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]

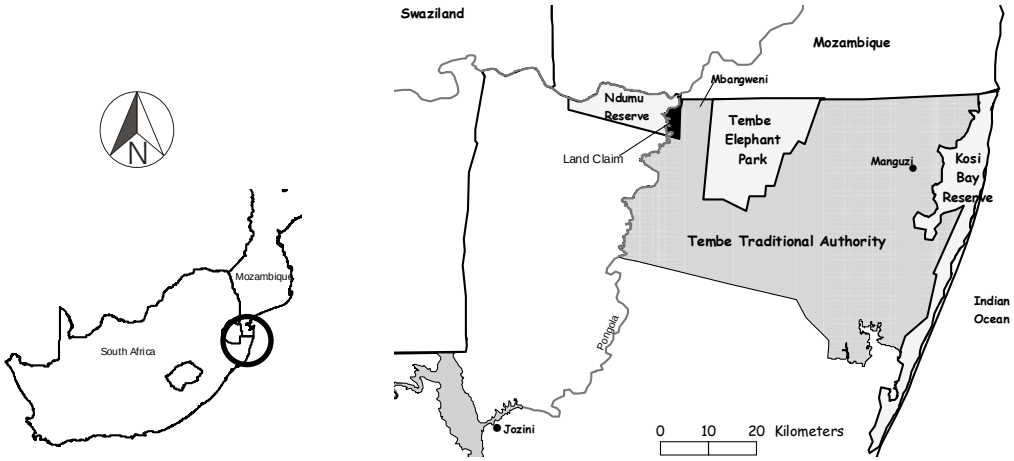
The Tembe Traditional Authority

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 alleviation[23], 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 Untied 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 ethoses 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 benefits[50], doubts about long-term profitability[51], divergent epistemologies[52], revenue leakage[53], 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 communities[58], 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 polices 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 comminutes 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 Durban[72] 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.

[1] D. Harvey, 'The Nature of Environment: The Dialectics of Social and Environmental Change' in R. Miliband and L. Panitch (eds.). **Real Problems, False Solutions: Socialist Register 1993** (London, Merlin Press 1993), p. 1-51.

[2] P. Blaikie and H. Brookfield, **Land Degradation and Society** (London, Methuen 1987), p. 284.

[3]R. L. Bryant and S. Bailey, **Third World Political Ecology** (London, Routledge 1997), p. 234.

[4] R. L. Bryant, 'Political Ecology: An Emerging Research Agenda in Third-World Studies', **Political Geography**, 11, 1 (1992), pp. 12-36; R. L. Bryant, 'Politicized Moral Geographies: Debating Biodiversity Conservation and Ancestral Domains in the Philippines', **Political Geography**, 19, (2000), pp. 673-705; K. Brown, 'The Political Ecology of Biodiversity, Conservation and Development in Nepal's Terai: Confused Meanings, Means and Ends', **Ecological Economics**, 24, (1998), pp. 73-87; J. Fairhead and M. Leach, 'False Forest History, Complicit Social Analysis: Rethinking Some West African Environmental Narratives', **World Development**, 23, 6 (1995), pp. 1023-1035; R. Daniels and T. J. Bassett, 'The Spaces of Conservation and Development Around Lake Nakuru National Park, Kenya', **The Professional Geographer**, 54, 4 (2002), pp. 481-490; S. C. Stonich, 'Political Ecology of Tourism', **Annals of Tourism Research**, 25, 1 (1998), pp. 25-54; J. T. Nesbitt and D. Weiner, 'Conflicting Environmental Imaginaries and the Politics of Nature in Central Appalachia', **Geoforum**, 32, (2001), pp. 333-349.

[5] J. C. Ribot, 'Theorizing Access: Forest Profits Along Senegal's Charcoal Commodity Chain', **Development and Change**, 29, (1998), pp. 307-341.

[6]J. C. Ribot and N. L. Peluso, 'A Theory of Access', **Rural Sociology**, 68, 2 (2003), pp. 153-181.

[7] He is still regarded as a true king by some, who was only subjugated to the Zulu King due to 20th century colonial politics and policies.

[8] P. Delius (with R. Kingwill and M. Chaskalson), 'A Historical Investigation of Underlying Rights to Land Registered as State Owned'. Report commissioned by the Tenure Reform Core Group, Department of Land Affairs (Pretoria 1997), cited in B. Cousins and A. Claassens, 'Communal Land Tenure: Livelihoods, Rights and Institutions', **Development Update**, 4, 2 (2003), pp. 55-78.

[9] J.L. Jones, 'Transboundary conservation: development implications for communities in KwaZulu-Natal, South Africa', **The International Journal of Sustainable Development and World Ecology** 12, 3(2005), pp. 266-278.

[10] J.L Jones, 'Modeling conservation-induced resettlement in Mbagnweni, South Africa' in R. Kloppers (ed.). **Tshanini: a Glimpse into the Future of Conservation in Northern KwaZulu-Natal**, (Pietermaritzburg, EKZN Wildlife Press 2005).

[11] M. Hlongwe, 'Umkhanyakude Local Economic Development Initiative', Haley Sharpe Southern Africa (Pty) Ltd, (Durban, 2003).

[12] Natal was historically British.

[13] The infamous King Shaka maintained 'royal' hunting grounds in the early 19th century.

[14] Cousins and Claassens.

15 Jones, **The International Journal of Sustainable Development and World Ecology.**

[16] Ibid.

[17] For a discussion of the politics of Peace Parks in Southern Africa, see R. Duffy, 'Peace Parks: The Paradox of Globalisation', **Geopolitics**, 6, 2 (2001), pp. 1-26; S. Fakir, 'Transfrontier Conservation Areas: A New Dawn for Eco-tourism, or a New Form of Conservation Expansionism', Policy Think Tank Series No. 3, IUCN South Africa (Pretoria, 2000); W. Wolmer, 'Transboundary Conservation: the Politics of Ecological Integrity in the Great Limpopo Transfrontier Park', **Journal of Southern African Studies**, 29, 1 (2003), pp. 261-278.

[18] M Tong, **Lest We Forget: Restitution Digest on Administrative Decisions**. (Pretoria, South African Department of Land Affairs ca. 2002).

[19] Ibid.

[20] K. T. Rammohan, 'Socially Embedding the Commodity Chain: An Exercise in Relation to Coir Yarn Spinning in Southern India', **World Development**, 31, 5 (2003), pp. 903-923.

[21] A. Kiss, 'Is Community-based Ecotourism a Good Use of Biodiversity Conservation Funds?' **TRENDS in Ecology and Evolution**, 19, 5 (2004), pp. 232-237; A. Escobar, 'Constructing Nature: Elements for a Poststructural Political Ecology' in R. Peet and M. Watts (eds.). **Liberation Ecologies: Environment, Development, and Social Movements** (London, Routledge 1996), p. 46-68.

[22] For a discussion on conservation and/or development, see M.P. Wells and K.E. Brandon, 'The Principles and Practice of Buffer Zones and Local Participation in Biodiversity Conservation', **Ambio**, 22, 2-3 (1993), pp. 157-162; C. Kremen, A.M. Merenlende, and D.D. Murphy, 'Ecological Monitoring: A Vital Need for Integrated Conservation and Development Programs in the Tropics', **Conservation Biology**, 8, 2 (1994), pp. 388-397; M.P. Wells, 'The Social Role of Protected Areas in the New South Africa', **Environmental Conservation**, 23, 4 (1996), pp. 322-331; W.D. Newmark and J.L. Hough, 'Conserving Wildlife in Africa: Integrated Conservation and Development Projects and Beyond', **Bioscience**, 50, 7 (2000), pp. 585-592.

[23] S. Metcalf, 'Study on the Development of Transboundary Natural Resource Management Areas in Southern Africa: Community Perspectives', Biodiversity Support Programme (Washington, D.C., 1999).

[24] P. J. Ferraro and R. D. Simpson, 'Cost-Effective Conservation: A Review of What Works to Preserve Biodiversity', **Resources**, Spring, 143 (2001), pp. 17-20.

[25] M. Bookbinder, E. Dinerstein, A. Rijal, H. Cauley and A. Rajouria, 'Ecotourism's Support of Biodiversity', **Conservation Biology**, 12, 6 (1998), pp. 1399-1404l; J. C. Isaacc, 'The Limited Potential of Ecotourism to Contribute to Wildlife Conservation', **Wildlife Society Bulletin**, 28, 1 (2000), pp. 61-69; M. J. Walpole and H. J. Goodwin, 'Local Economic Impacts of Dragon Tourism in Indonesia', **Annals of Tourism Research**, 27, 3 (2000), pp. 559-576.

[26] DEAT (Department of Environmental Affairs and Tourism), 'Annual Report 2000-2001', (Pretoria, 2001).

[27] Ribot, 'Theorizing Access: Forest Profits Along Senegal's Charcoal Commodity Chain', p 309.

[28] D. Dollar, 'Globalization, Inequality, and Poverty Since 1980', Development Research Group, The World Bank (Washington D.C., 2001).

[29] Escobar, p.49.

[30] Bryant and Bailey, **Third World Political Ecology**.

[31] G. R. Hughes, 'Democratisation: Biodiversity Conservation for All People - A Case Study from KwaZulu-Natal' in S. M. Pierce, R. M. Cowling, T. Sandwith and K. MacKinnon (eds.). **Mainstreaming Biodiversity in Development: Case Studies from South Africa** (Washington D.C, The World Bank 2002), p. 67-78; Y. Katerere, R. Hill and S. Moyo, 'A Critique of Transboundary Natural Resource Management in Southern Africa', Paper no. 1, IUCN-ROSA Series on Transboundary Natural Resource Management (Harare, 2001).

[32] IUCN (World Conservation Union), 'Durban Accord', World Parks Congress (Durban, 2003).

[33]E. F. Lambin, B. L. Turner, H. J. Geist, S. B. Agbola, A. Angelsen, J. W. Bruce, O. T. Coomes, R. Dirzo, G. Fischer, C. Folke, P. S. George, K. Homewood, J. Imbernon, R. Leemans, X. Li, E. F. Moran, M. Mortimore, P. S. Ramakrishnan, J. F. Richards, H. Skanes, W. Steffen, G. D. Stone, U. Svedin, T. A. Velkamp, C. Vogel and J. Xu, 'The Causes of Land-use and Land-cover Change: Moving Beyond Myths'**, Global Environmental Change**, 11, 4 (2001), pp. 261-269; K. M. Homewood, 'Policy,

Environment and Development in African Rangelands', **Environmental Science and Policy**, 7, 3 (2004), pp. 125-143.

[34] See Ribot for additional references.

[35] J. Streak, 'The Counter-Counterrevolution in Development Theory on the Role of the State in Development: Inferences for South Africa?' **Development Southern Africa**, 14, (1997), pp. 307-324; K. A. Ninsin, 'The Quest for Democracy: Globalization is Impacting on Africa's Democracy', **Africa Insight**, 30, December (2001), pp. 10-17.

[36] www.gefonline.org

[37] Bryant and Bailey, **Third World Political Ecology,** p. 88.

[38] G. Mohan, 'The Disappointments of Civil Society: The Politics of NGO Intervention in Northern Ghana', **Political Geography**, 21, (2002), pp. 125-154.

[39]Duffy; A. Escobar, **Encountering Development: The Making and Unmaking of the Third World** (Princeton, Princeton University Press 1995), p. 290; A. Escobar, 'Constructing Nature: Elements for a Poststructural Political Ecology' in Peet and Watts (eds.).

[40] P. Brosius and D. Russell, 'Conservation From Above: An Anthropological Perspective on Transboundary Protected Areas and Ecoregional Planning', **Journal of Sustainable Forestry**, 17, 1/2 (2003), pp. 39-65.

[41] Membership in the Proudly South African campaign is obtained by meeting basic qualification standards and signing a pledge of conduct. Members must pay a fee based on their status (i.e NGO or private business) and are entitled to use the campaign logo. For more information go to http://www.proudlysa.co.za/

[42] A. Bebbington and R. Riddell, 'Heavy Hands, Hidden Hands, Holding Hands? Donors, Intermediary NGOs and Civil Society Organisations' in D. Hulme and M. Edwards (eds.). **NGOs, States and Donors: Too Close for Comfort?** (London, MacMillan 1997), pp. 107–127; A. Fowler, 'Authentic NGDO Partnerships in the New Policy Agenda for International Aid: Dead End or Light Ahead?' **Development and Change**, 29, (1998), pp. 137-159; M. Edwards and D. Hulme, ' Too Close for Comfort? The Impact of Official Aid on Nongovernmental Organizations', **World Development**, 24, 6 (1996), pp. 961-973; W. Nyamugasira, 'NGOs and Advocacy: How Well Are the Poor Represented?' **Development in Practice**, 8, 3 (1998), pp. 297-308.

[43] A. Bebbington, 'Movements, Modernizations, and Markets: Indigenous organizations and agrarian strategies in Ecuador' in R. Peet and M. Watts (eds.). **Liberation Ecologies: Environment, Development, and Social Movements** (London, Routledge 1996), p. 86-109.

[44] The South African conservation NGOs surveyed were WWF (World Wide Fund for Nature) South Africa, Birdlife South Africa, Peace Parks Foundation, and the Endangered Wildlife Trust. The local currency is the South African Rand (ZAR) and an exchange rate of US$1 equals ZAR 6.2 was used for all calculations. A review of the 2002/3 annual reports of the NGOS revealed they collectively controlled ZAR96 million (US$15.5 million) in operating funds and ZAR200 million (US$ 35.5 million) in assets.

[45] N. L. Peluso, 'Coercing Conservation?' **Global Environmental Change**, June, (1993), pp. 199-217.

[46] SADC, comprised of 14 member states, seeks to increase growth and economic development, decrease poverty, enhance regional peace and security, promote sustainable development, and provide complementarity between national and regional programs and objectives (www.sadc.int). NEPAD is a pan-African organization supported by the African Union aimed at poverty eradication, growth and development, halting globalization marginalization, and the empowerment of women (www.nepad.org).

[47] Article 4:2F, Maputo, 1999.

[48] K. Mahoney and J. van Zyl, 'The Impacts of Tourism Investment on Rural Communities: Three Case Studies in South Africa', **Development Southern Africa**, 19, 1 (2002), pp. 83-103.

[49] Kiss; Duffy; S. Fakir, 'Transfrontier Parks Restore Lost Spiritual Connection', **Business Day**, 22 August 2003; G. Mulholland and P. F. J. Eagles, 'African Parks: Combining Fiscal and Ecological Sustainability', **Parks**, 12, 1 (2002), pp. 42-49.

[50] W. M. Adams and M. Infield, 'Who is on the Gorilla's Payroll: Claims on Tourist Revenue from a Ugandan National Park', **World Development**, 31, 1 (2003), pp. 177-190.

[51] R. M. Loon and D. Polakow, 'Ecotourism Ventures: Rags or Riches?' **Annals of Tourism Research**, 28, 4 (2001), pp. 892-907.

[52] J. S. Akama, 'Western Environmental Values and Nature-Based Tourism in Kenya', **Tourism Management**, 17, 8 (1996), pp. 567-574.

[53] D. O. Brown, 'In Search of an Appropriate Form of Tourism for Africa: Lessons From the Past and Suggestions for the Future', **Tourism Management**, 19, 3 (1998), pp. 237-

245; DFID (Department for International Development), 'Wildlife and Poverty Study', Livestock and Wildlife Advisory Group (London, 2002).

[54] Kiss.

[55] P. S. Goodman, B. James and L. Carlisle, 'Wildlife Utilization: Its Role In Fostering Biodiversity in KwaZulu-Natal' in S. M. Pierce, R. M. Cowling, T. Sandwith and K. MacKinnon (eds.). **Mainstreaming Biodiversity in Development: Case Studies from South Africa** (Washington D.C., The World Bank 2002), pp. 21-32.

[56] Ibid, p 29.

[57] C. Poultney and A. Spenceley, 'Practical Strategies for Pro-Poor Tourism: Wilderness Safaris South Africa: Rocktail Bay and Ndumu Lodge', PPT Working Paper No. 1, Overseas Development Institute (London, 2001). p 2. The acronym KZNNCS refers to the KwaZulu-Natal Nature Conservation Service, the forerunner to the current Ezemvelo KwaZulu-Natal Wildlife.

[58] For Ndumu Game Reserve, Wilderness Safaris operates in partnership with the Mathenjwa Traditional Authority, bordering the western and southern sides of the park. The dividends have been paid into a community trust overseen by the traditional authority (Poultney and Spenceley, 2001). When the partnership was arranged, the Mbangweni community had not yet filed a land claim for the eastern side of Ndumu Game Reserve. It is unclear if or how the partnership will include the Mbangweni community and Tembe Traditional Authority in the future.

59 Poultney and Spenceley.

60 Poultney and Spenceley, p. 29.

[61] B. Aylward, 'The Actual and Potential Contribution of Nature Tourism in Zululand: Considerations for Development, Equity, and Conservation' in B. Aylward and S. Luckett (eds.). **Nature Tourism, Conservation, and Development in KwaZulu-Natal, South Africa** (Washington D.C., The World Bank 2003), pp. 3-40. S. Porter, S. Ferrer and B. Aylward, 'The Profitability of Nature Tourism in Zululand' in Aylward and Luckett (eds.), pp. 287-324.

[62] Poultney and Spenceley.

[63] Personal communication, 12 May 05, from Patrick Boddam-Waetham, managing director of the Ndumu lodge.

[64] Peace Parks Foundation (PPF), 'The facilitation and development of transfrontier conservation areas in Southern Africa: funding application in support of the Lubombo transfrontier conservation area', Peace Parks Foundation (Stellenbosch, 2002).

[65] B. Aylward, 'Creating a Nature Tourism Economy: A Multicriteria Analysis of Options for Policy, Institutions, and Management' in B. Aylward and E. Lutz (eds.). **Nature Tourism, Conservation, and Development in KwaZulu-Natal, South Africa** (Washington D.C., The World Bank 2003), p. 369-434.

[66] S. Sullivan, 'How Sustainable is the Communalizing Discourse of "New' Conservation?' in D. Chatty (ed.). **Displacement, Forded Settlement and Conservation** (Oxford, Bergham Press 2001), pp.158-187; D.S. Moore, "Clear Waters and Muddied Histories: Environmental History and the Politics of Community in Zimbabwe's Eastern Highlands', **Journal of Southern African Studies**, 24, 2 (1998), pp. 377-403

[67] S. Luckett, K. Mkhize and D. Potter, 'The Experience of Local Boards in KwaZulu-Natal, South Africa', **Parks**, 13, 1 (2003), pp. 6-15.

[68] The KwaZulu-Natal Conservation Board is the provincial authority that directs conservation while Ezemvelo KwaZulu-Natal Wildlife is the implementing agency.

[69] Ibid. p.11

[70] The park was created by request of previous traditional authorities to control dangerous elephants in the area. But residents became upset when conservation authorities later fenced in the park using non-negotiated boundaries. The traditional authority thought it would be a co-managed community conservation area, but it ended up being excluded from the administration and management of the park by the provincial conservation authority.

[71] Ibid, p.12.

[72] Durban is the nearest major city, located approximately 400km to the south.

[73] Personal communications from reliable individuals in the region have stated the chief was given a 49% share of the lodge. However, the lodge owner has stated in public communications that the lodge is majority (*i.e.* more than 50%) owned by the community.

[74] J.L. Jones, 'Transboundary Conservation: Development Implications for Communities in KwaZulu-Natal, South Africa' **The International Journal of Sustainable Development and World Ecology**, 12, 3 (2005), pp. 266-278.

[75] J. Briedenhann and E. Wickens, 'Tourism Routes as a Tool for the Economic Development of Rural Areas—Vibrant Hope or Impossible Dream?' **Tourism Management**, 25, (2004), pp. 71-79.

[76] Taken from speech by the Minister of Environmental Affairs and Tourism, Mohammed Valli Moosa, Thursday, 4 December 2003. Available at http://www.info.gov.za/speeches/2003/03120813461002.htm

[77]Kiss; Ferraro and Simpson; P. J. Ferraro, 'Global Habitat Protection: Limitations of Development Interventions and a Role for Conservation Performance Payments', **Conservation Biology**, 14, 4 (2001), pp. 990-1000.

[78] P. J. Ferraro and R. D. Simpson, 'The Cost-effectiveness of Conservation Payments', **Land Economics**, 78, 3 (2002), pp. 339-353; Ferraro, 'Global Habitat Protection'; P. J. Ferraro and A. Kiss, 'Direct Payment to Conserve Biodiversity', **Science**, 298, 5599 (2002), pp. 1718-1719; A. N. James, K. J. Gaston and A. Balmford, 'Balancing the Earth's Accounts', **Nature**, 401, (1999), pp. 323-324.

[79] M. Lyons, C. Smuts and A. Stevens, 'The Impacts of a Changing Policy Framework on Isolated Communities: A South African Experience', **Habitat International**, 26, (2002), pp. 191-212; Z. Young, G. Makoni and S. Boehmer-Christiansen, 'Green Aid in India and Zimbabwe - Conserving Whose Community', **Geoforum**, 32, (2001), pp. 299-318.

CHAPTER 4

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

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Keywords: biodiversity, communal, household, KwaZulu-Natal, South Africa

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 km^2), census ward (mean area = 162 km^2), and census sub place (mean area = 40 km^2). 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]

	QDS	Ward	Sub Place
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; Luckett 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; Sitoe 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; Sitoe 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 (Sitoe 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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Literature Cited

Adams, W. M., & Infield, M. (2003). Who is on the gorilla's payroll: claims on tourist revenue from a Ugandan national park. *World Development, 31*(1), 177-190.

Balmford, A., Moore, J. L., Brooks, T., Burgess, N., Hansen, L. A., William, P., & Rahbek, C. (2001). Conservation conflicts across Africa. *Science, 291*, 2616-2619.

Balmford, A. (2003). Conservation planning in the real world: South Africa shows the way. *Trends in Ecology & Evolution, 18*(9), 435-438.

Barany, M., Hammett, A. L., Sene, A., & Amichev, B. (2001). Nontimber forest benefits and HIV/AIDS in Sub-Saharan Africa. *Journal of Forestry*, December, 36-41.

Barrow, E., & Fabricius, C. (2002). Do rural people really benefit from protected areas-rhetoric or reality? *Parks, 12*(2), 67-79.

Bohensky, E., Reyers, B., van Jaarsveld, A. S., & Fabricius, C. (Eds.). (2004). *Ecosystem Services in the Gariep Basin*. Stellenbosch: SUN Press.

Chown, S. L., Janse van Rensburg, B., Gaston, K., Ridrigues, A. S. L., & van Jaarsveld, A. S. (2003). Energy, species richness, and human population size: conservation implications at a national scale. *Ecological Applications, 13*(5), 1233-1241.

CI (Conservation International). (2005). *Biodiversity hotspots*. Available from http://www.biodiversityhotspots.org/xp/Hotspots/maputaland/accessed 4 February 2005].

Cincotta, R. P., Wisnewski, J., & Engelman, R. (2000). Human population in the biodiversity hotspots. *Nature, 404*(27 April), 990-992.

Cousins, B and Claasens, A. 2003. Communal land tenure: livelihoods, rights, and

institutions. *Development Update* 4 (2): 55-78.

Davies, G. (2002). Bush meat and international development. *Conservation Biology, 16*(3), 587-589.

Dorrignton, R., Bradshaw, D., & Budlender, D. (2002). *HIV/AIDS Profile in the Provinces of South Africa: Indicators for 2002*. Cape Town: Centre for Actuarial Research, University of Cape Town.

Dorrignton, R., Bradshaw, D., Johnson, L., & Budlender, D. (2004). *The Demographic Impact of HIV/AIDS in South Africa: National Indicators for 2004*. Cape Town: Centre for Actuarial Research, South African Medical Research Council and Actuarial Society of South Africa.

Driver, A., Maze, K., Lombard, A.T., Nel, J., Rouget, M., Turpie, J.K., Cowling, R.M., Desmet, P., Goodman, P., Harris, J., Jonas, Z., Reyers, B., Sink, K. & Strauss, T. (2005). *Strelitzia 17: National Spatial Biodiversity Assessment: Priorities for Conservation in South Africa*. Pretoria: South African National Biodiversity Institute.

DTI (Department of Trade and Industry, South Africa). (2005). Spatial Development Initiatives, retrieved 2 Feb 05 from http://www.sdi.org.za/

ESRI. (1999). ArcView GIS (Version 3.2). Redlands, California: Environmental Systems Research Institute, Inc.

Ewing, D. (2001). Paradise regained? *Siyaya!*, 7 (January), 28-35.

Fenske, J. (2004). *Fact Sheet: Poverty in South Africa*. Pretoria: Human Sciences Research Council.

Fenton, L. (2004). Preventing HIV/AIDS through poverty reduction: the only sustainable

solution? *The Lancet, 364*(25 September), 1186-1187.

Ferraro, P. J. (2002). The local costs of establishing protected areas in low-income nations: Ranomafana National Park, Madagascar. *Ecological Economics, 43*, 261-275.

Ferraro, P. J., & Kiss, A. (2002). Direct payments for biodiversity conservation. *Science, 298*(5599), 1718-1719.

Goodman, P. S. (2000). *Determining the Conservation Value of Land in KwaZulu-Natal*. Pietermaritzburg: KwaZulu-Natal Nature Conservation Service.

Hardin, G. (1968). The tragedy of the commons. *Science, 162*, 1243-1248.

Hlongwe, M. (2003). *Umkhanyakude Local Economic Development Initiative*. Durban: Haley Sharpe Southern Africa (Pty) Ltd.

Homewood, K. M. (2004). Policy, environment and development in African rangelands. *Environmental Science and Policy, 7*(3), 125-143.

HSRC (Human Sciences Research Council). (2002). *The Impact of HIV/AIDS on Land Issues in KwaZulu-Natal Province, South Africa*. Pretoria: Integrated Rural & Regional Development.

Janse van Rensburg, B., Erasmus, B. F. N., van Jaarsveld, A. S., Gaston, K., & Chown, S. L. (2004). Conservation during times of change: correlations between birds, climate and people in South Africa. *South African Journal of Science, 100*(May/June), 266-272.

Jones, J.L. 2005. Transboundary conservation: development implications for communities in KwaZulu-Natal, South Africa. *The International Journal of Sustainable Development and World Ecology* 12(3):266-278.

Kepe, T, Wynberg, R & Ellis, W. (2003). *Land reform and biodiversity conservation in South Africa: Complementary or in conflict?* Cape Town: Programme for Land and Agrarian Studies, University of the Western Cape, Occasional paper no. 25.

Kiss, A. (2004). Is community-based ecotourism a good use of biodiversity conservation funds? *TRENDS in Ecology and Evolution, 19*(5), 232-237.

Liu, J., Daily, G. C., Ehrlich, P. R., & Luck, G. W. (2003). Effects of household dynamics on resource consumption and biodiversity. *Nature, 421*(30 January), 530-533.

Luckett, S., Mkhize, K., & Potter, D. (2003). The experience of local boards in KwaZulu-Natal, South Africa. *Parks, 13*(1), 6-15.

Margules, C. R., & Pressey, R. L. (2000). Systematic conservation planning. *Nature, 405*, 243-253.

Mauambeta, D. D. C. (2003). *HIV/AIDS Mainstreaming in Conservation:*

The Case of Wildlife and Environmental Society of Malawi. Embe: Wildlife and Environmental Society of Malawi.

Meier, B. (2003). *HIV/AIDS and the environment: what are the linkages? impacts on conservation capacity- an institutional perspective.* Paper presented at the Presentation at the IUCN World Parks Congress, Durban.

Musters, C. J. M., Graaf, H. J. d., & Keurs, W. J. t. (2000). Can protected areas be expanded in Africa? *Science, 287*(1759-1760).

Oglethorpe, J., & Gelman, N. (2004). *HIV/AIDS and the environment: gender makes the difference*. Geneva: IUCN.

Pressey, R. L., & Cowling, R. M. (2001). Reserve selection algorithms and the real

world. *Conservation Biology, 15*, 275-277.

Quinlan, T. (2003). *The link between conservation and HIV/AIDS - what can be done? Report of a Special Side Event at the World Parks Congress*. Durban: http://www.ukzn.ac.za/heard/conferencesmeetings/WorkshopReports/WPC%20report.pdf.

Rehle, T. M., & Shisana, O. (2003). Epidemiological and demographic HIV/AIDS projections: South Africa. *African Journal of AIDS Research, 2*(1), 1-8.

Reyers, B., Fairbanks, D. H. K., Wessels, K. J., & van Jaarsveld, A. S. (2002). A multicriteria approach to reserve selection: addressing long-term biodiversity maintenance. *Biodiversity and Conservation, 11*, 769-793.

Scherl, L. M., Wilson, A., Wild, R., Blockhus, J., Franks, P., McNeely, J. A., & McShane, T. O. (2004). *Can protected areas contribute to poverty reduction? opportunitites and limitations*. Gland: World Conservation Union (IUCN).

Singh, J. A. (2004). Why AIDS in South Afria threatens stability and economic growth in other parts of Africa. *The Lancet, 24*(27 November), 1919-1920.

Sitoe, A., Kayambazinthu, D., Barany, M., & Anyonge, C. H. (2004). *HIV/AIDS and the Miombo woodlands of Mozambique and Malawi: an exploratory study*. Rome: Department of Forestry, Food and Agriculture Organization.

South Africa. (1997). *Report No. 274/97*: Department of Land Affairs.

South Africa. (2004). *Communal Land Rights Bill*. Cape Town: Government Gazette 26590: volume 469.

Statistics South Africa. (2005). *Mortality and Causes of Death in South Africa 1997-2003: Findings from Death Notifications*. Pretoria.

Thompson, M. (1996). The standard land-cover classification scheme for remote-sensing application in South Africa. *South African Journal of Science, 92,* 34-42.

Tong, M. (ca. 2002). *Lest We Forget: Restitution Digest on Administrative Decisions*. Pretoria: South African Departmnet of Land Affairs.

UNAIDS. (2004). *2004 Report on the Global AIDS Rpidemic: 4th Global Report*. Geneva: Joint United Nations Programme on HIV/AIDS.

WCMC (World Conservation Monitoring Centre). (1992). *Development of a National Biodiversity Index*. Cambridge: A Discussion Paper Prepared by World Conservation Monitoring Centre.