the neighbouring communities or the local board, Ezemvelo KwaZulu-Natal Wildlife sought direct approval from the Tembe chief, who unilaterally approved the introduction without consulting local residents.⁶⁹ Since the park is situated on Tembe communal land, the chief has ultimate decision-making over matters relevant to his constituents.⁷⁰ Officials later acknowledged that the local board should have been consulted, but defended the reality on the ground whereby “the authority of Local Boards with regard to decision-making concerning the allocation of protected area resources is dependent on the goodwill of the chief”.⁷¹ This statement contradicts levy fund distribution overseen by the board, but serves to highlight the tenuous control of power between the actors. Problems within the current power structure include 1) the ability of actors to shift decision-making power around; 2) the observation that local boards can be bypassed when required; 3) a power discrepancy between the traditional authority and conservation agencies, and also within the TTA itself. It appears that the power of the Board in all these situations has not been adequately defined. Furthermore, the chief’s ability to make such unilateral decisions is complicated by his personal stake in tourism operations inside Tembe Elephant Park and influence of uneven power in distribution of conservation benefits to surrounding communities.

Incongruent Community Power

The only tourist lodge inside Tembe Elephant Park is owned and operated by a Durban⁷² businessman. It is a luxury-tented camp starting at around US\$200 pppn that caters primarily to foreign visitors. Similar to the Ndumu case, the concessionaire's interests have often been at odds with those of park management. The concessionaire wants to further develop tourism infrastructure in the park, including construction of a new lodge in a remote section of the park. Park management is concerned with the concessionaire's potential monopoly over tourism inside the park and has disputed his privilege to operate indefinitely inside the parks since a formal contract specifying fees, duration of occupation, and other details is apparently lacking. Ezemvelo-KwaZulu Natal is not necessarily opposed to expanded tourism inside the park, but wants more formalized relationships with concessionaires and the ability to choose from a set of options greater than a sole lodge operator. Fueled by personal emotions, tensions between park management and the concessionaire increased as they disagreed over park development strategies. To bypass conservation authorities and pursue tourism expansion, the lodge operator arranged a private business deal with the Tembe chief. In 2002, to secure and expand his operating authority, the lodge owner divested partial ownership of the lodge to the Tembe chief, as well as other incentives, and allegedly transferred ownership of a 4x4 vehicle to the chief. It appears the chief as an individual, not as head of the traditional authority, was personally given stake in the lodge.⁷³ By forming a partnership with the chief, the ultimate authority over any Tembe tribal land including the park, the concessionaire strongly positioned himself to influence park

management in his favor. Furthermore, forming a partnership with previously disadvantaged individual/community provides a powerful tourism marketing tool as an operation supporting rural poor communities. While the deal is ethically questionable, the government encourages partnerships between the private sector and communities with the divestment of business interests to marginalized people. Partnerships supposedly give marginalized people access to capital and resources previously unavailable and allow business owners to comply with black empowerment schemes making them eligible for additional government incentives.

After the partnership was formed, the chief filed a land claim against the park and called for a moratorium on all development in the park. While the land technically belongs to the traditional authority, the land claim was a kind of statement by the traditional authority that in effect park land was inequitably negotiated away from them during apartheid. The chief did not call for the park to be decommissioned and land returned to communities; he is seeking acknowledgment, restoration, and increased control and decision-making of the land and the right to develop business interests inside the park. The land claim was simply a powerful tool employed to force conservation authorities to acknowledge the traditional authority's right to pursue increased benefit from conservation. Through a combination of the partnership with the lodge owner and the ability to essentially halt park development through the land claim, the chief and concessionaire are well positioned to serve their interests. It remains to be seen how any benefits stemming from expanded tourism inside the park will flow to the individual chief or the larger traditional authority

Within communities, power inequalities are found between affluent residents who operate local businesses and those who do not. One case in the study area is that of local taxi operators who use their status and position within the communities to influence residents. In the community of Mbangweni (Figure 1), the taxis represent one of the few lucrative local industries and are controlled by a handful of residents. The taxis provide the only means of regular transportation along the 22km dirt road from the Mozambique border to the main tar road where regional shops, businesses, and services are located. They charge an inflated rate (ZAR25) for a one-way trip, equivalent in price to six litres of petrol. Mozambicans also use the taxis to travel to shopping, healthcare, and other services inside South Africa. The taxis rely on the porous international border for passengers, and would be severely affected should the border area become fenced-in for conservation as proposed for the Lubombo TFCA.⁷⁴ The taxi drivers exercise considerable influence within the community, and it is generally acknowledged that they intimidate residents at community meetings from supporting any conservation settlement that would interfere with their business without the introduction of opportunities to replace any lost benefits. Potentially, negotiations over the exact size, shape, and location of the conservation corridor could include opportunities for the taxis to provide authorized transportation through the corridor for local residents. Additionally, they could be compensated for lost local business by servicing future nature-based tourism operations inside the conservation corridor. It seems the taxi lobby is not necessarily against the conservation corridor per se, but is a formidable force against anything that threatens or disrupts taxi businesses. The relative power of individuals is difficult to disentangle in the community; historical power and prominence may contribute to her/his

business prominence, and in turn they have further solidified their leadership positions based on increased wealth and status. An individual can be a successful entrepreneur as well as strong community leader, obscuring the reasons for their particular actions. But the ability of the taxis to influence decision-making in the area points to the incongruent power and interests within the community that have ultimately heightened and prolonged conflict regarding the negotiation of a conservation corridor.

Discussion and Conclusion

Underdevelopment is a one of the primary challenges facing northern KwaZulu-Natal, and specifically the Tembe Traditional Authority. High biodiversity, natural beauty, and recreational possibilities encourage its promotion as a nature tourism destination. Government, NGOs, and conservation authorities focus economic development schemes on conservation and development, hoping to protect natural resources while simultaneously improving local livelihoods. A political ecology approach provides for the holistic treatment of the multi-scale drivers of conservation and development in the Tembe Traditional Authority. While politically correct paradigms are promoted, access to resources, information, markets, and capital remains highly skewed. Northern paradigms are imported into the region and levels of authentic participation, equity, and power are difficult for local communities to attain. Uneven power is evident between the Tembe Traditional Authority and exogenous institutions, but also within the communal system itself. Additionally, an issue beyond the scope of this paper is the role of gender in such patriarchal systems.

Benefits derived from conservation and development also remain uneven. Schemes are driven by external agendas and epistemologies that do not correspond to local attitudes, histories, and perceived needs. Conservation is not simply a means of ecological protection, but has become an economic, social, cultural, and political tool in search of the mystical sustainable development. In South Africa, one way it is pursued is via nature-based tourism. While South African tourism has performed well in recent years, most of the growth has occurred in the Cape Town region.⁷⁵ Tourism remains a difficult and competitive industry and placing all the proverbial development eggs in a nature-based tourism basket is risky. Capital investment is intensive and even successful ventures take years to turn over significant profits. In KwaZulu-Natal, bed occupancy rates remain low and competition is likely to increase as the newly authorized expansion of 800 new and redeveloped beds in the Greater St Lucia Park to the south proceeds.⁷⁶ Furthermore, new tourism ventures, even in remote areas, are likely to attract outsiders seeking work, putting further pressure on local natural resources and social structures.⁷⁷ Some have suggested it may be more efficient to provide direct compensation for biodiversity protection to local communities instead of trying to distill indirect benefits via community-based projects and other forms of subsidies financed by external NGOs and multilateral institutions.⁷⁸

Undoubtedly, Northern paradigms and implementing NGOs make a valuable contribution to conservation and development in South Africa. The intention is not to suggest otherwise, but to demonstrate that their interests are not always aligned with those of the local civil society majority, including the communities they purport to assist. There is the partially realized risk of NGOs serving as conduits for other Northern

paradigms, funding, and power. Institutional stability and gate keeping of funds and projects inject additional risks to full participatory decision-making.⁷⁹

The Tembe Traditional Authority's primary asset is its land. Yet, access to the resource itself has not translated to a demonstrable ability to capitalize in the form of economic development benefits. Communities are heavily dependent on the capital and capacity of external institutions – requisites to develop nature-based tourism and conservation spin-offs. Partnerships between rural South African communities, conservation agencies and donors from the developed world are complicated by the heterogeneity of the actors and their varied levels of access and power required for productive conservation and/or development schemes. Contrary to conservation and development agencies, the experience of local residents has meant that most do not even perceive biodiversity protection as a source of economic gain. Avoiding future conflict and ensuring long-term equity will require more even levels of power among the actors, increased access by residents to information, capital and more compatible epistemologies between the traditional authority and exogenous institutions.

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⁷¹ Ibid, p.12.

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CHAPTER 4

Land Tenure, HIV/AIDS, and Population Dynamics in the Maputaland Conservation Hotspot

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Abstract:

Conservation projects are increasingly mandated to be participatory, bottom-up, and inclusive of indigenous cultures and rights. However, historic segregation laws, extreme uneven development, and divergent epistemologies fuel pre-conceived notions about biodiversity and local population dynamics in South Africa. Popular perception and anecdotal evidence have resulted in universally held misconceptions, including: biodiversity in protected areas is threatened by densely populated neighboring communities in search of conservation benefits, communal lands harbor important biodiversity but are overpopulated and highly transformed and degraded, and high population growth is a tribal phenomenon. Such misconceptions often drive conservation projects, yet the relationship of land tenure and household change to biodiversity are under-researched in conservation biology. I examine human population, land tenure, biodiversity, and land cover in the northern section of the Maputaland-Pondoland-Albany hotspot in South Africa. Contrary to expectations, biodiversity levels and potential population threats were highest on noncommunal lands located near regional transportation/commercial hubs away from protected areas. Similar to other global hotspots, Maputaland had above average population growth and a decline in the number of people per household, leading to increased resource consumption per capita. However, a primary driver of demographic and livelihood change is almost completely ignored by conservation biology - the HIV/AIDS pandemic. With more than one in three people infected in some places, HIV/AIDS-induced poverty poses the greatest threat to local biodiversity in Maputaland and throughout Southern Africa.

Misconceptions About Parks and Local People

South Africa has the third highest level of biodiversity in the world, including an entire floral kingdom (the Cape fynbos) and three conservation hotspots (Maputaland-Pondoland-Albany, Succulent Karoo, and the Cape Floristic Region) (WCMC 1992; CI 2005). With a long history of biodiversity conservation, Post-Apartheid South Africa is emerging as a political and economic leader on the continent. The first ten years of democracy witnessed increased social equity, economic liberalization, and an explosion of conservation activity by government, NGOs, and multilateral development agencies. South Africa's natural resources are complemented by some of the most progressive environmental legislation in the world (*e.g.* the Constitution, Biodiversity Act, Environmental Conservation Act, Protected Areas Bill). Like many African countries, conservation is now marketed as a tool for economic development by way of community-based resource management, nature-based tourism, environmental equity and justice schemes, and post-colonial land reform. However, the conservation movement is also driven by universal misconceptions of the dynamics between local people and biodiversity; the 'tragedy of the commons' myth prevails (Barrow & Fabricius 2002). South African protected areas are perceived as threatened by high local population densities and rampant population growth on neighboring degraded communal lands. To explore these relationships, I conducted multi-scale statistical and spatial analyses of data sets for biodiversity ('intrinsic biodiversity scores'), land tenure (i.e. communal and noncommunal), and demographics (national census population data) in the Northeast of KwaZulu-Natal province, part of the Maputaland-Pondoland-Albany Hotspot. Results were contrary to expectations and highlight the complexity of the human-environment

nexus at the local scale. Although largely ignored by conservation biologists, land tenure arrangements and socioeconomic drivers were statistically strong indicators of demographic patterns and their spatial relationship to biodiversity and protected areas. The success and sustainability of biodiversity conservation in the region is also threatened by a massive prevalence of HIV/AIDS that is likely to cause increased poverty, further threatening natural resources.

The Maputaland Hotspot

South Africa's political and segregationist history under colonial and Apartheid eras shaped much of the current conservation landscape in the country (Barrow & Fabricius 2002; Jones 2005). Discriminatory laws segregated Africans into overcrowded and marginal semi-autonomous communal 'homelands' (Cousins and Claasens 2003). Conservation via protected areas was pursued on state and communal land, sometimes by forced removals of local people (Kepe et al. 2003). After democracy in 1994, 'homelands' were amalgamated with provincial governments while retaining local tribal structures and communal tenure. Today, areas that comprise the former KwaZulu 'homeland' are known to contain some of South Africa's most important biodiversity, much of which lies in protected areas demarcated during authoritarian Apartheid rule (CI 2005). Due to historic laws, practices, and cultural attitudes of those from without, communal land outside of protected areas is perceived to suffer from overpopulation, environmental degradation, and unsustainable resource practices.

The present study focuses on the Umkhanyakude District Municipality in Northeast KwaZulu-Natal, part of the recently designated Maputaland-Pondoland-Albany

Hotspot (CI 2005). The district municipality encompasses the region commonly referred to as the Maputaland section of the hotspot, covering approximately 12,772 km², stretching from the southern boundary of the Greater St Lucia Park to the Mozambican border. Formal protected areas managed by the provincial conservation agency, Ezemvelo KwaZulu-Natal Wildlife, cover 27% of the municipality. Communal land tenure accounts for more than half of the total municipality and one fifth of communal land is found inside fenced protected areas. The municipality contains 553,702 people in 56 civil wards, the lowest level of local government, outside of parks. The region is characterized by extreme underdevelopment and impoverished subsistence livelihoods, with 70% to 80% of people below the minimum living income level (Fenske 2004).

Demographic and spatial data were collected and stored as polygons in ArcView shapefiles (ESRI 1999), including population censuses, political and administrative boundaries, land tenure, protected areas, land cover, and biodiversity. Population data were obtained for Umkhanyakude District Municipality from the South African Censuses of 1996 and 2001 at two different scales, sub place and ward. Although enumeration areas were the finest spatial scale at which population data were collected for censuses, their boundaries changed between 1996 and 2001, rendering them unsuitable for temporal change analysis. Thus, sub places were used as the finest demographic scale while wards, conglomerates of sub places, were used as the lowest level of local government planning and management. For land cover, the latest available data were obtained from the 1996 National Land Cover project, produced by the South African Centre for Scientific and Industrial and the Agricultural Research Council (Thompson 1996). 'Intrinsic biodiversity importance' scores were obtained from Ezemvelo KwaZulu-Natal Wildlife

and are a measure of conservation importance based on endemism, rarity, vulnerability, threat status, conservation importance, and level of protection. These data (29,108 ArcView polygons) were created based on landscape, ecosystem/community (wetlands, grasslands, forests, vegetation communities), and species level attributes (85 threatened plants, nine economically important medicinal plants, four endemic mammals, 29 threatened birds, four endemic amphibians, 10 endemic reptiles, 21 threatened fish, five freshwater crustaceans, and 99 endemic insects birds) (Goodman 2000). The scores are not measures of raw biodiversity richness, nor do they include measures of irreplaceability or complementarity and are not intended for systematic conservation planning (Margules & Pressey 2000; Pressey & Cowling 2001; Reyers et al. 2002; Balmford 2003). Other conservation planning research in Africa has focused on species distribution, particularly birds and mammals, due to data availability. Biodiversity importance data used here, of which species richness is only one component, proved to be a suitable surrogate with a strong correlation between measures of overall biodiversity importance and species richness extracted from the overall biodiversity importance score ($r = 0.976$). Weighted biodiversity scores were calculated by scaling up the intrinsic biodiversity polygonal scores to each independent level, multiplying this value by the polygon's percent area of the total area for that scale, and then summing all polygons for an area. The weighed scores were calculated at three different spatial scales of analyses: quarter degree grid square (QDS) (mean area = 683 km²), census ward (mean area = 162 km²), and census sub place (mean area = 40 km²). Spearman rank correlations and Kruskal-Wallis analyses of variance (ANOVA) were conducted ($p < 0.05$ significance level) at each spatial scale. The focus was on land outside of existing, and mostly

uninhabited, conservation areas in an effort to identify demographic trends and anthropogenic threats facing unprotected biodiversity, sites for future conservation, and areas of potential resource conflict. The South African National Spatial Biodiversity Assessment identified local communities as an important scale for biodiversity conservation (Driver et al. 2005). Thus, discussions focus on ward-level results as they provide a practical spatial scale for civic participation, local decision-making, policy enactment, service delivery, and micro planning and management.

Parks Are Not Always People Magnets

A negative, although weak, correlation was found between human population density and biodiversity for wards outside of protected areas (Table 1). These results are contrary to previous findings of a positive correlation between population density and biodiversity at broader national (quarter degree) and African (one degree) scales (Balmford et al. 2001; Chown et al. 2003; Janse van Rensburg et al. 2004). The negative results were initially thought to be a scale issue or influenced by the exclusion of protected areas in the analyses. However, correlations for Maputaland at both the sub place and QDS, with and without protected areas, yielded similar negative relationships (Table 1). Regarding previous findings of positive correlations at broad scales, Chown et al. (2003) note how both humans and biodiversity respond positively to rainfall and net primary productivity; thus the overlap in their locations. The negative relationships in Maputaland, while possibly a fine-scale phenomenon, suggests the relative importance of other socio-economic drivers of population distribution and change at the local level. Population density and biodiversity were related to land use as expected. Areas with high

Table 1. Spearman rank correlations between spatially explicit 2001 human population density and intrinsic biodiversity importance for the Maputaland region. ^a

	<u>QDS</u>	<u>Ward</u>	<u>Sub Place</u>
Without Parks	-0.29 (n=33)	-0.34 (n=56)	-0.15 (n=256)
With Parks	-0.63 (n=33)	-0.63 (n=77)	-0.26 (n=296)

^a Analyses were conducted at three different spatial scales, with and without protected areas: quarter degree grid square (mean area = 683 km²), census ward (mean area = 162 km²), and census sub place (mean area = 40 km²).

biodiversity scores had high levels of natural land cover and low levels of transformed and degraded land; areas with high human population density had high levels of transformed and degraded land.

Another misconception is that all protected areas are magnets for local rural poor people, resulting in higher densities surrounding parks. This notion is partly due to the previously described broad relationships between biodiversity and population density, but also supposedly because local people are attracted to parks in search of benefits or resources. In Maputaland, wards bordering protected areas had significantly lower population densities (ANOVA $p=0.012$) than those that do not share a border with a protected area. Accordingly, land around parks had higher levels of natural land (ANOVA $p=0.023$) and lower levels of transformed land (ANOVA $p=0.040$). Low population densities appear to buffer parks in Maputaland, a favorable condition for their biodiversity conservation. Again, this is contrary to popular perceptions that parks are threatened by proximate human encroachment and related anthropogenic degradation. While many protected areas are capable of directly contributing to local livelihoods, in reality access to park resources remains limited, benefits to communities overstated, and costs disproportionately absorbed by local people (Barrow & Fabricius 2002; Ferraro 2002; Scherl et al. 2004; Jones, 2005).

The Role of Land Tenure

Current South African land reform actions (restitution, redistribution, and tenure reform) are a government priority to overcome Apartheid discrimination. Early settler agreements and historical laws and practices in Maputaland segregated Africans into the semi-

autonomous KwaZulu communal 'homeland', a patchwork of various Zulu-speaking tribes subservient to the Zulu king. Much of KwaZulu was demarcated to include land not suitable for large-scale white commercial agriculture (Cousins and Claasens 2003). It was later recognized that aside from their low commercial agricultural potential, land designated as communal contained important biodiversity. Today, communal land in Umkhanyakude District Municipality accounts for 20.24% of formal protected areas managed by provincial conservation authorities. The parks are mostly uninhabited, fenced reserves with highly limited access and resource use. While forced removals were used in some protected areas, portions of the communal land were 'willingly' designated as protected areas during the Apartheid era in exchange for promises of resource access, revenue sharing, nature-based tourism spin-offs, and co-management agreements (Tong ca. 2002; South Africa 1997; Ewing 2001; Lockett et al. 2003; I. Tembe, personal communication, 10 March 2003). Benefits have been slow to materialize and the parks have been threatened with land claims, vandalism, and violence against conservation staff (Jones, 2005).

Communal land tenure accounts for 54% of all land outside of protected areas in the study area and plays an important role in population and biodiversity dynamics. These communal areas have significantly lower biodiversity scores than noncommunal (i.e private and state) areas ($r=-0.57$). Allowing for the previously described Apartheid policies and the fact that 10% of communal land is already designated as protected, results seem to suggest the influence of population density. However, land tenure and population dynamics in Maputaland run contrary to these expectations.

To investigate the role of land tenure, tribal communal boundaries were scaled to ward boundaries. All land in the municipality outside of the tribal areas was classified as noncommunal. Wards were then categorized as either communal (more than 50% is communal) or noncommunal (less than 50% is communal). The categories were a good fit as tribal areas are mostly aligned with ward boundaries (ANOVA $p=0.001$). Communal wards had higher population densities than noncommunal wards (ANOVA $p=0.006$), with median densities of 100 persons per square kilometer and 59 persons per square kilometer, respectively. Population growth was also related to land tenure. Noncommunal wards had higher yearly population growth rates than communal wards (ANOVA $p=0.016$), with medians of 5.41% and 1.83%, respectively. High noncommunal growth is possibly a result of low initial density; noncommunal density is simply catching up with communal density. But if high population density impacts land cover, 'dense' communal areas should have significantly more transformed/degraded land and less natural land than noncommunal areas. Yet, no relationship was found between land tenure and land cover (ANOVA: transformed, $p=0.497$; degraded, $p=0.106$; natural, $p=0.936$). While the original correlation between population density and land tenure was weak, results may also be explained by the region's political history. Apartheid policies identified important biodiversity on communal lands that were perceived to need protection from African population growth and local livelihoods. Subsequently, parks fenced in portions of communal areas with high biodiversity, while important areas on private and state land were not formally protected. Another possibility is the increased recognition that not all communal areas are doomed to Hardin's (1968) 'tragedy of the commons'. Communal areas in South Africa are not open systems as Hardin suggested,

and they do have oversight and management mechanisms to protect natural resources (Bohensky et al. 2004).

Why Conservation Must Care About HIV/AIDS

In addition to land tenure, other socio-economic factors have great impacts on conservation, namely household population dynamics and the HIV/AIDS pandemic. Similar to other hotspots, Maputaland's population and household growth rates were above the global average and the number of persons per household sharply declined (Cincotta et al. 2000; Liu et al. 2003). Mean yearly population growth between 1996 and 2001 was 2.96%, well above the national average of 2.01%. Yearly growth in the number of households at 7.21% far exceeded population growth. Similar to population density, there is a strong relationship between household growth and tenure (ANOVA $p=0.017$). The median yearly growth of new households on noncommunal land was 11.31%, compared to 6.12% on communal land. Throughout Maputaland, the mean number of persons per household fell from 7.01 (s.d.=0.91) in 1996 to 5.78 (s.d=0.97) in 2001. Although communal households have more persons than those in noncommunal areas (6.02 compared to 5.22 for 2001), the rate of decline in the number of people per household was not related to land tenure; households across the region declined in size regardless of tenure. As the number of people per household decreases, the efficiency of resource use per person also decreases as wood for cooking, land and materials for building, and energy for heating and lighting are shared amongst fewer household members (Liu et al. 2003). Liu et al. (2003) cite lower fertility rates, an aging population, increased divorce, and less multi-generational families in the same household as possible

causes. In Maputaland, the breakdown of traditional culture has resulted in the decline of marriage, resulting in more single parent households and the observed pattern of household fragmentation. However, another critical factor in household structure throughout Southern Africa is the HIV/AIDS pandemic.

More than five million of South Africa's 46 million people are living with HIV/AIDS, the highest number of any country in the world (Dorrington et al. 2004). Prevalence estimates for South Africa range between 18.5% and 37.5% (Dorrington et al. 2002; Rehle & Shisana 2003; UNAIDS 2004). Anecdotal evidence for Maputaland suggests it has one of the highest infection rates in the country, probably above 38% (Hlongwe 2003). HIV/AIDS is inextricably linked with the poverty cycle in South Africa; poverty increases the risk of acquiring HIV/AIDS, and HIV/AIDS leads to increased poverty (Fenton 2004; Singh 2004; Siteo et al. 2004). Impoverished households become more dependent on natural resources. Indirect impacts include unsustainable harvesting because of tenuous livelihoods, decreased traditional ecological knowledge, increased poaching, and a decline in land stewardship (Davies 2002; Musters et al. 2002; Meier 2003; Oglethorpe & Gelman 2004; Siteo et al. 2004). Direct impacts include over exploitation of medicinal plants, deforestation for coffins, increased reliance on non-timber forest products, and increased land requirements for burial (Barany et al. 2001; Mauambeta 2003). In Zambia, households with adult HIV/AIDS mortality were five times more likely to increase fuelwood collection (Siteo et al. 2004). Household finances become vulnerable due to the loss of remittances and pensions from sick or deceased family members and increased expenditures for health care, including traditional medicine, and burial costs (HSRC 2002). Households struggle to meet basic needs and

children's school fees become a luxury. With no money for school fees and an increased need for the children's labor in household duties such as collecting water and fuel wood, education suffers. The risk of land insecurity, particularly for women, increases after the death of a husband or male family member (HSRC 2002; Meier 2002). Land insecurity is a well documented cause of resource degradation and conflict.

HIV/AIDS has dramatic impacts on conservation organizations. Ezemvelo KwaZulu-Natal Wildlife have suffered losses in human capacity, absenteeism, high staff turnover, decreased productivity, decreased return on training investment, and increased human resources costs (Meier 2003). Between 1999 and 2003 they had a near six-fold increase in the number of 'health-related' deaths and a 16 fold increase in persons on disability (Mauambeta 2003). Exact causes of the deaths and disability are unknown, but most were probably AIDS related or affected. As a result of HIV/AIDS, conservation agencies find themselves taking on new roles: that of caregiver, poverty reliever, and community health educator. Ezemvelo KwaZulu-Natal Wildlife's responses to the pandemic include condom distribution, recruitment of a traditional medicinal coordinator, the employment of an occupational nurse for staff, health awareness training, and capacity building for local communities (Meier 2003). A meeting of experts at the 2003 IUCN World Parks Congress in Durban suggested future organizational coping strategies might even include material security for staff widows and orphans, living quarters for staff family members to prevent risky behavior (many park rangers live for long periods in remote bush camps away from their family), budgeting HIV/AIDS into strategic plans, and supporting quantitative research on the impacts of the disease (Quinlan 2003).

Looking to the Future

Maputaland provides an interesting case study of the relationship between people and biodiversity with results that help dispel some common misconceptions. Spatial analysis produced unexpected outcomes, including a negative relationship between people and biodiversity whose locations appear to be impacted by a host of socio-economic drivers and possibly even health drivers. Land tenure is a good indicator of both intrinsic biodiversity value and human population dynamics. Communal areas harbored higher population densities, but biodiversity and population growth were higher in noncommunal areas. However, the dynamics between land tenure, population and biodiversity in South Africa remain under researched and supported by minimal empirical evidence, especially at the local scale. Tenure needs increased attention from conservation biology as the country's new communal land bill (South Africa 2004) could have profound impacts on these relationships by providing for the privatization of communal land. A similar shift to private tenure was a primary driver of land degradation in Kenya (Homewood 2004).

High population densities and growth rates were not found directly around parks in Maputaland. The most dramatic density and growth areas were in three regional commercial/transportation centers (Jozini, Manguzi, and Mtubatuba). This is probably a result of limited park benefits to local people, as well as a concentration of government services, shopping, and health care facilities in these hubs, all of which attract people in search of jobs and economic opportunities. Government has focused its resources via a spatial development initiative that attempts to attract development in the quasi-urban centers and rural areas by providing basic infrastructure (DTI 2005). New road networks

in remote regions were built to attract nature-based tourism investment. Yet, the ability of commercial nature-based tourism enterprises and community-based natural resource management projects to underpin large-scale development and poverty alleviation is under increased scrutiny. Serious questions remain about their efficacy to provide biodiversity protection, long-term profitability, or community development (Ferraro & Kiss 2002; Adams & Infield 2003; Kiss 2004). Community-based projects will face increased strain as HIV/AIDS attrition compromises local capacity building and skills training. Sickness and mortality change livelihoods and household structures and strategies leading to increased poverty and a deepened dependence on natural resources. New research suggests that mortality from HIV/AIDS in South African has been seriously under reported, particularly for prime-aged adults, and impacts are probably more widespread than initially believed (Statistics South Africa 2005). While HIV/AIDS is anticipated to slow population growth (but not reduce overall population) in Maputaland, slash and burn techniques for clearing homesteads, over harvesting of medicinal plants, unsustainable agricultural practices, and unforeseen impacts on biodiversity will require decades to overcome.

The Maputaland Hotspot highlights the complexity inherent in the dynamics of conservation and society at the local scale. Achieving complementary biodiversity protection and rural development has gained increased attention in recent years and discourses abound on appropriate goals, methods and management strategies. However, much of the conservation research in Africa is at broader national and African scales and is premised on preconceived notions of rural cultures, livelihoods, and settlement patterns. A challenge for future biodiversity conservation planning and implementation is

to recognize the micro-level relationships and incorporate assessments of unique socio-economic, demographic, land tenure, and health indicators at the local level.

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CHAPTER 5

Modeling Conservation-induced Household Resettlement in Mbangweni, South Africa

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Abstract

Research on household resettlement has traditionally focused on economic implications of involuntary displacement resulting from large-scale development projects (*i.e.* dams). In Southern Africa, resettling households in exchange for community development has been proposed to ensure the sustainability of biodiversity conservation areas. However, minimal research exists on the costs and benefits to local residents. I used Geographic Information Systems for spatial analysis of the community of Mbangweni, South Africa, before and after potential conservation expansion and resettlement. To explore livelihood implications, results were qualified using Cernea's Impoverishment Risks and Reconstruction model. In addition to disruption of economic livelihoods, the project is likely to have significant social implications for the community and throughout the entire region.

Introduction

Biodiversity conservation and protected area management in South Africa have moved from historical forced removals of local people to participatory schemes with enhanced equity for local people. During the country's colonial and Apartheid eras, communities were forcibly evicted from traditional lands and involuntarily resettled elsewhere, often without compensation, to make way for 'fortress' parks. Post 1994 democracy, new land reform legislation allowed displaced communities to seek restitution. Land claims against parks resulted in local communities receiving reparation for past injustices. In parts of national parks, title was restored to local communities, although the land was still used for conservation (Robins, 2001; Ramutsindela, 2002). However, communities were empowered with increased benefit sharing and decision making powers.

In addition to biodiversity, current South African conservation focuses on protected areas as tools for rural poverty alleviation. 'Conservation and development' are seen as interdependent on one another, with conservation spurring local development, and a subsequent increase in the sustainability of protected areas that provide the economic benefits (Jones, 2005). In particular, nature-based tourism is cited as an engine for economic development via community-based initiatives. Community projects are promoted as win-win: local economic stimulus from tourism-related jobs and biodiversity protection by communities whose new livelihoods are dependent on a healthy resource. Community nature-based tourism has been heavily endorsed in South Africa by government and multilateral development agencies, but there have been few unqualified successes. Criticisms of their efficacy include

questionable long-term economic sustainability, negligible biodiversity protection, revenue leakage away from local communities, heavy dependence on a fickle tourism industry, and a trend to overemphasize ecology and not focusing sufficiently on affected communities (Loon & Polakow, 2001; Mulholland & Eagles, 2002; Adams & Infield, 2003; Kiss, 2004).

The case study presented here analyzes *a priori* potential voluntary resettlement of a community from part of their land to make way for expanded conservation. In exchange for ceding land to conservation, the community could potentially receive access to agricultural land currently located inside a park, increased jobs and revenue sharing from future nature-based tourism enterprises, funding for basic development (schools, water taps, etc), and a co-management agreement over the new conservation area. The community would not give up title to the land, but would concede rights to access, settle, develop, or otherwise use the land in a manner unsupportive of conservation. To explore the implications of expanded conservation and resettling households, a multi-disciplinary approach was used to examine both quantitative and qualitative impacts. The primary aim of this paper is to quantitatively assess and compare several possible resettlement scenarios, and then qualitatively examine the social impacts of resettlement in general. The approach and results presented here differ from most literature in that the analyses were conducted before the completion of resettlement negotiations and implementation; the conclusions presented are predictive rather than an *a posteriori* summary. First, spatial analyses using Geographic Information System (GIS) were conducted on the locations of households, community infrastructure, and livelihood resources before

and after potential resettlement. Cernea's Impoverishment Risks and Reconstruction Model was then used to explore potential social and economic impacts of resettlement on households, the community as a whole, and the larger study region. I begin by presenting a brief review of resettlement research.

Perspectives on community resettlement research

Most resettlement literature concerns involuntary or forced displacement resulting from large-scale development programs (*e.g.* dams and mining). Displacement schemes often lead to an increased risk of impoverishment stemming from altered livelihoods, lost natural resource access, and disruption of cultural and social services (Cernea, 1997). Research of development-induced resettlement has traditionally focused on the economic benefits of large-scale projects and the cost effectiveness of acquiring new land for community relocation. In the late 1990s multilateral institutions began conducting *a priori* social impact assessments to appraise non-economic impacts on local communities. Building on extensive research for the World Bank, Cernea (1997) developed the Impoverishment Risks and Reconstruction (IRR) model. The model differs from most development related exercises by exploring the collective and cumulative social impacts of displacement and reconstructions on local communities; it is not a simplified cost-benefit analysis. The IRR model examines eight major resettlement risks: landlessness, joblessness, homelessness, marginalization, increased morbidity and mortality, food insecurity, lost access to common property resources, and social disarticulation. In an attempt to qualify impoverishment risks, it builds on four distinct, but interrelated functions:

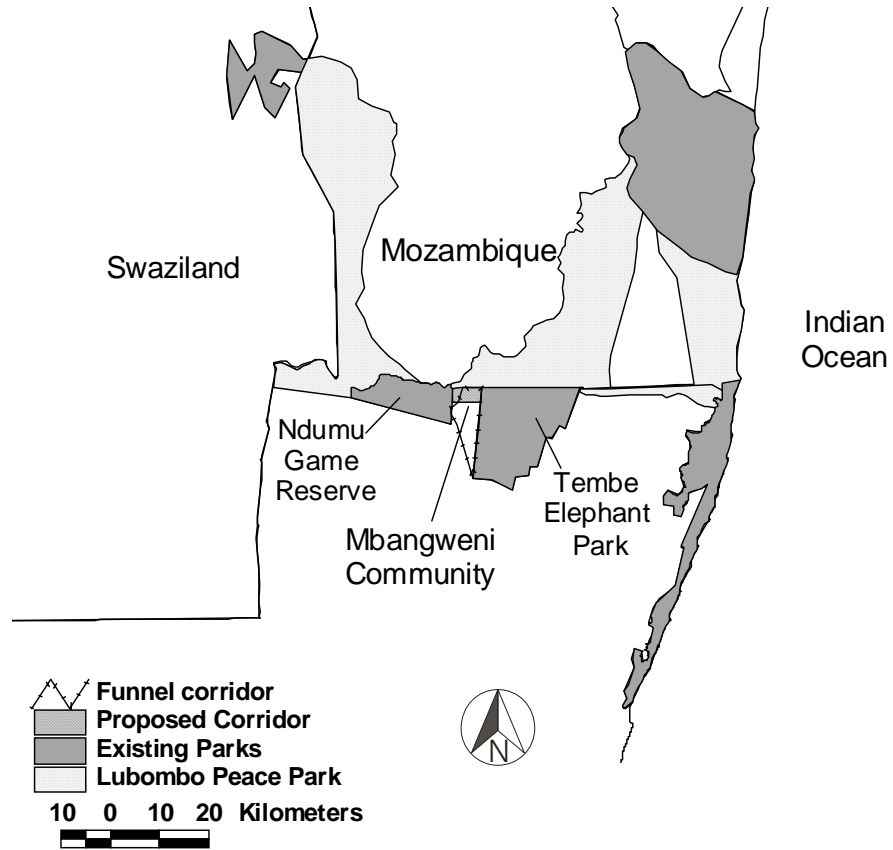
predictive, diagnostic, problem-resolution, and research capacity (Cernea, 2002). While the IRR model was designed for the World Bank to analyze involuntary resettlement resulting from large-scale development programs, it has since been used to examine other involuntary resettlement schemes.

Resettlement that is either voluntary (i.e. negotiated or approved by residents) or conservation-induced remains poorly investigated. Research in Central Africa focused on involuntary displacement from pristine natural areas to create new national parks (Schmidt-Soltau, 2003; Cernea & Schmidt-Soltau, in press). However, those resettlement efforts were similar to large-scale development projects in that local people did not support the end goal. While nature reserves and parks are thought of as wild places, the conservation of resources via protected areas is increasingly marketed in South Africa as a tool for local economic development. Conservation-induced resettlement enticements are similar to large development projects such as dams: it is good for the majority (biodiversity protection), while the resettled minority will be provided direct benefits (job, co-management, revenue sharing). Thus, research on negotiated and/or voluntary resettlement is needed as conservation-induced displacement is expected to grow in Southern Africa with the development of international transboundary parks that require resettling large numbers of people (Bice, 2004).

The study area

The community of Mbangweni is situated in northern KwaZulu-Natal, South Africa (Figure 1). Mbangweni is part of the Tembe Traditional Authority (successor

Figure 1. Northeastern KwaZulu-Natal and the Lubombo Peace Park.



to the Tembe Kingdom) that historically encompassed people on both sides of the South African-Mozambique border, stretching from the Lubombo Mountains to the Indian Ocean. Today Mbangweni encompasses an area of 46km² bordered on three sides by Ndumu Game Reserve, Tembe Elephant Park, and Mozambique. The international border is officially demarcated and fenced but remains porous with people and goods flowing in both directions in support of shared kinship, cultures, and co-dependent livelihoods. Most of the 118 households (677 residents) in Mbangweni pursue livelihoods dependent on subsistence agriculture, the sale of locally harvested natural resources, government grants (pension and childcare), and remittances from family members working in urban centers. Household cash is spent on basic foodstuffs, transportation, healthcare (including traditional medicine), and school fees. There are no natural water sources, piped water, electricity mains, sanitation, or healthcare facilities in the community. Households typically have a small dry land agricultural plot at their homestead, but yields are low due to water scarcity and poor, sandy soils. Wild fruit and trees supplement nutritional requirements as well as provide income through the production of wild products (Cunningham, 1988). Energy needs are met by local fuelwood collection and homesteads are constructed using traditional materials and methods. The community is accessed by a single-track dirt road that runs 22 km south to the main regional tar road. The prevalence of HIV/AIDS throughout the region is estimated around 38%, one of the highest in the country (Hlongwe, 2003).

Annual population growth in Mbangweni between 1996 and 2001 (extrapolated from government censuses) was 2.87%, well above the South African

average of 2.01%. New households are growing at a rate of 6.8% *p.a.*, partly due to a decline in the average number of persons per household from 6.7 to 5.4 (-4.22% per year). A decline of people per household results in decreased resource use efficiency as land for homesteads, materials for building, and wood for cooking and heating are partitioned among fewer household members (Liu, Daily, Ehrlich & Luck, 2003). It is difficult to model future population trends due to the massive prevalence of HIV/AIDS. Understanding local demography is complicated by the underreporting of mortality due to the epidemic and unknown effects of future prevention/treatment strategies (Statistics South Africa, 2005). Mbangweni is likely to experience a significant decline in yearly population growth, but real numbers and the growth rate are not anticipated to be negative.

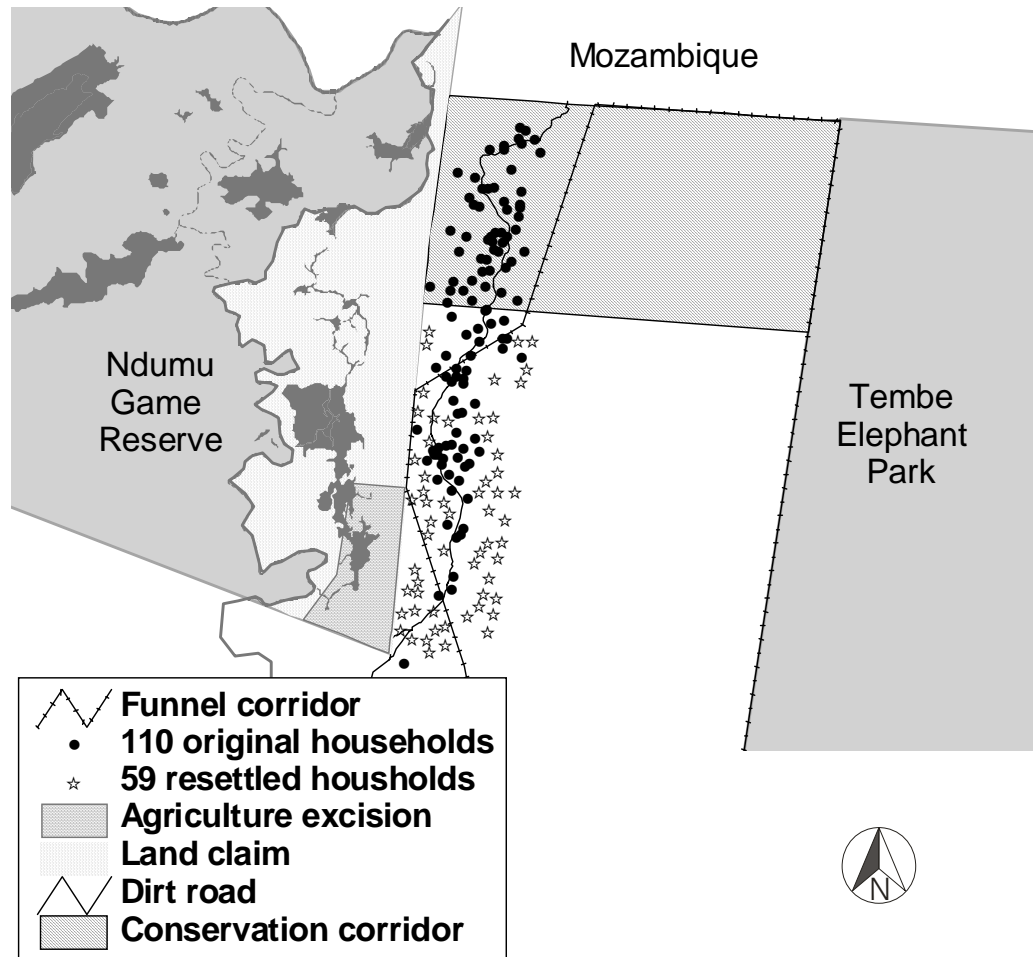
Mbangweni's social, nutritional, and economic livelihoods are directly linked to neighboring Mozambique (Jones, 2005). Many households have an additional agricultural plot on productive floodplain land located several kilometers inside Mozambique. Bush meat is actively traded throughout the region, most of which probably comes from southern Mozambique. Women from Mozambique sell wild fish to Mbangweni women, who resell it at South African markets. The fish trade also supports the informal South African taxi economy, which transports the women and fish along the 22km² dirt road to regional markets located along the tar road. Informal markets located on the border provide access to goods and service for both countries in lieu of formal shops. Taxis transport South Africans to the border market and Mozambicans from the border to other shops, healthcare, and services located in South Africa. Residents routinely cross the porous border in both directions to visit

friends and family. More than 26% of Mbangweni households regularly conduct social visits to Mozambique (Jones, 2005).

Conservation Conflict: past injustices and the path to future equity

Members of Mbangweni historically resided on land that is now inside Ndumu Game Reserve (Figure 2) (Jones, 2005). Established in 1924, the state-owned park invoked racially discriminatory laws and practices between the 1940s and 1960s to forcibly remove local people (Tong, ca. 2002). In contrast, Tembe Elephant Park was created during the late 1980s in consultation with the Tembe tribal authorities who agreed for some residents in the southern portion of the park to resettle outside the soon-to-be-fenced park. After democratization in 1994, and subsequent land restitution legislation, the Mbangweni community filed a land claim against Ndumu Game Reserve for all land east of the Pongola River inside the park. The community maintained that not only did they regularly access the land for natural resources, but some community members and/or their ancestors had resided on the land. The managing conservation agency, Ezemvelo KwaZulu-Natal Wildlife, agreed that Mbangweni livelihoods were dependent on floodplain resources inside the park, but denied that community members ever resided on Ndumu land. The Department of Land Affairs settled the land claim in 2000. The settlement acknowledged the Mbangweni community as rightful owners of the land, and restored full tenure and ownership to the community. However, the settlement required the land to continue

Figure 2. Mbangweni settlement pattern before and after resettlement.



to be fenced for conservation under the management of Ezemvelo KwaZulu-Natal Wildlife (Tong, ca. 2002). The parties agreed to negotiate a separate management agreement to determine future access rights, revenue sharing, and possible co-management. The community was also afforded the right to pursue the excision of a small piece of land from Ndumu Game Reserve to convert to agriculture in exchange for a portion of community land to become conservation (Tong, ca. 2002). This land exchange could require household resettlement and is the focus of this study.

An alternative to the agreement would be to excise 200 ha (2%) of highly productive riverfront agricultural land from the southeast corner of the Ndumu Game Reserve; in return, Mbangweni would allow 1650 ha (36%) of its communal land – marginal for agriculture- to be managed as a fenced conservation corridor linking Ndumu Game Reserve and Tembe Elephant Park (Felton & Hanekom, 2000). Ezemvelo KwaZulu-Natal Wildlife seeks to join the two parks to allow the overstocked elephant population in Tembe to disperse to Ndumu. The joined Tembe-Ndumu complex would also drop its northern fences to become part of the transboundary Lubombo Peace Park linking reserves in South Africa, Mozambique and Swaziland (Figure 1). The goal of the mega-park is to enhance biodiversity conservation, provide for elephant migration, and support economic development in neighboring communities through nature-based tourism. The Mbangweni conservation corridor linking Tembe and Ndumu could be administered by a co-management agreement or as a community conservation project. Ezemvelo KwaZulu-Natal Wildlife would probably provide ecological management, but the community could be granted rights to pursue nature-based tourism inside the corridor. The exact

size, shape, and location of a potential corridor must still be negotiated, but two proposed alternatives are examined here. Both of these options require a portion of Mbangweni households to be resettled so that a conservation corridor devoid of human settlement could be created.

Methods

Most resettlement research and use of the Impoverishment Risks and Reconstruction model has focused on involuntarily resettlement. Here a complementary approach is used to quantitatively and qualitatively analyze potential voluntary resettlement of the Mbangweni community. First, spatial analyses were conducted in a Geographic Information System (GIS), including comparisons of pre and post resettlement distances to natural, social, and economic resources. Global Positioning System (GPS) coordinates were obtained for all 118 households in Mbangweni. Of these, eight households were excluded from analyses because they were situated outside recognized community boundaries. Distances were calculated from each household to other households, the nearest gate into Ndumu Game Reserve, the nearest route to Mozambican border, the possible agricultural excision, the dirt road through the community, the main tar road south of the community, the Pongola River, and the existing school and shop. The spatial analyses were then qualified using the Impoverishment Risks and Reconstruction Model. Each of the IRR risks was examined for Mbangweni residents, neighboring communities, conservation interests, and other local actors.

In the case of conservation corridors, research is lacking on determining viable minimum dimensions, but bigger is thought to be better for elephants and general biodiversity conservation (R. Guldmond, personal communication, 1 October 2004). To conduct a modeling exercise two likely options were identified. The first alternative, proposed in an initial Ezemvelo KwaZulu-Natal Wildlife assessment, is a 1650 ha rectangle bounded by the Mozambique border to the north (Figure 2) (Felton & Hanekom, 2000). The second alternative, from an initial Peace Parks Foundation proposal, identified a large funnel shape with a narrow funnel mouth starting at Ndumu Game Reserve and widening to a large base encompassing the entire western boundary of Tembe Elephant Park (Figure 2) (PPF, 2002). The funnel's narrow mouth would join to Ndumu Game Reserve south of most Mbangweni households, therefore requiring little or no resettlement. However, several obstacles are inherent in this alternative. Such a large corridor would require incorporating land from other communities and complicate negotiations. In Mbangweni, the funnel would divide the community in two; the narrow mouth would be bordered on the north and south by human settlements that might disrupt animal migration. Lastly, the extensive north/south human and vehicle traffic along the dirt road stretching from the tar road all the way into Mozambique would be disrupted. Solutions to the human traffic issue would have to support or substitute the social and economic flows without impairing the ecological functions of the funnel mouth. Comparing the two alternatives, the rectangular corridor proposed by Ezemvelo KwaZulu-Natal Wildlife or a similar variant, seems the most likely of the alternatives to succeed and was, thus, used for analysis.

Modeling resettlement in GIS: quantitative impacts of resettlement

Past Mbangweni settlement patterns have been influenced by access to infrastructure, primarily roads and water, which explains why there is no settlement in the eastern region bordering Tembe Elephant Park. Of the 110 households analyzed in Mbangweni, 59 (54%) would require resettlement out of the potential rectangular conservation corridor. These were modeled for resettlement around the remaining 51 fixed households not requiring resettlement. An average of 148 meters between households was computed by calculating the distance from each household to its nearest neighbor, then taking the mean of these minimum distances. Assuming circular homesteads, the average radius, including a vegetation buffer, was 74 meters (half the distance to the nearest households). To calculate homestead area, the 74-meter radius was used to create non-overlapping homestead perimeters in ArcView (Thiessen polygons). Areas were calculated based on each homestead's unique perimeter, and then the mean was calculated for all 110 households resulting in an average parcel size of 1.38 ha. Buffers of 74-meters were created around the 51 fixed households so that resettled households would not overlap with existing homesteads. Next, the 59 resettled household locations were randomly generated around the existing homesteads within the following criteria: the new resettled households also had a 74 meter buffer which could not overlap the fixed homesteads, and new homesteads had a maximum distance of 930 meters to the dirt road (based on the average of 110 households before resettlement). Distance to the road was used since current settlement pattern has clearly grown organically adjacent to the road. These

spatial criteria provide a conservative resettlement pattern since they use previous averages to generate new minimum distances.

Once all 110 households were distributed in the community, possible impacts were examined, based on new proximities from households to other features by comparing average distances before and after resettlement. Averages linear distances were calculated from the 110 households to the dirt road running through the community, the existing primary school and shop (neither lie within the potential conservation corridor), the most direct route to the Mozambique border, the nearest access gate into Ndumu Game Reserve (of three existing gates), the Pongola River inside Ndumu River (calculated as the sum of the distance from homesteads to an Ndumu gate and the distance from that gate to the river), the most direct route to the possible agricultural excision, and the regional tar road south of the community. For post resettlement analysis, the distance to an Ndumu gate and Pongola River access were measured from homesteads to the site of a likely new access gate from the excision into the park. Table 1 compares the distances before and after resettlement.

By modeling future household locations based on past settlement patterns the modeling exercise provided a plausible scenario of community settlement. However, this did not include the influence of new community infrastructure negotiated as a product of the land exchange. New schools, water taps, shops, and roads could alter new settlement patterns as households voluntarily settle in proximity to new features. But rather than modeling future homestead settlement around new infrastructure, these results could be used to decide where to place new infrastructure based on

Table 1. Average distance in meters to community features before and after resettlement.

	<u>Before</u>	<u>After</u>
Nearest neighboring household	148	170
Dirt road	210	310
School/shop	1454	2176
Mozambique border	3009	5425
Nearest Ndumu Game reserve gate	1146	1134*
Pongola River	2024	2040*
Agriculture excision	na	1134
Tar road	15,554	14,725

* This assumes new access into Ndumu constructed at the excision.

historic settlement patterns. Building on the spatial analyses, the IRR model was used to qualify resettlement impacts.

Qualitative impacts of resettlement: the IRR model

Resettlement will most directly impact the residents of Mbangweni, but other South African communities and Mozambicans north of the border will also be impacted. Here the focus is on Cernea's (1997) eight risks for all potentially affected people. Building on the IRR assessment, a ninth locally relevant risk was incorporated that will affect the outcome of any resettlement and conservation project, namely, the collateral impact of HIV/AIDS.

Landlessness (including the social and spiritual value of land)

The existing settlement pattern developed in accordance with local cultural and social traditions, natural resource access, and infrastructure limitations. Most homesteads are located in a north/south pattern, with the dirt road as the main attractor. Homesteads cover approximately 1.38 ha and are separated from each other by trees and vegetation, allowing for privacy. Residents have noted an increase in the number of new households, which was accompanied by a perception of crowding in the community, but not a fear of resource scarcity due to the increased population (Jones, 2005). The 110 homesteads currently occupy 3.2% of the community's land, and would consume 4.8% of the communal land after the 1650 ha corridor is ceded to conservation.

The land exchange would result in a loss of approximately 1650 ha (34%) of Mbangweni land in exchange for 200 ha of productive agriculture land excised from Ndumu Game Reserve, a net loss of 31% of Mbangweni land. Depending on negotiations, the community would not lose title to the land, but forfeit certain access and development rights in favor of conservation. Land for homesteads has not been a limiting factor in Mbangweni development, nor does a land deficit appear to be a serious risk after resettlement. Spatial analyses demonstrated that the 59 resettled homesteads would easily fit within modeling parameters based on current settlement and demographic patterns. For the social, cultural, and spiritual value of land, a participatory corridor-planning exercise would help identify significant sites (*e.g.*, ancestors' graves and rain making areas), which would either need to be excluded from the corridor or require that concessions be granted to visit and conduct traditional ceremonies at sites that might become fenced.

Joblessness (including loss of income and subsistence activities)

The proposed conservation corridor would divide South African and Mozambican communities and disrupt important economic activities on both sides of the border. Some people would benefit from access to increased jobs, income, and economic opportunities; others will have decreased or lost access (Jones, 2005). Women in both countries dependent on the fish trade could suffer lost opportunities. Taxis that service the fish trade and provide transport to residents in both directions would lose part of their customer base. If a formal transport system was established through the corridor to service local needs, the taxis could benefit from an authorized

route through the corridor to and from the border. However, residents have historically walked across the border and paying for taxi transport through the conservation corridor might cause increased financial hardship.

During the late 1990s, Mbangweni was a well-known hotspot of criminal cross-border smuggling. A joint 2000-2001 military and police task force on both sides of the border helped stem the flow of stolen vehicles from South African and illegal firearms left over from the Mozambique civil war. More recently, anti-smuggling efforts have targeted counterfeit clothing, cigarettes, and illegal drugs (A. Beukes, personal communication, March 20, 2003). The level of participation of Mbangweni residents in illegal border activities is unknown, but it is likely that some community members, particularly taxi operators, benefit by approving and/or facilitating the smuggling. Aside from legal and ethical implications, disruption to all economic activities needs to be addressed and incorporated into resettlement plans.

Nature-based tourism could provide much needed jobs for the community and a positive economic multiplier effect for other local households. However, the economic sustainability of nature-based tourism, particularly community-based ventures, is questionable (Adams & Infield, 2003; Kiss, 2004). Recently a prominent nature-based enterprise operating in Ndumu shut down after failing to make a profit during its 10-year operation (Poultney & Spenceley, 2001). Ezemvelo KwaZulu-Natal Wildlife acknowledged that many of the community-based nature-based tourism ventures in the region have not achieved long-term sustainability, but attributed the failure to indigenous social, cultural and economic organization (Goodman, James & Carlisle, 2002). If not addressed, *a priori*, differing

epistemologies between the community and conservation authorities could contribute to hostility and interfere with negotiations and project success.

The 200ha agricultural excision could provide an additional source of household income from products sold at regional markets. An economic assessment of the excision determined that each if household utilized 0.8 ha (based on regional averages), they could earn R3,500 per year (Moodley, n.d.). A lack of reliable data on Mbangweni's household incomes makes it difficult to determine the contribution this would add to household livelihoods. The South African Poverty Fact Sheet suggests that 70-80% of households in the region have a yearly income of approximately R21,672 (Fenske, 2004). Without including forgone economic opportunities listed above, the agriculture excision could provide a 16 % increase in household income.

Homelessness

Homelessness is not a major risk faced by Mbangweni households. As previously identified, a lack of land for homesteads is not anticipated and most buildings on homesteads are constructed from natural materials readily available on the communal land. Negotiations would probably include compensation for resettled households. There could be a risk of conflict if the compensation for resettled households allows them to construct superior homesteads (*i.e.* permanent brick structures), if existing households receive no direct benefit. Therefore, while most housing structures are very basic in construction, and housing standards could rise

with increased wealth in the region, a lack of land and materials to meet current basic housing standards in the region does not pose a large risk.

Marginalization (including the loss of traditional rights and status)

The risk of marginalization stemming directly from resettlement varies. All homesteads would continue to reside on Mbangweni land. No household would be resettled in external communities, often a source of marginalization. One possible source of risk would be the arrival of new settlers attracted by increased development and economic opportunities. Immigrants who bring along social, economic, or other sources of power and influence could disrupt the existing structure.

The greatest risk of marginalization might come from a co-management agreement with conservation authorities. Equitable co-management arrangements are meant to share power, responsibilities, and benefits in an on-going adaptive manner (Eriksen, 1999; Berkes, 2004). However, other co-management agreements throughout the world have tended to prioritize conservation goals over local socio-economic needs (Whande, Kepe & Murphree, 2003). While Ezemvelo KwaZulu-Natal Wildlife has shown a willingness to increase partnerships with local stakeholders in the past, results have varied. A Local Conservation Board was previously created for the Tembe-Ndumu Complex to increase local partnerships, devolve conservation decision-making, and to help administer levy benefits (collected from gate entrance fees) mandated for community development. However, conservation authorities have bypassed the board's decisions at will and acted unilaterally on previous occasions (Lockett, Mkhize & Potter, 2003).

Food insecurity

There is minimal risk for increased food insecurity for Mbangweni residents, but disrupted or increased risk for residents of nearby local communities. The agricultural excision could increase Mbangweni's food security by direct benefits, as well as increased income from selling excess agricultural products at regional markets. Access to clean drinking water will improve if negotiations include a network of communal taps. The cost of purchasing water from communal taps is unlikely to be a major limiting factor since the distance of carrying water from taps to households has limited consumption in the region, not cost (M. Nxumalo, personal communication, 11 Feb 03). Access to water for agriculture would increase due to the proximity of the excision to the Pongola River floodplain. Mbangweni would lose access to some forest products, particularly wild fruits, which would be fenced inside the corridor. Although two thirds of the forest would remain, an ecological assessment is needed to quantify the impact of lost fruit trees to nutrition and income. A disruption to the bush meat trade across the Mozambique border could impact on local diets and the livelihoods of Mozambican traders dependent on the meat and income. The conservation corridor could disrupt the trade of fish from Mozambique to South Africa. This is an important source of cheap protein and income for the region on both sides of the border. Mozambique residents would also lose access to South African foodstuffs sold in shops and at the border market.

Loss of access to common property resources

Under the land exchange presented here, the community would lose open access to more than one third of its land. Negotiations might include some community access to the land after it becomes fenced for conservation, particularly for culturally important areas. Natural resource utilization in the conservation corridor would probably be highly regulated with minimal resource harvesting allowed. Residents would be dependent on resources within the remaining two thirds of the community. It is difficult to quantify the ability of the remaining communal land to provide resources for the community. Access to wild fruits and the meat of wild birds would be diminished, but the communal area would provide adequate land for homesteads and fuelwood for current and future growth patterns. A decrease in grazing land would affect Mbangweni livestock owners, as well as outsiders who are granted permission to graze on the communal land.

Increased morbidity and mortality

Resettlement negotiations could help decrease morbidity and mortality for Mbangweni residents, but cause an increase for others. Development and infrastructure benefits in Mbangweni could include improved sanitation, clean drinking water, increased visits by mobile health clinics, and improved nutrition from expanded agriculture and raised incomes. If a nonporous conservation corridor were developed, Mozambicans would lose access to health facilities in South Africa, as well as income from selling fish and bush meat and trading at local markets.

Social disarticulation (including changes in community structure by age, gender, language, etc.)

Social disarticulation is a fracture in the 'existing social fabric' that disrupts social organizations and relationship in a community; patterns of community self-organization and social networks destabilize (Cernea, 1997, p. 1575). As social patterns become disjointed, there is often a loss of the social capital that is indirectly and directly produced from the existing order. In Mbangweni, the risk of social disarticulation would directly result from resettlement of households and indirectly from inequitable benefit sharing. The conservation corridor might sever social linkages between Mbangweni and Mozambique and the resettlement of 59 households could disrupt social patterns. Women are most at risk as the local culture and planners reinforce patriarchal systems that impact women, including: resettlement compensation paid to male heads of households, male control over expanded agricultural income, strengthening of men's control over resources, and the fragmentation of social units felt mostly by women (de Wet, 2005).

Existing unequal power structures often result in the inequitable distribution of conservation benefits. Residents with traditional political power (*i.e.* the chief and his council) and those with economic power (*i.e.* local taxi drivers) are able to control access to new jobs, household placement, and resource access after resettlement. Community nature-based tourism projects often produce minimal cash benefits, and these are accrued by the local power elite (Berkes, 2004; Kiss, 2004). Other residents with skills relevant to the nature-tourism industry, such as fluency in English, will have a competitive advantage. Language skills have usually been acquired by

households with enough money or power to educate their children in secondary schools located outside of the community. Individuals with driver's licenses, expensive due to training and permit fees, will also be well placed for tourism jobs. Thus, current social patterns could be influenced by access to and distribution of benefits.

The Collateral Impact of HIV/AIDS

HIV/AIDS will not directly affect a resettlement scheme, but it will have major impacts on the success and long-term sustainability of all resettlement components. The prevalence rate for the Maputaland region is estimated to be one of the highest in the country, and is probably above national South African estimates that range between 18.5% and 37.5% (Dorrington, Bradshaw & Budlender, 2003; Hlongwe, 2003; Rehle & Shishana, 2003; UNAIDS, 2004). The links between HIV/AIDS and poverty are well documented. Poverty increases the risk of acquiring HIV/AIDS and the disease in turn increases poverty at the household level (Piro, 2001; Fenton, 2004; Singh, 2004). Households lose income as sick or deceased family members no longer work, collect pensions, or send remittances (HSRC, 2002). Limited household resources are diverted to healthcare, including traditional medicine, and expensive burial services. Natural resource exploitation results from over harvesting of medical plants, wood for coffins, and increased poaching (Mauambeta, 2003; Siteo, Kayambazinthu, Barany & Anyonge, 2004). The resource base is threatened by deepening household dependence on local resources that are increasingly harvested unsustainably due to lost agricultural and ecological

knowledge (Oglethorpe & Gelman, 2004; Siteo et al., 2004). Changes in household size and composition result in increased dependency ratios, lost family labor for subsistence activities, and increased numbers of orphans (Gillespie & Kadiyala, 2005).

The cumulative impact of HIV/AIDS on individuals and households in Mbangweni will threaten the viability of community participation in nature-based tourism operations and co-management arrangements. Capacity building and training for community members to work in conservation-related positions will be continually lost due to high attrition. Traditional leadership and community boards will also suffer lost capacity. Ezemvelo KwaZulu-Natal Wildlife is currently struggling with the impact of the disease that has resulted in 16-fold increase in staff disability and death between 1999 and 2003 (Mauambeta, 2003). As community members are unable to fill conservation and tourism jobs, there is a risk of attracting outsiders, which increases the risk of community disarticulation and/or marginalization.

The community could sink deeper into poverty and become increasingly desperate. With dwindling capacity, leadership, incomes, and health, there is a risk of the community blaming conservation for the situation. HIV/AIDS is heavily stigmatized in South Africa, and local residents are unlikely to acknowledge the disease for the deteriorating situation. A history of forced removals from parks and years of waiting for the land claim to be resolved combined with forgone communal land and household resettlement could compound to make conservation a likely target for community frustration and helplessness. If not addressed, the situation could lead

to a risk of conflict by a community who has vandalized park resources in past efforts to vocalize unhappiness with the status quo.

Conclusion

Conservation expansion throughout Southern Africa is likely to require voluntarily resettling thousands of local people in the future. Yet, research continues to focus on involuntary displacement post de facto, while ignoring serious implications of voluntary community resettlement. An integrated approach using quantitative GIS analyses and a qualitative IRR assessment provided a holistic method for *a priori* resettlement research.

Construction of a conservation corridor and subsequent resettlement of Mbangweni households will have both positive and negative impacts. In some cases, the average distance from households to certain resources such as the river or border crossing will increase, while distances to resources such as the tar road markets to the south will decrease. Due to its geographic location and the nature of local livelihoods, the impacts will not only be felt by local residents, but also by Mozambicans and South Africans throughout the region. While only 59 households might need to be resettled, thousand of people in the region could be affected by a change in the status quo of routine travel between the Mozambique border and the tar road region 22 km to the south. Analysis using the IRR model revealed the importance of understanding both the social and economic elements of resettlement and reconstruction. A conservation corridor that restricts travel through the region could disrupt local sources of income; fish traders might lose access to fish and the ability to transport it

from the border to markets to the south. Taxis could lose the business of ferrying the fish traders, but might potentially negotiate rights to transport people through a new conservation corridor. Social disarticulation, or changes in the community's social fabric and the resulting lost social capacity, could lead to increased social stress and conflict within and without the community. Without mitigation, HIV/AIDS is likely to alter demographic patterns, increase and deepen local poverty, possibly resulting in degradation of natural sources, and result in lost conservation and community capacity and knowledge transfer.

Beyond direct impacts, the implementation of a conservation corridor and potential co-management agreement could have numerous indirect and less tangible impacts on local people. Community stability will be highly dependent on the success of infrastructure development incentives, particularly nature-based tourism schemes. Tourism is a fickle industry and expanded conservation in the region will not necessarily attract additional visitors and result in economic sustainability (Aylward, 2003). Tourism projects, resettlement schemes, and co-management agreements all require an adaptive and long-term commitment of at least five to ten years (Eriksen, 1999; Berkes, 2004). Expectations of co-management are often unrealistic and heavily dependent on a common vision of all participants for success (Borrini-Feyerabrand, 2004). A perceived lack of benefits by the community, regardless of cause, will threaten sustainability and could result in conflict. The conservation corridor, household resettlement, and community infrastructure development require comprehensive planning, local participation, community empowerment and decision-making, and consideration of the social and economic impacts to the larger region.

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CHAPTER 6

Transboundary Conservation: Development Implications for Communities in KwaZulu-Natal, South Africa

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SUMMARY

Conservation is increasingly promoted as a sustainable development instrument in Southern Africa, particularly for remote rural communities. Conservation and development schemes are marketed as community-based projects providing local empowerment through the creation of jobs and cash stemming from protected areas, as well as increased biodiversity protection by local communities whose jobs are dependent on the resource. Transfrontier Conservation Areas (TFCAs), mega Peace Parks that cross international borders, are one of the latest conservation and development paradigms in Southern Africa. TFCAs have gained broad support, including government recognition as a development tool. However, there has been minimal research of the impact of TFCAs on local communities. This paper seeks to provide an empirical case study of a South African community bordering the Lubombo TFCA (South Africa, Swaziland, Mozambique). Results are presented that indicate the Mbangweni community in KwaZulu-Natal could experience decreased access to social, natural, and economic resources as a result of the Peace Park.

INTRODUCTION

Conservation and protected area management in South Africa has moved away from a strictly preservationist paradigm of managing for biodiversity. It is increasingly expected to contribute to poverty alleviation in underdeveloped regions by acting as a stimulus for sustainable development through continued and/or expanded resource-dependent livelihoods and the creation of new opportunities stemming from protected areas. Transfrontier Conservation Areas (TFCA), mega Peace Parks that cross international borders, are one of the latest conservation and development paradigms in Southern Africa. TFCAs have gained broad support, yet empirical research findings of impacts on communities are lacking. I used Community-integrated Geographic Information System, comprised of traditional survey techniques, interviews, observation, and aerial photograph interpretation to explore resource access, attitudes, and consumption in a South African community bordering part of the Lubombo TFCA between South Africa, Swaziland, and Mozambique.

I begin by exploring the influence of a globalization of conservation values based on Northern epistemological ideologies of nature. Local communities and their livelihoods are often viewed by conservation agencies as homogenous and in direct contrast to biodiversity protection. This is especially evident in the context of a polarized society such as South Africa, which illustrates the challenge of understanding and incorporating socially differentiated paradigms for conservation areas and local users (Weiner and Harris, 1999). I explore transboundary conservation as a movement, and particularly The Peace Parks Foundation as an institutional driver in Southern Africa. The potential of Peace Parks to provide local benefits is examined

in the community of Mbangweni, South Africa. Empirical evidence suggests that the Lubombo TFCA may not provide significant sustainable development, but may actually decrease local access to social, economic, and natural resources.

TRANSBOUNDARY CONSERVATION PARADIGMS

There are a myriad of concepts and corresponding terms to describe different frameworks, including the larger Transboundary Natural Resource Management (TBNRM) paradigm, Transboundary Protected Areas (TBPA), Transboundary Conservation Areas (TBCA), Transfrontier Conservation Areas (TFCA) and Transboundary Development Areas (TBDA) (Mayoral-Phillips, 2002; Katerere *et al.*, 2001; Griffin *et al.*, 1999). In some ways, the term transboundary is being shaped to become all things to all people. The various terms may have different peripheral foci, but all include the sustainable use of natural resources.

While a strong theoretical debate on transboundary issues has developed, consensus about potential benefits and/or detrimental effects has yet to emerge. Sharp dichotomies permeate the literature, supported by minimal empirical research results. Griffin *et al.* (1999) note that TBNRM activities can legalize cross-border movement and renew cultural ties affected by international borders, while Fakir (2000) describes transboundary initiatives as ‘conservation expansionism’. Some believe transboundary initiatives can foster peace and security (Westing, 1993 and 1998), provide environmental security and enhance regional cooperation (Singh, 1999), and mend pre- and post colonial conflicts in Southern Africa (Koch, 1998). Others argue they may cause inter-state disputes rather than assuage them (Wolmer, 2003) or

increase conflict if land disputes and economic benefits are not equitably shared among participating countries (Fakir, 2000). Increased economic development and poverty alleviation for poor rural communities are also expected from new nature-based tourism opportunities (SADC, 1992 and 1999; NEPAD, 2001; PPF, 2003). Despite the dichotomies, the transboundary conservation movement has gained momentum in Southern Africa and it is therefore necessary to explore its global and local drivers.

Northern idealism and managing the 'global commons'

Dollar (2001) defines globalization as the economic and societal integration around the world due to the flow of goods, services, and capital, as well as people and ideas. In much of the public consciousness, globalization has become synonymous with a deterritorialization and homogenization of culture. From a post-modern geopolitical perspective, transnational ideas and values have led to a globalization of conservation paradigms and practices. Concern for the global commons has become a major driver of biodiversity management in developing countries (Ghate, 2003). Northern epistemologies of natural resource management and community theory permeate transboundary conservation paradigms, and projects are often driven by agendas of international donors (Katerere, *et al.*, 2001; Hughes, 2003). Duffy (2001) warns that conservation interventions still rely on Northern assumptions about the primitiveness of non-western people, and the belief that local people encroach on biodiversity. She notes that with global interventions the opposite is usually true, and conservation management encroaches on the domains of local resources and communities.

Katerere *et al.* (2001) wonders if globalization has precipitated unrestrained access of Northern researchers and capital to regional resources. Others note that a global protectionism movement can shift power from local to global interests, thereby contributing to external imperialism (Carruthers, 1997).

Much of the donor-driven paradigm is based on Hardin's (1968) 'tragedy of the commons', particularly when applied to traditional African communal land tenure systems. In reality the theory addressed open systems lacking oversight and therefore does not reflect the complexity of communal resource use. Nevertheless, donor programs worried about the approaching tragedy are often delivered under participatory community-based natural resource management (CBNRM) schemes of communal areas. There is now a seamless merging of goals and funds of traditional development donor agencies with those of conservation organizations. Conservation nongovernmental organizations (NGOs) have changed their strategies in order to gain access to newly available development funds, subsequently shifting their policies to match those of the new funding agency (Levine, 2002). These donors typically prefer local programs, believing that 'small is beautiful... local is authentic' (Hughes, 2003, p 23). But CBNRM is not without its own problems. In Southern Africa, CBNRM programs often result in conflict over the use of funds and an expansion of NGO influence (Fabricius *et al.*, 2001). While most projects include economic development goals, projects tend to lean towards conservation and not poverty alleviation, ultimately usurping community benefits in favor of strictly ecological interests (Metcalf, 1999). Furthermore, there is also concern that transboundary initiatives could be used against communities as states extend control over sparsely populated

border regions in the name of conservation (Duffy, 2001). Duffy notes that in some instances, global conservation organizations have assisted state governments in obtaining additional control over wild places through the demarcation of protected areas and their surrounding buffer zones. The newly protected areas bring an increased level of law enforcement for natural resource protection, subsequently used as a controlling mechanism in remote border areas for immigration and informal trade.

PEACE PARKS IN SOUTHERN AFRICA

In Southern Africa, the primary institutional driver of transboundary conservation is the Peace Parks Foundation (PPF). Its mission is ‘to facilitate the establishment of Transfrontier Conservation Areas (TFCA), supporting sustainable economic development, the conservation of biodiversity, and regional peace and stability’ (PPF, 2003). The role of local communities was not originally considered (van Riet, 2003), but Peace Parks are now promoted as a development instrument in support of the Southern African Development Community (SADC) and the New Partnership for African Development (NEPAD). The Peace Parks Foundation is a South African based organization with an essentially Northern epistemology present in much of the country’s conservation strategies. Most of the PPF’s project funding is donated by international aid organizations, private foundations and trusts, and other government affiliates such as the Dutch National Postcode Lottery (PPF, 2001 and 2003).

Concerns of social legitimacy and effective participation in PPF projects have been raised. Draper (2002) describes the ‘mythology of community development’ in

the PPF framework and notes that community buy-in and commitment from local residents in proposed or affected areas are welcome, as long as they follow the PPF conservation policy. In its 2001 Annual Report (PPF, 2001), founder and chairman Anton Rupert remarks that natural assets will only have 'meaningful value' to local people when they are used to create sustainable economic growth based on nature-based tourism.

The centerpiece of the PPF effort thus far has been the Great Limpopo TFCA, linking Kruger National Park in South Africa, Gonarezhou National Park in Zimbabwe, and Limpopo National Park in Mozambique. Concerns have been raised regarding equity of benefits and community participation. Research by the Refugee Research Programme (RRP, 2002) at the University of the Witwatersrand found that in the Mozambican portion of the park, 40% of households had never heard about the conservation plan and communities are confused about how the park will affect them. The Great Limpopo TFCA has been driven by conservation NGOs and donor organizations, resulting in a top-down process with belated community engagement (Grossman, 2003). In the case of the Lubombo TFCA, encompassing the study area of this paper, Kloppers (unpublished master's thesis, University of Pretoria, 2001) notes that when potentially affected communities have been identified or researched, they are often portrayed in a homogenous fashion, without describing the people or their relationship to the local environment.

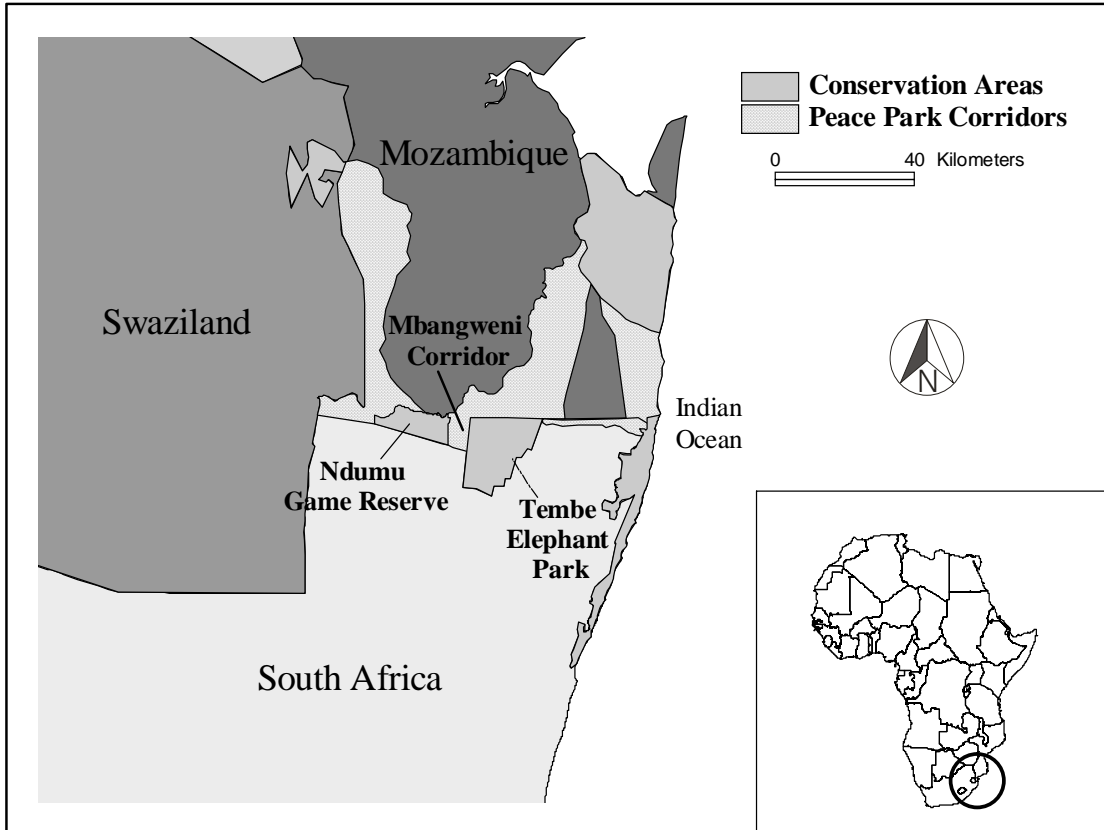
Distribution equity of new jobs has also been questioned (RRP, 2002). In the Great Limpopo TFCA, research found that of the 115 field rangers to be trained for the Mozambican portion of the park, only 29 individuals were selected from local

villages, with the remainder coming from South Africa. Although some jobs have been created, it is unlikely that all the components of the Great Limpopo TFCA will be profitable (Grossman, 2003). Furthermore, rather than increasing rural development, there is concern that TFCAs will purposely limit development as current communal land-use patterns are maintained to act as buffer zones or interstitial corridors of low-impact surrounding conservation areas (Wolmer, 2003; Draper, 2002).

STUDY REGION AND METHODS

The study area lies in the Maputaland region, extending from St Lucia in South Africa to Maputo Bay in Mozambique (Figure 1). Protected Areas in the region represent a number of different habitat types, and include a World Heritage site and several Ramsar Wetland sites. In 2000, The Lubombo Transfrontier Conservation Area (LTFCA) Trilateral Protocol was signed between South Africa, Mozambique, and Swaziland. The LTFCA will center on existing reserves, linking them with new conservation corridors created from currently unprotected inhabited lands. The South African portion of the Lubombo TFCA lies within the province of KwaZulu-Natal. Rural development has been neglected for many years and the area is characterized by extreme poverty and poor economic development with most residents dependent on local natural resource utilization for their livelihoods.

Figure 1: The Lubombo Transfrontier Conservation Area, encompassing parks in South Africa, Swaziland, Mozambique

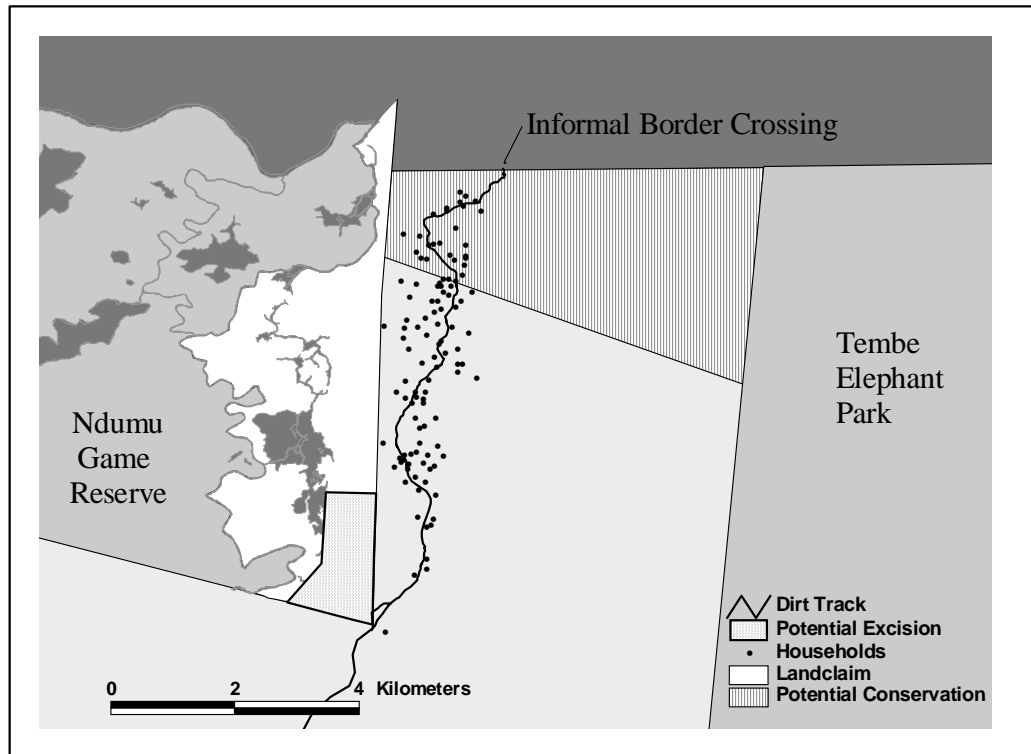


Fieldwork was carried out between February 2002 and March 2003 with numerous visits to the Mbangweni community, neighboring communities, the local traditional authority, and conservation authorities. Data collection included a geo-referenced survey, semi-structured interviews, interviews with key informants, direct observation, Global Positioning System (GPS) data, and community interpretation of maps and aerial photographs. The survey was collected for all 118 households in Mbangweni, as well as households in two other nearby communities (iSibonisweni and uBhekabantu), and included: socio-demographic information; livelihood strategies; natural resource utilization methods and consumption indicators; and attitudes, values, and perceptions ascribed to natural resources and conservation. Geographic coordinates were obtained at each household and community settlement patterns were mapped and linked to survey data in a Community-Integrated Geographic Information System. Aerial photographs and topographic maps allowed participants to evaluate resource location and access, relate narratives of historical patterns of settlement and movement, identify communal resource conflict areas, and draw their own interpretation of various themes and locations.

Community Description and Livelihoods

Located between Ndumu Game Reserve (10,177ha), Tembe Elephant Park (29,000ha), and the international Mozambique border (Figure 2), the community of Mbangweni (approximately 45km²) is situated on communal land under the leadership of the Tembe Traditional Authority (TTA). The traditional authority encompasses an area approximately 2240km² containing 35,000 residents in 42

Figure 2: The Mbangweni community, conservation areas, land claim area, and the potential land excision and conservation corridor.



separate *izigodi* (hereafter referred to as communities), and was part of the former semi-autonomous KwaZulu *Bantustan* (black homeland). All land is held in trust, but the Tembe *inkosi* (chief) and his traditional *izinduna* (sub-chiefs) make most land-use decisions at the community level. Historically, the Tembe Kingdom comprised an area that is now fragmented between South Africa and Mozambique and communities on both sides of the border continue to share similar cultures, kinship ties, and livelihoods. Although there is a demarcated international fence line, the border is porous with people and goods flowing fairly unrestricted in both directions. Protected conservation areas with the Tembe Traditional Authority's boundaries total more than 24% of the land. The park lands belong to the traditional authority, but are managed as conservation in accordance with negotiated agreements by the provincial conservation agency, Ezemvelo KwaZulu-Natal Wildlife. However, Ndumu Game Reserve land is owned by the state and the communal land on all but the eastern side of Ndumu belongs to a the Mathenjwa Traditional Authority.

Survey results indicate the average Mbangweni household consists of 5.7 people, above the regional average. The calculated dependency ratio is 51%, and 72% of respondents were born in the immediate area. Minimal cash flows into the community and most goods and services produced are consumed within the community, with up to 90% of individual household production consumed by the household itself (Moodley, n.d.). Most household cash is spent on basic foodstuffs, with the remainder spent on transportation, healthcare, and school fees. Statistics and anecdotal evidence suggest that the HIV/AIDS infection rates are around 33% (E. Immelman, personal communication, February 28, 2003). The state government, via a

local municipality, is responsible for basic economic and social development, including provision of water, electricity, education, health, and sanitation.

Most of the 118 households in Mbangweni pursue subsistence livelihoods. There are no natural water sources or communal taps; residents collect water from the river and boreholes inside Ndumu Game Reserve. There is no electricity grid, sanitation, or healthcare in the community, and one informal single-track dirt road which connects to the main tar road approximately 22km to the south. Homesteads are constructed using traditional materials and methods, and households are dependent on local fuel wood collection for energy. Some households generate income by selling foodstuffs, fishing, trade, and a few formal jobs in the region. However, most households are extremely dependent on remittances, pensions, and child support grants from the government.

Households typically have a small dry land agricultural plot at their homestead, usually not sufficient to sustain families due to poor sandy soils and a lack of water. Primary household garden plots are located one to two kilometers over the Mozambican fence line, near the more fertile floodplain areas. The communal land of Mbangweni is abundant in wild fruits and trees, which form an important part of nutrition and income generation through the production and sale of wild products (Cunningham 1988; Felgate, 1982). There is an active bush meat trade in the region, most probably harvested in southern Mozambique. There are no fishing areas in the community, but residents engage in active trade with people in Mozambique and have monitored fishing access inside Ndumu Game Reserve.

THE MAKING OF RESOURCE CONFLICT

Historically, some members of the community resided on or near the eastern bank of the Pongola floodplain, an area that is now part of the Ndumu Game Reserve, proclaimed in 1924. The community was forcibly removed from the 1940s -1960s due to racially discriminatory laws and practices (South Africa, 1997). The Apartheid government used Tsetse fly aerial spraying as a means to ensure both people and their cattle moved from the area, and later invoked the Illegal Squatters Act to remove them again when they tried to move back into the reserve. In contrast, Tembe Elephant Park was proclaimed and fenced in the 1980s in 'consultation' with the Tembe Traditional Authority. Subsequent to full democratization and land restitution legislation, the Mbangweni community and Tembe Traditional Authority filed a land claim in 1998 against Ndumu Game Reserve for all land east of the Pongola River within the Ndumu Game Reserve fence line (Figure 2). In 2000, the Department of Land Affairs settled the land claim with Mbangweni acknowledged as the rightful owners of the land. However, the restitution required the land to continue as conservation under the management of Ezemvelo KwaZulu-Natal Wildlife (Tong, ca. 2002). Under the settlement, the parties also agreed to negotiate a separate management agreement for the area, including the determination of access rights and the share of revenue benefits to be received.

The settlement further stipulated the community's right to pursue the excision and de-proclamation of a small portion of the land claim for agricultural purposes. The primary alternative being considered would excise 200ha (2%) of highly productive agricultural land from southeast corner of Ndumu Game Reserve to the

community in exchange for 1650 ha (36%) of Mbangweni to be managed as a conservation corridor joining Tembe Elephant Park and Ndumu Game Reserve. According to the Peace Parks Foundation, the consolidation of these properties would form a core area that South Africa can commit to the Lubombo TFCA and is a critical prerequisite before it can be established formally (PPF, 2002). The exact size, shape, and position of a potential conservation corridor to link the two parks must still to be negotiated by the community and Ezemvelo KwaZulu-Natal Wildlife. A likely alternative based on the potential land exchange is a polygonal corridor (Figure 2), which would necessitate some of the Mbangweni households to move several kilometers south.

As the land exchange and management agreement continue to be negotiated, mistrust and animosity between the community and outside agencies have escalated in recent years. According to the traditional headman of Mbangweni (I. Tembe, personal communication, March 10, 2003), he was unaware that past oral agreements, as well as additional short-term incentives such as culled hippo meat from Ndumu Game Reserve, were not binding. The deals never came to fruition and the community feels 'cheated'. Subsequently, violence and resource destruction have escalated in recent years. One local resident found poaching in the park was shot and killed when he attacked the game ranger apprehending him. In another incident, an off-duty park ranger was physically assaulted while visiting the community. In response to ongoing tension, community members cut down and burned 3 kilometers of reserve fence line, declaring it was their 'fence telegram' to notify conservation authorities of the community's desire to discuss the matter. In early 2004 the situation

improved, and the community agreed to respect the fence line, with community members hired to repair the fence.

Local economics and job security are other important factors in the ongoing conflict. One of the most lucrative industries within the community is the informal taxi service run by a handful of local residents. The taxis provide the only means of regular transportation along the 22km dirt road from the Mozambique border to the main tar road where regional shops, businesses, and services are located. Taxis charge an inflated rate (ZAR25) for a one-way trip, equivalent in price to six liters of petrol. Mozambicans also use the taxis to travel to shopping, healthcare, and other services inside South Africa. The taxis rely on the porous border for passengers, and would be severely affected should the international border area become fenced-in conservation land as proposed for the Lubombo TFCA. The taxi drivers exercise considerable influence within the community, and it is generally acknowledged they intimidate Mbangweni residents from supporting any settlement that would interfere with their business.

The taxi operators are also suspected of being involved with criminal cross-border activities, including trade of stolen cars and gun smuggling. In the 1990s the northern Maputaland region was the exit point for many stolen vehicles leaving the country bound for East Africa and Europe. Conversely, firearms from the Mozambican civil war flowed into South Africa. Other stolen items, illegal merchandise, and drugs are also transported across the border in both directions. Working together, the South African and Mozambican governments established military and police camps along a 50km stretch of border designed to halt the

criminal activity. A joint taskforce from 2000-2001 stopped much of the criminal activity. Today, small transient military outposts still linger for short periods at the Mbangweni and other informal border crossings. Different army units rotate in for three-month periods, often enforcing their own rules and policies, creating confusion and tension amongst local residents who rely on routine legal cross-border travel.

External interests have further exacerbated the conflict. As with many developing areas, nature-based tourism has been hailed as the economic savior of Maputaland. While the region has room for tourism growth, it is a long-term and slow process, which has irritated local residents. Promises by outsiders to build hotels and related tourist services created impressions of immediate jobs, but few have yet to materialize. Compounding the situation are private investors who have explored several different low-impact ‘sustainable’ businesses in the area, such as endemic fish farming, craft making, and production of non-timber forest products. Again, residents are frustrated at what they perceive to be empty promises and deliberately inflated expectations.

LOCAL COSTS AND BENEFITS OF THE LUBOMBO TFCA

Research was conducted as negotiations continued between Mbangweni and Ezemvelo KwaZulu-Natal Wildlife regarding the management agreement stemming from the land claim and a potential conservation corridor. Survey results reflect community attitudes and trends only for the time the data was collected. I present the survey findings, supplemented by additional data, for the social, economic, and resource access of resources by Mbangweni residents. Implications from the

Lubombo TFCA are explored for each type of access, including identification of potential future conflict issues.

Attitudes and Perceptions Towards Nature and Conservation

Most residents stated that nature is important because it provides crops and livestock and wild fruits and wild animals. Less than half responded that nature is important because it provides jobs/tourism, and only a very small percentage cited beauty as a reason. Regarding population density in the community, the majority believes that the number of people living in the community does not affect the quality of nature and that nature will always provide enough resources (*e.g.* wood, water, soil). Most stated they have enough land and wood, but more than half responded they did not have enough water, citing distance to collect water and fear of crocodiles in the river. When asked specifically about the population density of Mbangweni, the majority (78%) responded there are too many people living in the community, with the main factor being the number of homesteads and people, not resource scarcity.

Respondents were asked in separate questions to identify what is good about Ndumu Game Reserve and Tembe Elephant Park. Responses were similar towards both conservation areas, citing that they protect natural resources and keep the dangerous animals away from people. When asked what is bad about each conservation area, results differed. For Ndumu Game Reserve most respondents cited the loss of agricultural land from inside the park, while the main reason given for Tembe Elephant Park was ‘nothing’. This is not surprising due to Mbangweni’s greater distance and lack of historical ties to Tembe Elephant Park.

Social Access Implications

Land identity within the community is very strong, and settlement patterns have developed in accordance with local culture and customs. Individual homesteads are approximately 50 meters x 50 meters and are demarcated from one another by trees and vegetation between homesteads. Privacy is an important factor and new homesteads are built to allow space between them. This is reflected in that most of the respondents stated that although they have enough land for homesteads, they think there are too many people in the community due to a sense of crowding. If a portion of the communal land were transferred to conservation, homesteads in the northern section of the community would presumably be required to relocate to the remaining southern area. This will increase the density of households, exacerbated as natural growth continues. This is compounded by the regional trend of an increase in both absolute population and number of households, but a decrease in the number of persons per household from 6.6 in 1996 to 5.4 in 2001 (derived from South Africa, 1996 and 2001). Unless there is a concordant decline in the average parcel size per homestead, then homestead land-use per capita will increase, accompanied by increased crowding. These factors can potentially contribute to resource scarcity, conflict and dissatisfaction within the community, which could spillover to conservation areas.

Social and Economic Patterns with Mozambique

Mbangweni residents consume higher amounts of fish than in other communities, mostly harvested from pans across the border by Mozambicans. Women from

Mbangweni buy the fish at the border and transport it 22 km south via informal taxi operators to the main tar road markets where the fish is resold. Regarding other trade by Mbangweni residents, 18% of households sell goods at the border market (clothes, peanuts, snack foods, and biscuits) and 77% buy goods at the border market (fish, maize, sugarcane, and bananas). More than 26% of Mbangweni households replied they have family and friends who live in Mozambique. This was cited as the most common reason residents go to Mozambique, with an average visit of once per month. Other reasons for going to Mozambique were to cultivate gardens, buy fish, buy maize, and buy other food, with half the respondents going 1-3 times per month.

Social Access Implications

Social access to family and friends in Mozambique is a unique, yet important, resource that cannot be easily replaced or substituted. If potential designs for the conservation corridor include separating the community from the border by a fenced protected area, residents will lose this access if other provisions are not made. This is ironic since discussions about transboundary conservation benefits highlight their potential to remove 'artificial borders' and restore 'historical links' (Griffin *et al.*, 1999). There are potential solutions to continue the social access, as well as create economic and resource opportunities. Residents could be granted access to walk through the corridor to the border. However, this poses a safety issue for people since the conservation area will eventually contain dangerous animals. Another alternative is to allow the taxi service to continue operating from the community through the conservation corridor to the border under a managed scheme. In this manner, taxi

businesses could continue and residents would have access to Mozambique. However, this could place increased financial burden on residents who would have to pay for transportation to the border, when previously they walked. Inability to pay could lead to a lack of demand jeopardizing taxi businesses and contributing to increased conflict. A funneling of people through controlled access routes could also face resistance from local people. While most routine border traffic occurs at the primary informal crossing, residents do cross at other areas simply by slipping through the fence. Non-residents on both sides of the border compound the situation by routinely passing through the border for shopping, trading, healthcare, school, and illegal activities. Even if established for conservation reasons, the funneling effect could support a more centralized state that enforces border zones by means of conservation. Government control of illegal trade, primarily cigarettes and clothing, has already been a factor in the area, with army units routinely patrolling border regions looking for contraband (A. Beukes, personal communication, March 20, 2003).

Economic Access Implications

The trade of fish between the communities on opposite sides of the border is one of the primary cash economies in the area. Women on both sides benefit from the infusion of external cash when the fish is sold in other communities and at regional markets. Furthermore, transportation of the fish from the border to the market at the tar road contributes to the local taxi businesses and the fish is an important source of cheap protein for local nutrition.

Informal trade at the border market is another important economic resource on the both sides of the border. It contributes to household income, while providing an exchange of goods otherwise difficult to obtain in the region due to the lack of formal distribution networks and shops. As with the fish trade, the taxi operators also rely on ferrying people and goods in South Africa to and from the border market.

New economic nature-based tourism opportunities stemming from a conservation corridor could create local jobs and benefits. However, economic growth and development solely dependent on nature-based tourism in the region remains risky and should not be sold as the only initiative needed to create development in the area (Els and Kloppers, 2001). Previous research by KwaZulu-Natal Wildlife in Mbangweni found that financial constraints in the community were a major stumbling block and that ‘communities were simply unable to wait for a minimum of 18 months before there were any visible benefits from ecotourism and a further period of 3-5 years before the ecotourism ventures showed a profit’ (Duffy, 2001). In 2000, a researcher with a South African human rights and democracy NGO (Ewing, 2001) spoke to the Mbangweni headman about proposed nature-based tourism opportunities who stated:

‘I am tired of people coming here and talking about development, making promises they don’t keep. There are people who have addressed the community on the issue of tourism but we are still looking for them to come and do what they told us. I am willing to see that thing they call tourism because I don’t know what it is’

It has been observed that nature-based tourism ventures are seldom economically viable and are ‘mirages to silence the rumbling discontent of the victims of development speak’ (Fakir, 2003). One lodge operator in Ndumu Game Reserve has pursued a pro-poor tourism strategy by way of a contractual relationship with the other surrounding communities, including partial ownership of the operation and dividend sharing. The company is acknowledged as a successful nature-based tourism operator throughout Southern Africa, yet the Ndumu operation has failed to make a profit since opening in 1995 (Poultney and Spenceley, 2001). However, to maintain the goodwill of the communities and demonstrate the potential of nature-based tourism, the operator has borrowed money from a third private shareholder to pay the communities ‘dividends’ before the company has broken even, thus increasing the company’s loss (Poultney and Spenceley, 2001). Therefore, if negotiations between Mbangweni and the conservation service include nature-based tourism opportunities, they will need to be backed by capital and long-term commitment. Benefits and profits must accrue in a timely and equitable manner, avoiding extreme leakage. The community has been frustrated by promises in the past that have added to the tension. An escalation in conflict could be expected if the community relocates, foregoes resource access under a negotiation and the promised jobs and benefits are slow to materialize.

Additional pressure on natural resources could be exacerbated in northern Maputaland if regional population growth continues and the area becomes a hub of development. Under the government-sponsored Lubombo Spatial Development Initiative, Northern Maputaland has been identified as a regional hub and is receiving

infrastructure improvements, primarily roads to attract tourist and commercial interests. Workers from outside the immediate surrounding will also be attracted by perceived economic opportunity. The immigrant labor will add pressure to resources (*e.g.* fuel wood) even if they find jobs, as workers remit most of their earnings to their home communities, and consume local wild resources when possible. The associated social pressures of crowding previously identified could further aggravate the situation.

Bush Meat

Mbangweni consumes significantly higher amounts of both wild animals and birds compared with two other nearby communities (iSibonisweni and uBhekabantu). Preference for the meat of wild animals and birds over beef was 15 times greater than the other communities. Regarding how the meat was obtained, Mbangweni residents reported significantly higher rates of catching wild animals and birds, and a higher rate of buying wild animals. Owing to local communal resource rights, residents usually conduct hunting practices within their own ward. Illegal poaching in the conservation areas was not measured and is not delineated in responses. However, conservation authorities (C. Hanekom personal communication, May 20, 2003) state that in Ndumu Game Reserve 70% of the poaching is conducted by residents from Mbangweni and another Tembe ward, and 30% by Mozambicans. Many markets in the area regularly supply bush meat, with border markets tending to have the greatest supply. Most of the bush meat for sale is suspected of coming from unprotected areas in Mozambique and some from illegally poached animals.

Bush Meat Implications

Mbangweni's higher consumption rate and preference compared to other local communities suggests that demand will continue to play a role. It is difficult to determine exactly where the bush meat comes from, but presumably a portion (*e.g.* Mbangweni's high rate of catching wild birds) comes from within the communal land. Demand for bush meat is driven by cultural, social, economic, and availability variables. Within Southern Africa, even when bush meat is bought it is still cheaper than domestic meat and therefore most of the demand is driven by affordability (TRAFFIC, 1997). In extremely impoverished areas the cash savings on meat products are important for household economics, yet can be detrimental to wildlife populations. Musters *et al.* (2000) note that to reduce the threat on bush meat, one needs to alleviate poverty. A decline in poverty of Mbangweni could potentially lessen demand on bush meat and decrease poaching in the conservation areas.

CONCLUSION

Transboundary conservation is increasingly proposed as a positive development tool in Southern Africa. Yet the specific ability of transboundary conservation to provide local poverty alleviation and increased development remains unknown. Conservation in Southern Africa continues to be influenced by a globalization of predominantly Northern ideas, funding, and methodologies. Many protected areas continue to focus on species-specific problems and fortress conservation styles while their ability to contribute to overall biodiversity protection remains unknown. New transboundary conservation areas have grown from joining geographically proximate areas that only

required removing a shared fence line, to the creation of enlarged areas by linking parks that are hundreds of kilometers apart. To do this will require creating new conservation areas, including corridors, on lands that are inhabited by local people.

Communities are inherently heterogeneous, and the potential benefits and costs associated with conservation areas differ by community. In South Africa, Mbangweni's unique history of forced removals, location on an international border, and conflict with local conservation authorities affects its conservation and development outcomes. However, local communities are often viewed as homogenous by conservation and development institutions, with little attention paid to site-specific conditions. Livelihoods in Mbangweni are built on a complicated network of access to natural, social, and economic resources, linkages with other communities, land identity, local ecological conditions, and community attitudes towards and consumption of resources. Land identified as a potential conservation corridor provides access to resources within the Mbangweni Corridor itself, as well as through the corridor to other resources. An expanded conservation area on the communal land could serve to decrease access to these resources and further fragment the social linkages between Mbangweni and Mozambique. Decreased access to economic resources could serve to increase conflict in the area, particularly by local taxis if economic substitutes are not provided. While there is potential for increased economic access from associated nature-based tourism stemming from conservation, precise benefits are unknown, but at the very least will take years to materialize within the community. The resulting jobs and benefits will also attract immigrant labor to the area, adding increased population pressure on the social structures, as

well as the natural resources. Furthermore, there is a risk that many of the jobs will require imported skilled labor, resulting in leakage of cash and revenues from the region (DFID, 2002).

Ultimately, the sustainability of an enlarged transboundary conservation area is dependent on local popular support and legitimization. The Durban Accord, adopted at the 2003 IUCN World Parks Congress, voiced concern ‘that many costs of protected areas are borne locally - particularly by poor communities - while benefits accrue globally and remain under appreciated’, and that protected areas should strive to alleviate poverty but at the very least they must not exacerbate it (IUCN, 2003). Evidence from this case study suggest that transboundary conservation efforts will require livelihood mitigation for overcoming disparities between conservation and community paradigms to ensure that they contribute to community and conservation well-being.

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CHAPTER 7

General Discussion

A common thread throughout the conservation and society discourse presented here is the human component - people need natural resources, and resources in turn need protection from, and management by, people. It is, therefore, impossible to separate the issues of environment and development in today's world. While individual protected areas can be pursued as island reserves of biodiversity and poverty alleviation can be viewed as an economic problem, human dependence on natural resources for their survival ultimately means that the two must be viewed as interlinked. As the struggle over management paradigms and funding priorities continue, the debate surrounding the dynamics of conservation and society are 'essentially political issues of who should have access to and control over resources' (Homewood, 2005, p.198). Yet the debate in Southern Africa is often fueled by misconceptions and a lack of empirical data.

The Community-integrated GIS (CiGIS) process was useful for revealing and interpreting the socio-spatial dynamics of conservation and society. The complementarity of participatory, quantitative, qualitative, spatial and temporal data highlighted contrasting epistemologies, attitudes and perceptions, and local histories of communities and conservation authorities. The CiGIS process demonstrated the multiple interpretations of a landscape held by different stakeholders. While social, cultural, ideological, and economic drivers are embedded within groups in the struggle over local land use, they also interact across time and space to influence the landscape. Local livelihoods do not exist in isolation from macro external institutions and much of the conservation and development debate is the product of past power, paradigms and practices. The cross scale and interdisciplinary research method employed here provided a platform beyond

simple examination of individual components of the discourse. The treatment of the dynamics of conservation and society as shifting and interlocked facets revealed the complexity of conceptualization and implementation at the ground level. While both biodiversity and local economics are important goals, a few key themes emerged from this thesis regarding the conservation and society dialogue:

- Conservation cannot be the sole provider of economic development in Maputaland. It should be conceived as one strategy in an arsenal of weapons to combat poverty and simultaneously provide natural resource security.
- Ending poverty should not be conceptualized only in terms of local natural resource use. A cross scale approach revealed that local biogeography and poor rural infrastructure are simply proximate causes of poverty while the root causes of poverty are often found at broader scales. Ending poverty requires tackling global issues, such as agricultural subsidies, debt relief, women's rights, and good governance (Sachs, 2005).
- The politics of who should control resources and how to manage them boils down to power, capital, and capacity to lobby preferred epistemologies and agendas.
- Access to and, control of, power, capital and capacity remain skewed between the developed world and the developing world, as well as within states and communities themselves.
- Access to resources does not always translate into an ability to benefit (Ribot, 2003). In Maputaland, access to communal land contributes to local livelihoods

but without external capital and capacity, local communities are not able to implement alternative land uses, such as nature-based tourism development.

- Any alternative land uses pushed by external institutions should be fairly and accurately portrayed to communities who often lack the information and capacity necessary to fully evaluate the alternatives.
- Nature-based tourism can be a valuable economic development tool, but it not a panacea for alleviating poverty. Tourism projects often take years to make a profit and thus require long-term commitment. The ability of conservation to provide jobs and cash to local households should not be oversold.
- Conservation risks its own security by overselling or inflating economic development benefits to local communities. If benefits fail to materialize in a timely manner, relationships can break down and lead to increased land use conflict.
- Rights-based approaches to conservation co management require the recognition of heterogeneous local people and representation schemes that incorporate social differentiation (Sullivan, 2001).
- HIV/AIDS poses the single greatest threat to both conservation and local livelihoods in Maputaland.

Land claims, resettlement, poverty, and HIV/AIDS are likely to be the defining issues of conservation during the next decade. The South African Deputy Environment Minister Rejoice Mabudafhasi supports land claims against protected areas and believes they will help redistribute land and conservation benefits to marginalized people (Stoddard, 2005).

Aside from being expensive and time consuming, land claims are also decisive issues that often pit rural people against park managers (Tong, ca. 2002). As tensions rise and negotiations take years to resolve, a heightened risk of conflict between the parties threatens local people, conservation staff, and the security of the natural resources.

Resettlement is also a likely source of future resource conflict. While the Mbangweni case study only required moving 59 households, the establishment of some transfrontier parks anticipates resettling thousands of households (Bice, 2004). It seems probable that not all residents will be eager to be displaced and conflict could be quick to ignite if promised benefits are not delivered or residents are dissatisfied in any way. Additional research, particularly multidisciplinary approaches, are needed on conservation-induced resettlement projects as they could become a standard feature in Southern Africa as new Peace Parks are proposed throughout the region.

The single biggest threat facing biodiversity conservation and rural livelihoods in South Africa is undeniably the HIV/AIDS pandemic. With up to 38% of people infected in Maputaland (Hlongwe, 2003), almost no household has been left untouched by the disease. HIV/AIDS and poverty are locked in a downward spiral as each amplifies the other's impacts (Pirot et al., 2001; Fenton, 2004). As households slip further into poverty, dependence on and degradation of natural resources increases due to lost household labor, lost traditional resource knowledge, lost feelings of land stewardship due to short life horizons, lost education of children, and lost income from sick and deceased family members. Such massive poverty and death implications receive wide-scale attention from

health and humans rights advocates, but conservation on the whole has yet to fully acknowledge the direct threats posed by HIV/AIDS. Not only is the disease causing higher staff attrition and increased personnel costs, but park resources are threatened by neighboring communities sinking deeper into poverty. Possible land degradation outside of protected areas could see parks become islands of intact resources (*i.e.* food, medicinal plants, etc.) desperately needed by local people, leading to increased conflict. Conservation and development programs, particularly the much-touted community-based conservation, will be tested by continually lost capacity due to illness and death of participants. Poor and crumbling co-management and decision-making structures will have a difficult time trying to prevent degradation of the very resource hoped to provide economic development. Obviously, conservation is not capable, nor responsible, for fighting the disease alone. Combating HIV/AIDS requires macro policy decisions beyond the scope of conservation. But protected area managers, multilateral donors, development practitioners, and natural scientists can at least acknowledge the risks and impacts and begin by integrating and mainstreaming HIV/AIDS issues into their projects.

This thesis provided a multidisciplinary treatment of conservation and society in Maputaland, South Africa. But it is only a starting point. The dynamics of conservation and society are constantly changing. At various points along the way there have been winners and losers in the struggle over natural resources and land use. Many of the opportunities and impacts on local livelihoods have been conceived solely in economic terms. However, conservation can also add value or detract from the social, cultural, and spiritual aspects of livelihoods. Protected areas affect the daily lives of millions of South

Africans, yet case studies that provide empirical evidence are lacking in the literature. Future research must continue to work across disciplines and employ novel methodologies that seek to inform in an integrated and holistic manner and that can strengthen policy and prescription for both biodiversity and rural livelihoods.

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