Transboundary Conservation in Southern Africa:
Exploring conflict between local resource access and conservation

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Summary:

Protected area management in Southern Africa is being influenced by a globalization of conservation as the Western-driven transboundary conservation movement seeks to enlarge protected areas across international borders. The ensuing resource conflict is the result of an epistemological disparity between conservation and rural livelihoods. This impacts local access to natural, social, and economic resources threatening livelihoods and the sustainability of conservation areas dependent on local popular support and legitimization. The Lubombo Transfrontier Conservation Area (Peace Park) and neighboring communities are examined using Community-integrated Geographic Information Systems as an interdisciplinary multiple-scale approach to contextualize local resource decisions within the global conservation framework.

1. INTRODUCTION

Conservation and protected area management theory in Africa has moved away from a strictly preservationist paradigm towards managing for biodiversity, ecological services, and benefits for local resource users. Conservation is increasingly expected to contribute to local livelihoods and poverty alleviation in underdeveloped regions by acting as a stimulus for economic development through continued and/or expanded sustainable resource-dependent livelihoods and the creation of new opportunities stemming from consumptive and non-consumptive resource utilization. Within this 'environment and society' interface, Southern African livelihoods, resource use patterns, and micro-scale environmental land use and cover change at the community level (e.g. fuel wood use and deforestation) are well documented. Less understood are the *social* drivers affecting land use, even though land use change in Africa is affected primarily at the household and community/village level (Campbell, 1993). Community land use decisions must go beyond structural explanations and include more agentist explanations emanating from deeply held cultural norms. *Perceptions* of land use rarely factor in such analyses, but often drive change at a greater pace than the realities of external drivers (Harris *et al. al*., 1998). This is especially evident in the context of a polarized society such as South Africa, which illustrates the challenge of understanding and incorporating socially differentiated paradigms for conservation areas and local users (Weiner *et al. al.,* 1999).

An interdisciplinary multiple-scale approach is needed to address these complex interactions. The emerging field of Community-Integrated Geographic Information Systems (CiGIS) (Jones *et al. al*., forthcoming; Weiner *et al.*, 1995; Harris and Weiner, 1998) provides a suite of methods blending qualitative and quantitative data to address land use dynamics from an integrated perspective. With roots in participatory GIS and decision-making, CiGIS seeks to bring together 'expert' scientific and 'local' community knowledge, attitudes, and perceptions for critical holistic analysis. I use CiGIS methodologies (Jones *et al.*, forthcoming) to explore resource access, attitudes, and consumption in communities bordering conservation areas in KwaZulu-Natal, South Africa. The community data is contextualized against local resource use decisions within the ongoing globalization of conservation

paradigm, particularly the transboundary conservation movement. While interest in transboundary conservation has substantially increased in recent years, specific research results relating to impacts on social, economic, and biodiversity goals are lacking. Results are presented from a South African community currently experiencing conflict with neighboring conservation areas that are part of the Lubombo Transfrontier Conservation initiative between South Africa, Mozambique, and Swaziland. The conflict is influenced by an epistemological disparity between rural subsistence communities and the Western-driven conservation movement in Southern Africa.

2. TRANSBOUNDARY CONSERVATION PARADIGMS

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

In recent years a strong theoretical debate on transboundary issues has developed, but consensus of potential benefits and/or detrimental effects has yet to emerge within the social or natural sciences. Sharp dichotomies permeate most of the literature, supported by minimal research results. Griffin *et al.* (1999) note that TBNRM activities can legalize cross-border movement and renew cultural ties and traditions affected by international borders, while Fakir (2000) describes transboundary initiatives as 'conservation expansionism'. Some of the most cited reasons for transboundary initiatives are to foster peace and security (Westing, 1993 and 1998), provide environmental security and enhance regional cooperation (Singh, 1999), and 'heal the wounds of pre- and post-independence wars of destabilization' in Southern Africa (Koch, 1999). Others argue they may cause inter-state disputes rather than assuage them (Wolmer, 2003) or increase conflict if land

disputes and economic benefits are not equitably shared among participating countries (Fakir, 2000). Increased economic development and poverty alleviation for poor rural communities are also expected from new ecotourism opportunities (SADC, 1992 and 1999; NEPAD, 2001; PPF, 2003). Aside from the capital-intensive and risky nature of tourism, some believe little economic benefit will accrue to local communities due to the high amount of 'leakage' in the tourism industry with a large percentage of earnings, wages and profits remitted/retained away from the area (DFID, 2002). When no significant revenue is generated, as has been seen in other ecotourism ventures, local residents may incur compounded costs due to loss of pre-existing livelihoods disrupted by new land-uses (Duffy, 2001).

Transboundary initiatives are also anticipated to provide ecological returns and contribute to biodiversity conservation. Specific transboundary intentions include restoring historical elephant migration routes, alleviating species-area effects caused by excessive habitat fragmentation, and providing species-specific protection. There are questions as to whether new areas identified for inclusion in transboundary conservation areas will contribute to regional biodiversity goals (Reyers, in preparation). In some cases, newly conserved areas are identified due to their location and ability to link existing protected areas. These new areas help countries reach their overall target goals for percentage of land use under conservation, but provide minimal increased biodiversity protection. Frequently they conserve more of the same. To add increased biodiversity protection, countries would have to exceed minimum international conservation goals.

(a) Western idealism and managing the 'global commons'

Globalization can be defined 'as the growing integration of economies and societies around the world as a result of flows of goods and services, capital, people, and ideas' (Dollar, 2001, p. 2). In much of the public consciousness, globalization has become synonymous with a deterritorialization and homogenization of culture. Post-modern geopolitics has expanded the nature of globalization to include non-material ideas and values, leading to a globalization of conservation. Concern for the 'global commons' has become a major driver of conservation in developing countries. Western

epistemologies of natural resource management and community theory permeate transboundary conservation paradigms, and projects are often driven by agendas of international donors (Katerere, *et al*., 2001; Hughes, 2003). Duffy (2001) warns that conservation interventions still rely on western assumptions about the 'primitiveness of non-western people', and the belief that local people encroach on biodiversity. She notes that with global interventions the opposite is usually true, and conservation management encroaches on the domains of local resources and communities. Katerere (2001, p. 23) asks 'whether globalization justified unfettered access to regional resources, markets, politics and knowledge by northern researchers and international capital?" Others cite a concern that a global protectionism movement brings 'the possibility of a new kind of imperialism by way of intervention from a power base outside the region' (Carruthers, 1997).

Much of the donor-driven westernized paradigm is based on Hardin's (1958) 'tragedy of the commons', particularly when applied to traditional African communal land tenure systems. In reality the theory does not reflect the complexity of human use of the environment, and overuse of the commons may not occur in particular circumstances depending on numerous social and other factors (Goldmand, 1998). Worried about the approaching 'tragedy', Western-driven donor programs are often delivered under participatory community-based natural resource management (CBNRM) schemes. There is now a seamless merging of goals and funds of traditional 'development' donor agencies (e.g. Worldbank) with those of 'conservation' nongovernmental organizations (NGO) (e.g. WWF). Conservation NGOs have changed their strategies in order to gain access to newly available 'development' funds, subsequently shifting their policies to match those of the new funding agency (Levine, 2002). These donors typically prefer these local programs, believing that 'small is beautiful… local is authentic' (Hughes, 2003). But CBNRM is not without is own problems. In Southern Africa, Western-driven CBNRM programs often result in conflict over the use of funds and an expansion of NGO influence (Fabricius *et al*., 2001). And while most projects include economic development goals, projects tend to lean towards conservation and not poverty alleviation, ultimately usurping community benefits in favor of strictly ecological interests (Metcalf, 1999). Exacerbating the situation are inequitable land tenure arrangements, whereby communal areas are often comprised of

overpopulated marginal agricultural land with little rainfall. Former Apartheid-era *bantustans* (homelands) in South Africa are pertinent examples, and include the research area highlighted here.

There is also concern that transboundary initiatives could be used against communities as states extend control over sparsely populated border regions in the name of conservation (Duffy, 2001). Duffy notes that in some instances, global conservation organizations have assisted state government in obtaining additional control over wild places through the demarcation of protected areas and their surrounding buffer zones. The newly protected areas bring an increased level of law enforcement for natural resource protection, subsequently used as a controlling mechanism in remote border areas for immigration and informal trade.

3. PEACE PARKS IN SOUTHERN AFRICA

In Southern Africa, the primary driver of transboundary conservation is the Peace Parks Foundation (PPF). Its mission is "to facilitate the establishment of Transfrontier Conservation Areas (TFCA), supporting sustainable economic development, the conservation of biodiversity, and regional peace and stability" (PPF, 2003). The role of local communities was not originally considered (van Riet, 2003), but Peace Parks are now promoted as a development instrument in support of the Southern African Development Community (SADC) and the New Partnership for African Development (NEPAD).

Concerns of social legitimacy and effective participation in PPF projects have been raised. Draper (2002) describes the 'mythology of community development' in the PPF framework and comments that notions of the 'noble savage' and paradigms of primitivism are still rife in current PPF efforts. He also notes that community buy-in and commitment from local residents in proposed or affected areas are welcome, as long as they follow the PPF conservation policy. In its annual report (PPF, 2001), founder and chairman Anton Rupert remarks that natural assets will *only* have 'meaningful value' to local people when they are used to create sustainable economic growth based on ecotourism.

The centerpiece of the PPF effort thus far has been the Great Limpopo TFCA, linking Kruger National Park in South Africa, Gonarezhou National Park in Zimbabwe, and Limpopo National Park in Mozambique. But the Great Limpopo TFCA has been perceived as another 'land-grab' and there are concerns about legitimate community participation. Only two workshops have been held with the one elected community representative committee, which is responsible for representing five million people living in the affected area (Wolmer, 2003). Research by the University of the Witwatersrand (RRP, 2002) found that in the Mozambican portion of the park, 40% of households had never heard about the conservation plan and communities are confused about how the park will affect them. The Great Limpopo TFCA has been driven by conservation NGOs and donor organizations, resulting in a top-down process with belated community engagement (Grossman, 2003). In the case of the Lubombo TFCA, encompassing the study area of this paper, Kloppers (2001) notes that when potentially affected communities have been identified or researched, they are often portrayed in a homogenous fashion, without describing the people or their relationship to the local environment.

One reason for the lack of community consolation has been the rapid pace in the development of Peace Parks in Southern Africa. In the Great Limpopo TFCA there is an urgent need to decrease elephant density in Kruger National Park before overpopulation destroys the habitat. An international ban on elephant culling as a population management tool has restricted park options. Translocation from the South African side to the Mozambican side has become a priority and is partially responsible for the urgency (Grossman 2003). These elephant problems are also driving the Lubombo TFCA described in this paper.

(a) Community benefits and TFCAs

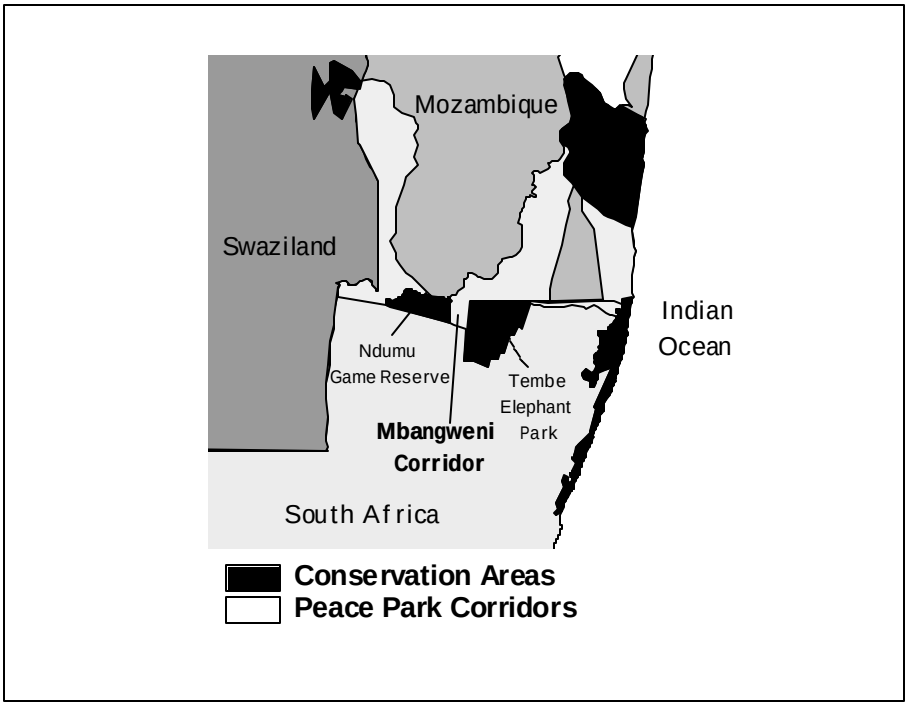
Both SADC and NEPAD support the idea of transboundary conservation in their objectives as a means for regional and local environmental protection and economic growth through conservation of natural resources. However, distribution equity of new jobs has been questioned (RRP, 2002). In the Great Limpopo TFCA, research found that of the 115 field rangers to be trained for the Mozambican portion of the park, only 29 individuals were selected from local villages, with the

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

4. STUDY REGION AND METHODOLOGY

The study area lies in a region known as Maputaland, extending from St Lucia in South Africa to Maputo Bay in Mozambique (Figure 1). The region supports exceptionally high biodiversity due to its location at the confluence of a number of biogeographic regions. It contains the Maputaland Centre of Endemism, consisting of a mosaic of forest, woodland, grassland, dune forest, floodplain, pan systems, and swamp communities (van Wyk, 1990 and 1994).

Figure 1: The Lubombo Transfrontier Conservation Area (TFCA)



Protected Areas in the region represent of a number of different habitat types, and include a World Heritage site and several Ramsar Wetland sites. In 2000, The Lubombo Transfrontier Trilateral Protocol was signed between South Africa, Mozambique, and Swaziland. The Lubombo Transfrontier Conservation Area (LTFCA), under guidance from the Peace Parks Foundation, will center on existing reserves, including the Maputo Elephant Reserve in Mozambique, Ndumu Game Reserve and Tembe Elephant Park in South Africa and the Hlane Wildlife Sanctuary, Mlawula Nature Reserve and Ndzinda Nature Reserve in Swaziland. Several other bilateral protocols were signed in 2000 for corridors to link the existing protected area via currently unprotected and inhabited lands.

The South African portion of the Lubombo TFCA lies within the province of KwaZulu-Natal, an area referred to locally as Northern Maputaland. Rural development has been neglected for many years and the area is characterized by extreme poverty and poor economic development with most residents dependent on local natural resource utilization for their livelihoods. It has low agricultural and grazing potential, resulting in the absence of significant commercial farming and development typically associated with commercial operations.

(a) Community-integrated GIS methodology

An interdisciplinary multiple scale approach is necessary to address the 'social' and 'natural' components of the environment and society interface. The emerging field of Community-Integrated Geographic Information Systems (CiGIS) (Jones *et al.*, forthcoming; Weiner *et al.* 1995; Harris and Weiner 1998) provides a suite of methods blending qualitative and quantitative data to address land use dynamics from an integrated perspective. With CiGIS, local data and knowledge are seen as complementary, not contradictory (Jones *et al.*, forthcoming). An integrated CiGIS approach provides not only a platform for spatial analysis and mapping, but evaluation of the interconnectivity of ideas, processes, and interactions that are not necessarily spatially delineated.

The primary aim of this research was to employ CiGIS methodologies to examine rural livelihoods and resource access of communities bordering conservation areas. Local knowledge and data, particularly those regarding values and perceptions, are critical to understand land and resource

use as both a livelihood and a *social* process. Local knowledge is viewed as a set of multiple realities of landscapes, resulting from variations in culture, gender, race, politics, ethnicity, location, and history which capture the everyday life experiences of diverse social groups (Weiner *et al.*1995; Ceccato and Snickars 2000). The multiple realities and communities they compose can be examined against varying contexts, from local government policies to macro-scale processes of globalization and transboundary conservation.

Fieldwork was carried out between February 2002 and March 2003 with numerous visits to the Mbangweni community, neighboring communities, the Tembe Tribal Authority, and conversation authorities. Data collection included a geo-referenced questionnaire, semi-structured interviews, key informants, direct observation, GPS data, and community interpretation of maps and aerial photographs (Jones *et al*., forthcoming).

The geo-referenced questionnaire consisted of closed and open-ended questions for all 118 households in Mbangweni, as well as all households in two other communities. It included socio-demographic information, livelihood strategies, natural resource utilization methods and consumption indicators, and attitudes, values, & perceptions ascribed to natural resources and conservation. Questionnaires were completed by research assistants employed from the communities who used a semi-structured interview technique to solicit answers from one family member at each household. The interviewer recorded answers to compensate for poor literacy skills amongst community residents. In most cases, no prior arrangement was made to visit a particular household and researchers visited households at will, thus minimizing return visits to households and field time. This approach allowed the collection of socially differentiated knowledge (Weiner, 1995; Ceccato *et al. al.*, 2000) resulting from multiple realities due to age, gender and position in household (first wife, daughter, father, etc.). Local research assistants were trained in the operation of GPS units, and collected coordinates for each household questionnaire. Community settlement patterns were mapped and questionnaire data subsequently linked in a Community-Integrated GIS. Aerial photographs and topographic maps were used with group interviews to stimulate general discussion and address specific questions. Participants evaluated resource location and access represented on the

photographs, related narratives of historical locations and patterns of settlement and movement, identified communal resource conflict areas, and drew their own interpretation of various themes and locations.

While gathering data in the communities, notes were taken of local resources, customs, habits, locations, collection methods, use, and other behaviors regarding the issues under investigation. This allowed the capture of both quantitative and qualitative data from personal observation. In addition to note taking, GPS coordinates were obtained when possible to mark the location of the activity or resource under observation. Adding these coordinates to the CiGIS and visualizing them in conjunction with other data layers highlighted spatial patterns and provided a more holistic understanding of the study site.

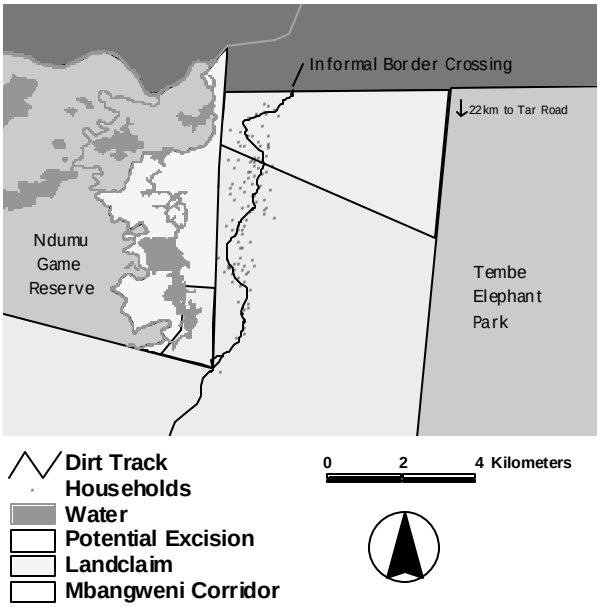
(b) Mbangweni community description and livelihoods

Located between Ndumu Game Reserve (10,177ha), Tembe Elephant Park (29,000ha), and the international Mozambique border (Figure 2), the community of Mbangweni (approximately 45km²) is situated on communal land under the leadership of the Tembe Tribal Authority (TTA). The tribal authority encompasses an area approximately 2240km² containing 35,000 residents in 42 separate wards (hereafter referred to as communities). All land is held in trust, but traditional headmen make most land-use decisions at the community level. The tribal authority is part of the former semi-autonomous KwaZulu *Bantustan* (black homeland) of the Apartheid era. Historically, the Tembe Kingdom comprised an area that is now fragmented between South Africa and Mozambique[1]. Today, communities on both sides of the border share similar cultures, kinship ties, and livelihoods. Although there is a demarcated international fence line, the border is porous with people and goods flowing fairly unrestricted in both directions.

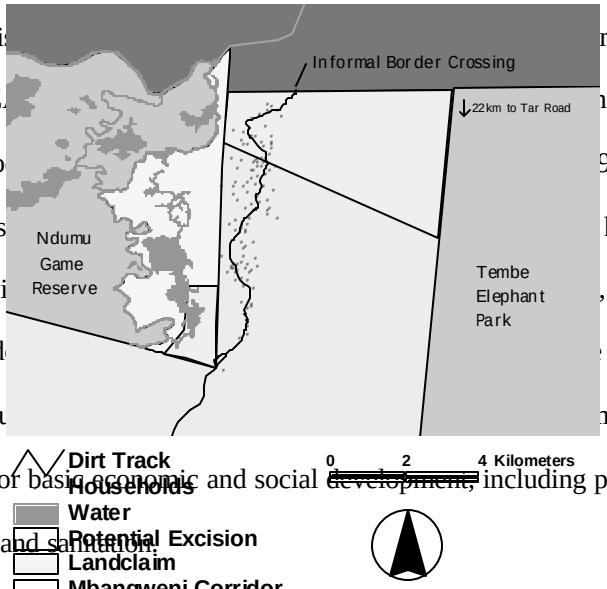
Protected conservation areas with the Tembe Traditional Authority's boundaries total more than 24% of TTA land. The land under conservation belongs to tribal authority, but is managed as conservation in accordance with negotiated agreements by the provincial conservation agency,

KwaZulu-Natal Wildlife. However, Ndumu Game Reserve land is owned by the state and the communal land on all but the eastern side of Ndumu belongs to a different tribal authority.

Figure 2: The Mbangweni corridor



The average Mbangweni household consists of 5.7 people, above the regional average. The calculated dependency ratio i mediate area. The mean household income is Z e community and most goods and services pro 90% of individual household production is cons household cash is spent on basic foodstuffs, wi , and school fees. Statistics and anecdotal evid around 33% (E. Immelman, personal commu ment, via a local municipality, is responsible for basic economic and social development, including provision of water, electricity, education, health, and sanitation.



Most of the 118 households in Mbangweni pursue subsistence livelihoods. There are no natural water sources or communal taps; residents collect water from the river and boreholes inside

Ndumu Game Reserve. There is no electricity grid, sanitation, or healthcare in the community, and one informal single-track dirt road which connects to the main tar road approximately 22km to the south. Homesteads are constructed using traditional materials and methods, and households are dependent on local fuel wood collection. Some households generate income by selling foodstuffs, fishing, other trade, and a few formal jobs in the region. However, most households are extremely dependent on remittances, pensions, and child support grants from the government.

Households typically have a small dry land agricultural plot at their homestead, usually not sufficient to sustain families due to poor sandy soils and a lack of water. Primary household garden plots are located one to two kilometers over the Mozambican fence line, near the more fertile floodplain areas. The communal land is abundant in wild fruits and trees, which forms an important part of nutrition and income generation through the production and sale of wild products (Cunningham, 1985 and 1988; Felgate, 1982). There is an active bush meat trade in the region, most harvested in southern Mozambique. There are no fishing areas in the community, but residents engage in active trade with people in Mozambique and have monitored fishing access inside Ndumu Game Reserve.

(c) The making of resource conflict

Historically, some members of the community resided on or near the eastern bank of the Pongola floodplain, an area that is now part of the Ndumu Game Reserve, proclaimed in 1924. The community was forcibly removed from the 1940-1960s due to racially discriminatory laws and practices (South Africa, 1997). The former Apartheid government used Tsetse fly aerial spraying as a means to ensure both people and their cattle moved from the area, and later invoked the Illegal Squatters Act to remove them again when they tried to move back into the Reserve. On the east side of Mbangweni is Tembe Elephant Park, proclaimed and fenced in the 1980s in full consultation with the Tembe Tribal Authority. Subsequent to full democratization of South Africa and land restitution legislation, the Mbangweni community and the Tembe Tribal Authority filed a land claim in 1998

against Ndumu Game Reserve for all land east of the Pongola River within the Ndumu Game Reserve fence line Figure 2). Negotiation for the land claim continues between several interested parties.

Mistrust and animosity between the community and outside agencies, including conservation organizations and Department of Land Affairs, has escalated in recent years as land claim negotiations continue. There have been several different resolutions proposed in the past, including ceding ownership of the disputed land to the community but requiring land-use to continue as conservation. According to the traditional headman of Mbangweni (I. Tembe, personal communication, March 10, 2003), he was not aware that past oral agreements, as well as additional short-term incentives such as meat from culled hippos in Ndumu Game Reserve, were not binding. The deals never came to fruition and the community feels 'cheated'. Subsequently, violence and resource destruction has escalated in recent years. One local resident found poaching in the park was shot and killed when he attacked the game ranger apprehending him. Conservation officials indicate that poaching remains a serious problem. In another incident, an off-duty park ranger was physically assaulted while visiting the community. In response to ongoing tension, community members cut down and burned 3 kilometers of reserve fence line, declaring it was their 'fence telegram' to notify conservation authorities of the community's desire to discuss issues. The fence not only serves to keep people out and wildlife in, but also forms part of the foot and mouth barrier between South Africa and Mozambique. For this reason, the conflict has drawn attention from Department of Agriculture officials who could call on military support to enforce the fence line (D. Archer, personal communication, March 15, 2003).

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

TFCA. The taxi drivers exercise considerable influence within the community, and it is generally acknowledged they use their influence to intimidate residents at community meetings from supporting any settlement that would interfere with their business.

The taxi operators are also suspected of being involved with criminal cross-border activities, including trade of stolen cars and gun smuggling. In the 1990s the Northern Maputaland region was the exit point for many stolen vehicles leaving the country bound for East Africa and Europe. Conversely, firearms from the long Mozambican civil war flowed into South Africa. Other stolen items, illegal merchandise, and drugs are also transported across the border in both directions. The South African and Mozambicans governments working together established military and police camps along a 50km stretch of border designed to halt the criminal activity. A joint taskforce from 2000-2001 stopped much of the criminal activity. Today, small transient military outposts still linger for short periods at the Mbangweni and other informal border crossings. Different Army units rotate in for three-month periods, often enforcing their own rules and policies, creating confusion and tension amongst local residents who rely on routine legal cross-border travel.

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

(d) Land claim options

Negotiations to settle the claim have continued since 1998 between the TTA, Department of Land Affairs, and KwaZulu-Natal Wildlife. The primary alternative being considered would excise 200ha (2%) of highly productive agricultural land from Ndumu Game Reserve to the community in

exchange for 1650 ha (36%) of Mbangweni to be managed as a conservation corridor joining Tembe Elephant Park and Ndumu Game Reserve. According to the Peace Parks Foundation, the consolidation of these properties would form a core area that South Africa can 'commit' to the TFCA and is a critical prerequisite before a TFCA may be formally established (Peace Parks Foundation, 2002). In addition to the excision under the settlement, the community could gain title to the reminder of the east bank of the Pongola River (1062 ha), but it would continue to be managed as conservation. Other potential incentives include joint tourism projects, leasing fees, and increased infrastructure. The exact size, shape, and position a potential conservation corridor must still be negotiated. A likely alternative based on the potential land exchange is a polygonal corridor (Figure 2), which would necessitate some of the households to move several kilometers south of the border fence line.

5. QUESTIONNAIRE RESULTS

Results represent the percentage of responses compared to all 118 households in the community. The questionnaire was conducted in Zulu, using traditional words and associated meanings. Questionnaires respondents consisted of 56% female and 44% male, similar to overall community population indicators. Most respondents were an adult household figurehead with 37% of the total respondents being the first or only wife, and 35% of the males being the male household head.

(a) Attitudes and perceptions towards nature and conservation

Mbangweni residents have a utilitarian approach to the natural environment. Nature is considered important because it provides crops and livestock and wild fruits and wild animals. Less than half responded that nature is important because it provides jobs/tourism, and only a very small percentage of respondents listed beauty as a reason. Regarding population density in the community, the majority stated that the number of people living in the community does *not* affect the quality of nature and that nature will always provide enough resources (e.g. wood, water, soil). Most stated they have enough land and wood, but more than half responded they did *not* have enough water, citing

distance to collect water and fear of crocodiles in the river. When asked in another question specifically about the population density of Mbangweni, the majority stated there are 'too many' people living in the community, with the main factor being the number of homesteads and people.

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

Land identity in the community is strong, and land (and the community in general) is perceived as good because residents were born there and it is there home. The same attitudes are shared regarding a vast preference for rural life over urban life. In contrast, very few think the community land is good because 'it has good natural resources'.

(b) Access and consumption

Respondents were asked about consumption of meat products and collection strategies for the meat of domesticated animals, wild animals, and wild birds. Meat consumption patterns were calculated as the mean number of times each type of meat is consumed per person per year. Results from Mbangweni were compared with two other communities in the region. The neighboring community of Bhekabantu lies immediately south of Mbangweni and is comprised of 250 households. Bhekabantu has more infrastructure within the community and is closer to the main tar road. The community of Sibonisweni (170 households) is located 30 kilometers from Mbangweni, and lies alongside the southeast corner fence line of Tembe Elephant Park. Sibonisweni has the most facilities of the three communities and is situated on the main tar road.

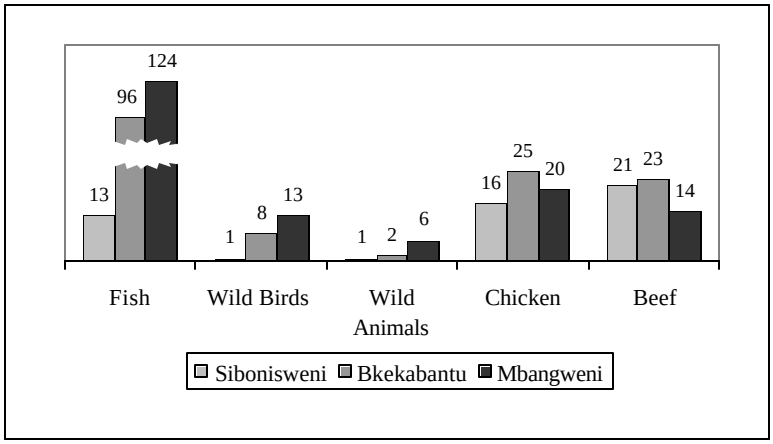
I. Wild animals, wild birds, and fish

When examining meat consumption rates and methods of how they are obtained, there is a significant difference between the communities. A closed question was used, and collection strategies were categorized as 'I catch them' (catch), 'I buy them' (buy), and 'I get them from family or friends for free' (free). Respondents were allowed to select all applicable answers but were not asked to identify the location where wild animals and birds are obtained. Owing to local communal resource rights, residents usually conduct hunting practices within their own community's ward. Hunting in other communities is allowed if permission from the other headman is given, but probably accounts for limited consumption due to limited resources and the desire for them to be distributed within each community. Illegal poaching in the conservation areas was not measured and is not delineated in responses. However, conservation authorities (C. Hanekom personal communication, May 20, 2003) state that in Ndumu Game Reserve 70% of the poaching is conducted by residents from Mbangweni and Bhekabantu, and 30% by Mozambicans. Many markets in the area regularly supply bush meat, with border markets tending to have the greatest supply. Most of the bush meat for sale comes from unprotected areas in Mozambique and some from illegally poached animals. Residents were asked in the questionnaire if they prefer the meat of cattle or the meat of wild animals. Results for Mbangweni were significantly higher, with 15% preferring wild animals and only 1% for Bhekabantu and Sibonisweni. It is important to note the cultural importance of cattle and its meat in the Zulu culture, which helps explain the preference for beef[2]. However, that Mbangweni's preference for wild animals is 15 times greater than the other two communities is significant.

Mbangweni consumes significantly higher amounts of both wild animals and birds than the Bhekabantu or Sibonisweni (Figure 3). However, it consumes less beef than the other communities, probably due to resident's inability to purchase cattle or its meat, and also the supply and demand of wild animals and birds (see below). As expected due to its proximity with Mozambique where most fish is caught and sold, fish consumption in Mbangweni is 1.3 times higher than Bhekabantu and 9.5 times higher than Sibonisweni. Due to its position immediately south of Mbangweni and in the direct line of trade from Mbangweni to the main tar road, Bhekabantu fish consumption is similar to

Mbangweni, and both are significantly higher than Siboniswenі, which is furthest from the Mozambican fish trade and lacks any high yield fishing pans in its immediate surroundings.

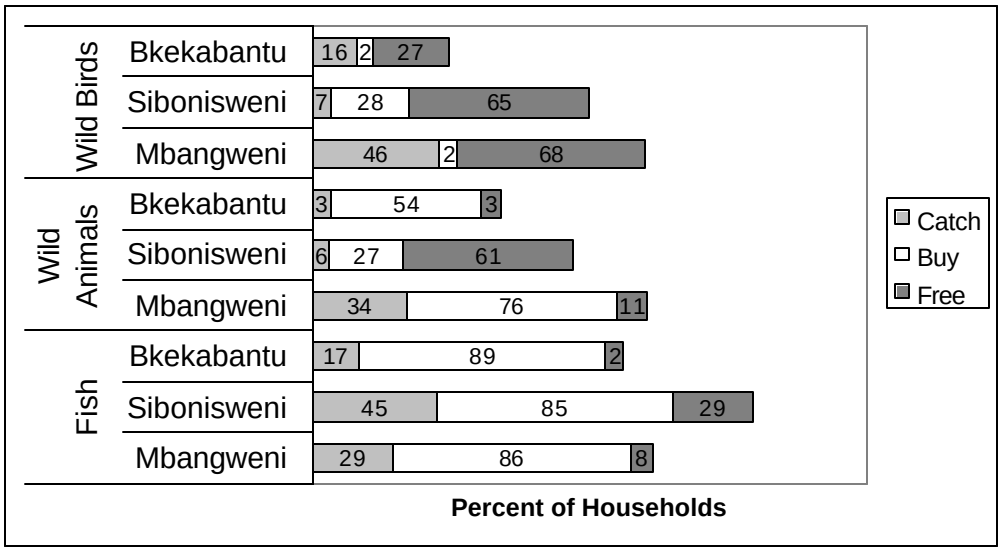
Figure 3: Average consumption of meat per capita per year



The consumption rate for all types of meat was calculated for each community, and Mbangweni consumes slightly more meat per capita (197 times per year) than Bhekabantu (154 times per year); both consume significantly more meat than Siboniswenі (52 times per year). Fish consumption, due to accessibility issues described above, accounts for most of the variation between the communities, as shown in figure 3.

Strategies for obtaining meat also differ significantly between Mbangweni and the other communities. It reported significantly higher rates of catching wild animals and birds, and a higher rate of buying wild animals (Figure 4). Likewise, Mbangweni has a low rate for buying wild birds, particularly compared to Siboniswenі. Few households in Mbangweni and Bhekabantu obtain wild animals for free compared to Siboniswenі, but all three communities have high rates for obtaining wild birds for free. For fish, the primary collection strategy for all three communities is to buy it. However, Siboniswenі has higher rates of 'catch' and 'free', demonstrating a more diversified strategy in relation to its significantly lower consumption rates.

Figure 4: Strategies for obtaining meat



(c) Social and economic patterns with Mozambique

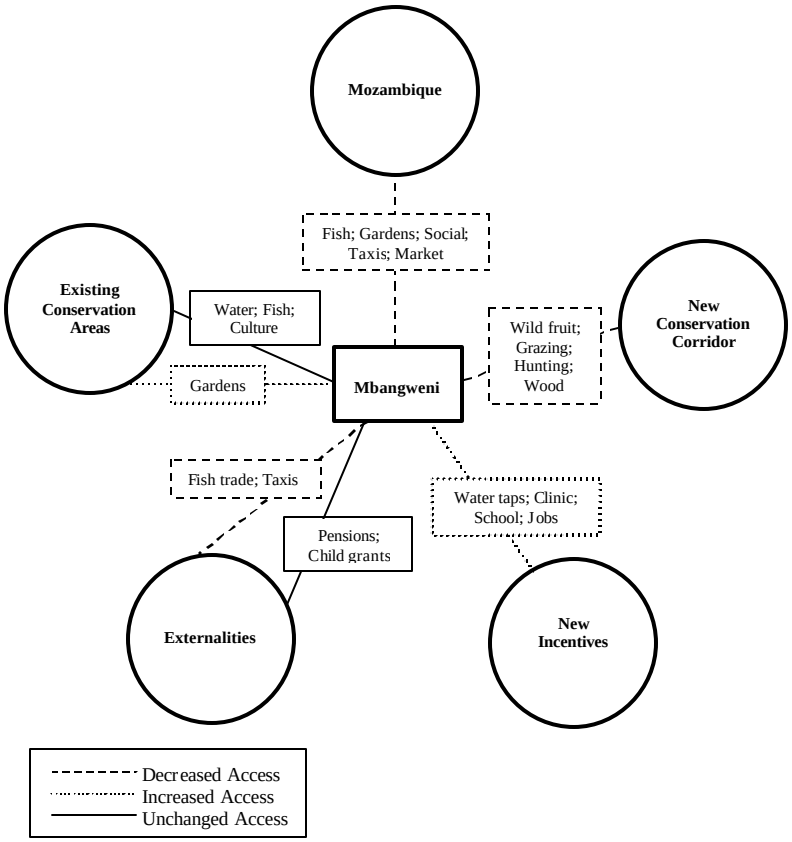
Most of the fish consumed in Mbangweni is harvested in pans across the border by Mozambicans. Women from Mbangweni buy the fish at the border and transport it via the informal taxi operators to the main tar road markets where the fish is resold. Regarding other trade by Mbangweni residents, 18% of households sell goods at the border market (clothes, peanuts, snack foods, and biscuits) and 77% buy goods at the border market (fish, maize, sugarcane, and bananas).

More than 26% of Mbangweni households replied they have 'family' who live in Mozambique. Those who visit family in Mozambique were asked how many times they visit: daily-7%, weekly-14%, monthly-50%, biannually-4%, and annully-25%. In a separate question, all respondents were asked how frequently they go to Mozambique (times per month): one-31%, two-14%, three-4%, five-2%, between five and ten-6%, more than ten-10%, no data-20%. The main reasons for going to Mozambique are to visit friends and family (30%), cultivate gardens (18%), buy fish (15%), buy maize (14%), and buy food (10%).

6. COMMUNITY IMPLICATIONS OF CONSERVATION

The Mbangweni Corridor provides social, economic, and natural resource access for Mbangweni residents (Figure 5), and other communities to a lesser extent. Access to these resources is *within* the corridor itself and *through* the corridor to resources in or stemming from Mozambique. If a conservation corridor develops linking Tembe Elephant Park and Ndumu Game Reserve, access could be limited or removed altogether. Any change in land use must make provision for replacement or provide alternatives to these resources to minimize potential future conflict, thus ensuring community benefits and longevity of conservation areas.

Figure 5: Social, economic, and natural resource access flows from Mbangweni



(a) Social access

The most common reason for Mbangweni residents to go into Mozambique is to visit friends and family. This social access is a unique, yet important, resource that cannot be replaced or substituted. If potential designs for the conservation corridor include separating the community from the border by a fenced protected area, residents will lose this access if other provisions are not made. This is ironic since discussions about transboundary conservation benefits highlight their potential to remove 'artificial borders' and restore 'historical links' (Griffin *et al.*, 1999). However, there are potential solutions to continue the social access, as well as create economic and resource opportunities. Residents could be granted access to walk through the corridor to the border. However, this poses a safety issue for people since the conservation area will eventually contain elephant, rhino, buffalo, and other dangerous animals. Another alternative is to allow the taxi service to continue operating from the community through the conservation corridor to the border under a managed scheme. In this manner, taxi businesses could continue and residents would have access to Mozambique. However, this could place increased financial burden on residents who would have to pay for transportation to the border, when previously they walked. Inability to pay could lead to a lack of demand jeopardizing taxi businesses and contributing to increased conflict. A funneling of people through controlled access routes could also face resistance from local people. While most routine border traffic occurs at the primary informal crossing, residents do cross at other areas simply by slipping through the fence. Non-residents on both sides of the border compound the situation by routinely passing through the border for shopping, trading, healthcare, school, and illegal activities. Even if established for conservation reasons, the funneling effect could support a more centralized state that enforces border zones by means of conservation. Government control of illegal trade, primarily cigarettes and clothing, has already been a factor in the area, with Army units routinely patrolling border regions looking the contraband (A. Beukes, personal communication, March 20, 2003).

Land identity within the community is very strong, and settlement patterns have developed in accordance with local culture and customs. Individual homesteads are approximately 50 meters x 50 meters and are demarcated from one another by trees and vegetation between homesteads. Privacy is an important factor, and new homesteads are built to allow space between themselves and existing homesteads. This is reflected in that most of the respondents stated that although they have enough land for homesteads, they think there are too many people in the community due to a sense of crowding. If a portion of the communal land is transferred to conservation, homesteads in the northern section of the community would presumably be required to relocate to the remaining southern area. This will increase the density of households, exacerbated as natural growth continues. This is compounded by the regional trend of an increase in both absolute population and number of households, but a decrease in the number of persons per household [3]. Unless there is a concordant decline in the average parcel size per homestead, then homestead land-use per capita will increase, accompanied by increased crowding. These factors can potentially contribute to resource scarcity, conflict and dissatisfaction within the community, which could spillover to conservation areas.

(b) Resource access

Most livelihoods in Mbangweni are directly dependent on local natural resources. Within community boundaries, the primary resources remain land and wood for homesteads, fuel wood, wild fruits and trees, and bush meat. As with social resources, access will be decreased if a portion of community land is transferred to conservation. Suitable and timely replacements must be provided in place of forgone opportunities, as continued and/or increased demand could lead to discontent and potential conflict.

Access to productive agricultural land would be increased under the potential negotiation for an exchange of corridor land in return for 200ha excised from Ndumu Game Reserve. The excision would be closer and provide a more secure form of tenure than the gardens in Mozambique provide. Parts of the 200ha may unusable due to seasonal flooding, but the land would provide a significant

increase in garden availability resulting in increased food security and possible household income supplements from selling excess fruits and vegetables at nearby markets.

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

Pressure on natural resources for livelihoods could be exacerbated in Northern Maputaland if regional population growth continues and the area becomes a hub of development. Under the government-sponsored Lubombo Spatial Development Initiative, Northern Maputaland has already been identified as a regional hub and is receiving infrastructure improvements, primarily roads to attract tourist and commercial interests. Workers from outside the immediate surrounding will also be attracted by perceived economic opportunity. The immigrant labor will add pressure to resources (e.g. fuel wood) even if they find jobs, as workers remit most of their earnings to their home communities, and consume local wild resources when possible. The associated social pressures previously identified could further aggravate the situation.

(c) Economic access

The trade of fish between the communities on opposite sides of the border is one of the primary cash economies in the area. Women on both sides benefit from the infusion of external cash

when the fish is sold in other communities and at regional markets. Furthermore, transportation of the fish from the border to the market at the tar road contributes to the local taxi businesses and the fish is an important source of cheap protein for local nutrition.

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

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

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

It has been observed that ecotourism ventures are seldom economically viable and are 'mirages to silence the rumbling discontent of the victims of development speak' (Fakir, 2003). If negotiations between the community and conservation service include ecotourism opportunism, they will need to be backed by money and long-term commitment. Benefits and profits must accrue in a timely and equitable manner, avoiding extreme 'leakage'. The community has been frustrated by promises in the

past that have added to the tension. However, a serious escalation in conflict could be expected if the community relocates, foregoes resource access under a negotiation, but the promised jobs and benefits are slow to materialize.

7. Conclusion

Mbangweni residents cross the international border everyday to pursue cultural, social, nutritional, and economic goals in support of their livelihoods. While the theoretical debate of benefits and costs associated with transboundary conservation continues, border communities carry on with daily life. In the long-term, expanding the existing conservation areas could be a positive step. Ecologically, the area is of significant importance to merit protection if it complements larger biodiversity goals. Different management options exist and each should be explored, from a strict nature reserve (IUCN Category I) to a resource area managed for community resource needs (IUCN Category VI). There is potential for ecotourism and other economic opportunities tied to the enlarged conservation area, but they should not be touted as a quick and easy solution to rural poverty. Communication between conservation and communities remains vital, as evidenced in Mbangweni. All issues, positive and potentially problematic, should be explored from the beginning of negotiations. By ignoring or concealing certain issues, such as local access through the Mbangweni Corridor to Mozambique, and confronting them only when they arise as problems on the ground, it will be more difficult to avoid future conflict. KwaZulu-Natal Wildlife, as the conservation agency responsible for the South African portion of the Lubombo Peace Park, is tasked with local management and problem solving (such as land claims and resource access) obstructing South Africa's participation in an operational transboundary conservation area. The Peace Park Foundation envisions itself as a facilitator to bring countries together at the diplomatic level in pursuit of new transboundary conservation opportunities (W. Myburgh, personal communication, November 14, 2003). On the ground operations is left to the local conservation agency in accordance with their institution's framework and policies. The Peace Parks Foundation does, however, supply funding to local conservation agencies (in partnership with NGOs affiliated with the local conservation agency) in support of the Peace Park Foundation's mission. In Northern Maputaland, they propose to spend

US$1.4 million for a three-year conservation and development project aimed to facilitate conflict negotiations between the communities and KwaZulu-Natal Wildlife that are delaying implementation of the Lubombo Peace Park (PPF, 2002). The project includes funds for water provision, food security projects, conservation fencing, roads, schools, capacity building, and purchasing community equity in ecotourism projects. The funds could provide serious poverty alleviation for communities in the area, and thus reduce current conflict. But long-term viability must also be considered. After the 3-year project tends, the tourist lodges must continue to provide jobs and profits to community shareholders and maintenance for infrastructure. This will require attracting more visitors to the region and not only local people seeking opportunity in the development hub.

Border communities, like Mbangweni, are some of the most remote and impoverished areas in Southern Africa. The specific ability of conservation to provide local poverty alleviation and increased development in Northern Maputaland remains unknown. Until negotiations are finalized and an agreement enacted, precise costs and benefits in Mbangweni are difficult to quantify a priori. However, the Durban Accord adopted at the 2003 IUCN World Parks Congress voiced concern 'that many costs of protected areas are borne locally - particularly by poor communities - while benefits accrue globally and remain under appreciated', and that protected areas should strive to alleviate poverty but at the very least they must not exacerbate it. These ideas reinforce the notion of a globalization of conservation and the impact of the Western-driven transboundary conservation movement on local communities. The epistemological disparity between conservation and rural communities impacts local access to natural, social and economic resources in the region, threatening livelihoods and the sustainability of conservation areas dependent on local popular support.

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Notes

[1] The traditional Tembe Kingdom dating back to the 17th century comprised those people who lived in the area between Maputo Bay in Mozambique and Lake Sibaya in South Africa, between the Lubombo Mountains and the Indian Ocean (Kloppers, 2001). Twentieth century political reorganization and international boundary settlements between the respective colonial powers resulted in the Tembe people of Mozambique becoming disconnected from the headquarters of the Tembe Kingdom in South Africa. While different political, social, and economic goals were pursued on opposite sides of the border, there is still a strong Tembe influence in parts of southern Mozambique (R. Kloppers, personal communication, January 18, 2003).

[2] Cattle still lie at the heart of rural Zulu cultural, economic, and social matters, and generally have an elevated status over other animals (wild or domesticated).

[3] For the Umhlabuyalinga region the average number of people per household in 1996 was 6.6 (South Africa, 1996) and 5.4 for 2001.