

**Building Robustness to Disturbance:
Governance in Southern African Peace Parks**

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Abstract:

This study looks at the institutional design and ongoing development of the management structure of transboundary protected areas, also known as Peace Parks, in an attempt to analyze transboundary governance on environmental issues. Peace park advocates assert that transfrontier parks improve biodiversity conservation, foster regional economic development, and promote peace and understanding between neighboring countries. Using two transfrontier parks involving South Africa — the Great Limpopo Transfrontier Park, partnering with Mozambique and Zimbabwe and the Kgalagadi Transfrontier Park, partnering with Botswana — I seek to address questions crucial to the success of transfrontier parks in their pursuit of these goals.

First, to study the concept of transboundary governance, I use theories of ecological resilience and institutional robustness to look at specific challenges or what I define as “disturbances” confronting park employees and governmental officials in the management of a transboundary conservation system. From this flows the more theoretical research question that I intend to answer: how do institutions change in response to various types of disturbance. In interviewing over 150 people knowledgeable about these two transfrontier parks, dozens of disturbances are identified. These disturbances have then been coded to enable a study of when international cooperation emerges and when it remains absent. Supplementing this quantitative study are vignettes focusing in greater depth on a few of the most recurring, interlinked disturbances mentioned: relations with local communities, veterinary disease control, human-wildlife conflict and border security. With a view toward addressing management concerns, the second question that I examine concerns what role the joint management board of a transfrontier protected area should play vis-à-vis the national park staffs and environmental officials and how can transboundary cooperation be optimized or improved. Often overlooked by transfrontier conservation supporters, the higher transaction costs of international coordination and the lack of direct enforcement abilities may minimize the amount of institutional development at the international level relative to national and sub-national levels. In spite of the increased costs of negotiating, collaborating, and sharing information, transboundary cooperation, working through the Joint Management Board of the transboundary parks, can improve policy outcomes if the international level is the appropriate scale of response. However, not all disturbances should be addressed at the international level, with more appropriate responses coming from a more localized level. This study provides advice on which issues to handle at the national or sub-national level and which to co-manage and collaborate on through the joint management board.

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1. Introduction

Transboundary protected areas or TBPAs create an ideal means of exploring cross-border governance and the coordination of management across an international frontier. In the following study, this research will look at this particular form of transfrontier conservation from a decidedly institutional perspective, delving into the political and operational struggles of jointly managing a complex social-ecological system divided by political borders. It will examine a number of questions of interest to academics and practitioners alike, as both groups grapple with how to improve management across a border, whether the boundary line is between nations, municipalities, public and private partners, state and communal authorities, or other areas necessitating cross-border management. These questions include:

- When and how do park managers and government officials from partner countries work together across borders in transboundary protected areas?
- Why do these actors foster or facilitate cooperation in some areas and not others?
- How can these actors design or modify institutions to improve cooperation in areas that would benefit from more collaborative efforts?
- In turn, how can we design these institutions to be more robust to future challenges or disturbances?
- Finally, how do we effectively manage within a multi-level, polycentric governance system?

In addressing these questions, the study focuses on two TBPAs in southern Africa, the Kgalagadi Transfrontier Park and the Great Limpopo Transfrontier Park. By looking at how officials in these parks address and react to disturbances, create cross-border institutions and engender cooperation, the study attempts to answer to these questions and provide policy-makers with pragmatic suggestions for the future. Likewise, the analysis endeavors to advance theoretical discussions on institutional robustness, multi-level and multi-scale studies of governance and cross-border cooperation, and managing for the resilience of complex social-ecological systems. In what follows, this study first will look at the two transboundary protected areas used as case studies and explore the political situation behind their creation. Next, it will identify the key policy puzzles and theoretical challenges undertaken in the following text. Theories on the resilience of complex social-ecological systems and institutional robustness, literature on international cooperation, coordination, and governance at multiple scales and levels will provide the theoretical framework for the rest of the research. Building on these theories, the study uses the notion of “disturbances” and responses to these disturbances faced by park managers as a means to explore and test several hypotheses on institutional development and cooperation levels in the two case studies. From here, a few short vignettes on specific disturbances will delve into some formal and informal institutional changes within the park service. The paper will conclude by then linking these changes back to theories of institutional design.

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2. Introduction to the Case Studies

The two featured cases in this study have both been frequently mentioned in the history of transfrontier conservation in the southern African region (de Villiers, 1998; Duffy, 2001; Hanks, 2003; Singh, 1999; Wolmer, 2003a, 2003b; among others). The first of these is the original southern Africa transfrontier park – the Kgalagadi Transfrontier Park or KTP. As will be discussed in more detail later, this transfrontier park provides an example of a relatively smoothly run system of transfrontier management. This high functionality arises, in part, from the unique circumstances that created the park and the relative simplicity of the park in terms of a generally uniform climate, geomorphology, and ecosystem, coupled with a remote location which minimizes tourism levels and conflict with neighboring communities. In the words of one interviewee, “the KTP is a very low intensity management. It’s a simplistic ecosystem, very homogeneous.” (South African researcher, 10/24/2006). The second case, regarded as the flagship transfrontier park of the region, is the Great Limpopo Transfrontier Park or the GLTP. In contrast to the Kgalagadi, the management of the Great Limpopo is always challenging and often contentious (Büscher and Schoon, forthcoming). In what follows, the historical introduction to the two parks will be augmented with a brief presentation covering their biophysical environments, the populations surrounding the parks, and a few of the key issues of concern to park management.

2.1 The Kgalagadi Transfrontier Park

The KTP has existed in one form or another since the 1940s but was only officially proclaimed as a “peace park” in 2000. One important feature of the park’s inception is the grassroots or bottom-up movement in the creation of the park, with local rangers and on-site park managers working across the border to collectively manage a borderless park from the very beginning of the adjacent national parks. By contrast, most other transfrontier initiatives come from top-down movements within the national governments or from international conservation groups. This unique beginning, along with many of the exceptional physical characteristics of the park, has helped to build a stable situation and relatively simplistic transboundary circumstances for park managers to work under. The park encompasses vast tracts of land, with the South African contribution comprising 9,591 km² and the Botswana portion of 28,400 km². In perspective, the total area roughly equals the Netherlands or the combined area of New Jersey and Connecticut (US Census Bureau, 2000). Biophysically, while often described as the Kalahari Desert, the area is more appropriately denoted as an arid savanna, and the park crosses two distinct ecotypes – the Kalahari duneveld in the southwest and the Kalahari plains thornveld in the northeast (SANParks, 2006). Rainfall, in this dry region, typically averages between 150 and 350 mm per annum, while temperatures range from winter lows of -10°C to summer highs of 45°C in the shade (ibid). While neither ecoregion has high levels of endemism and the biodiversity figures are not extremely high, the fence-free system contains one of the few large-scale migrations remaining anywhere (Cumming, 1999).

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Due to the arid landscape and the low levels of soil productivity, animal populations require vast tracts of land to support themselves through the dry times. This migration makes the well-being of the KTP vitally important. The migratory paths for thousands of gemsbok oryx and springbok range from the southwestern region of the park in South Africa, through the Botswana section of the park and continue through Wildlife Management Areas to the Northeast of the park, ultimately culminating in the Central Kalahari Game Reserve (CKGR) in Botswana. The introduction of cattle fences in the corridor to the CKGR is believed to have contributed to declines in springbok populations in the past 15 years (SANParks staff interview, 3/19/2007). The fauna of the region, as expected, are generally less water-dependent, with larger ungulate species including eland (*Taurotragus oryx*), gemsbok (*Oryx gazella*), and springbok (*Antidorcus marsupialis*) predominating. These are accompanied by the charismatic predators of the region – the Kalahari black-maned lion (*Panthera leo*), leopard (*Panthera pardus*), spotted hyena (*Crocuta crocuta*), brown hyena (*Hyaena brunnea*), black-backed jackal (*Canis mesomelas*), the ever-present meerkat (*Suricata suricata*), and one of the few remaining genetically pure populations of the African wild cat (*Felis lybica*). In total, the region holds populations of 66 mammal species, over 280 bird species, 55 reptile, 5 amphibia, and hundreds of flora species.

The Kgalagadi Transfrontier Park lies in a sparsely populated, remote area centered around the point where Botswana, Namibia, and South Africa all meet – the place called Union’s End. The entire border of the park with Namibia is fenced, with commercial and communal cattle farms along the western edge of the park. The Botswana section of the park is partially fenced, with the southeastern border separated from the nearby cattleposts by a fence from the park entrance running northeast past Khawa to the Wildlife Management Area KD/15. This border of the park has 6-10 cattleposts in the vicinity and is the area with the most problems with damage-causing animals (Funston, 2001). Wildlife Management Areas (WMAs) surround the remainder of the Botswana section of the park, clockwise from the North – KD/1, KD/2, KD/12, and KD/15. These are all considered multiple-use zones, often filled with free-range cattle, but they are very sparsely populated with people. Historically, the region also housed Basarwa or San people, but the population has not lived near the park in Botswana in recent years. The same is not true in South Africa. The creation of the original national park intended to provide the resident San population with the opportunity to continue to live traditionally as hunter gatherers, with the park patronizingly seen as a refuge for flora, fauna, and indigenous populations (Holden, 2007). This policy changed over time, and in the mid-1970s park management forcibly removed the last of the Khomani San from the park. With the governmental regime change in South Africa in 1994, the San and the local colored or *baster* community, known as the Mier, filed claims demanding the return of historical land holdings forcibly acquired by the government. In 1999, on Human Rights Day, 21 March, the litigants settled their claim

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with the government, acquiring title to 6 farms totaling 36,000 ha near the KTP and an additional 25,000 ha plot to each group within the KTP. The 50,000 ha inside the KTP became a contractual “heritage” park under the collective management of the communities and SANParks (Hughes, 2005). Under the terms of the contractual park, community members have specific use rights and access to the park, however, the heritage park must remain under conservation. The joint management of the contractual park falls under the jurisdiction of a Joint Management Board comprised of representatives from the community and the national park staff. In addition, the two communities have recently opened a community-owned resort, !Xaus Lodge, within the heritage park, as a means of earning rent from the concessionaire, providing jobs to community members, and teaching traditional lessons to both community youth and tourists (Community representative, 8/12/2007; www.xauslodge.co.za).

In general, the management of the transfrontier park has advanced relatively smoothly. Much of the ease of cross-border management stems from the long history of partnership between the two countries and the view of the landscape as a single borderless system from the beginning (South African park staff, 3/21/2007). No doubt the relative simplicity of the park from a management perspective helps as well, with relatively low levels of tourism, few surrounding communities or adjacent neighbors, a homogeneous ecosystem, and a *laissez faire* management approach (Botswana park staff, 11/16/2006). Current transfrontier management decisions have focused on creating a joint logo and re-branding and marketing the park solely as a transfrontier park rather than individual national parks (SANParks official, 3/20/2007). However, a few key disturbances continue to surface in discussions with park staff, community members, and NGO officials working in the area. On the South African side, many mentioned the difficulties in coordinating between the two communities and the park staff in the contractual park. Past contentious relations between park and local residents, differences in management styles and techniques, and differences in both world views and management goals have led to many challenges for all parties in the collective governance of the contractual park. In addition, while not yet a problem, the joint management of a contractual park within a transfrontier park puts SANParks in the delicate situation of having to play a two-level strategic game. In these two tiered negotiations, SANParks tries to achieve its organizational goals while at the same time appeasing its management partners at both the community/contractual park level and the transfrontier level. A second disturbance, the problem of damage-causing animals, frequently emerged in discussions with both South Africans and Botswana. Particularly along the southeastern border of the KTP, several cattleposts directly lie against the park border. In spite of the park fence, lion and leopard can quite easily leave the park and often end up preying on what are known as “slow eland” or cattle. Because of the proximity of grazing animals and the difficulties and expenses of maintaining hundreds of kilometers of fence line across terrain of

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constantly shifting sand dunes, the parks’ response has been to recapture escapees and relocate them to areas in the park far from the border. Offenders are also branded to allow rangers to identify frequent offenders. However, this solution requires ranchers to find the animals, generally losing livestock in the process. It also involves a great deal of time, expense, and expertise on the part of the rangers (Funston, 2001). Differences also arise between South Africa and Botswana on the payment of cash restitution for lost livestock, with only Botswana providing any compensation (DWNP, 2006). Human-wildlife conflict creates one of the largest and on-going challenges facing the joint management of the KTP. A third disturbance, frequently mentioned from the Botswana side of the park, concerns unequal levels of tourism between the South African and Botswana sides of the park. The South African side of the park boasts 9 lodges and several campsites while the Botswana side has little tourism infrastructure other than primitive campsites. As a result many tourists stay exclusively on the South African side, resulting in higher revenues for the South African park. While the two countries share gate revenues equally, discrepancies still arise over how to proceed with tourism development.

2.2. The Great Limpopo Transfrontier Park

In 1898 the South African government, under the leadership of Paul Kruger, created the Sabie Game Reserve as a place to preserve the lowveld natural environment (Carruthers, 1994). In the following years, the reserve expanded to cover an area of 20,000 km² and, following the National Parks Act of 1926, became one of the world’s first national parks – Kruger National Park (Carruthers, 1995). Spanning an area of roughly the size and shape of Israel, today the Kruger Park hosts over one million visitors per year, many with the hopes of spotting Africa’s Big Five – lion (*Panthera leo*), leopard (*Panthera pardus*), Cape buffalo (*Syncerus caffer*), white rhinoceros (*Ceratotherium simum*), and the African elephant (*Loxodonta africana*) (Apps, 2000). Meanwhile, Zimbabwe created the Gonarezhou National Park in 1975 along the southeastern border of the country out of game reserves and forestry land place under conservation in the 1940s. Known as the place of the elephant and blessed with beautiful cliffs and rock formations running along the Save and Runde rivers, the park soon became popular with sportsmen and tourists alike (Saunders, 2006). By 1980 several thousand tourists visited each year. However, with the ongoing collapse of the government and lack of emphasis on conservation, the park had slowly drifted into its present state of decline. Mozambique took steps toward the creation of a national park in between Kruger and Gonarezhou, establishing the Limpopo National Park in 1999 (DNAC, 2003). Using the former hunting concessions, Coutada 16, as a starting point, the government hoped to rehabilitate the flora and fauna in an area decimated by decades of civil war. In the late 1990s, under the guidance of several non-governmental and international organizations, including the World Bank, the Peace Parks Foundation, and the African Wildlife Foundation, the three national governments began working toward the establishment of a transfrontier park. In 2002, the governments of

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Mozambique, South Africa, and Zimbabwe signed a treaty formally creating the Great Limpopo Transfrontier Park.

Building off of the well-known Kruger National Park in South Africa, the long-established Gonarezhou National Park of Zimbabwe, and the newly created Limpopo National Park in Mozambique, the combined entity spans over 35,000 km² and is home to 146 mammal species, 114 types of reptile, and over 550 bird species (DuToit et al., 2003). The new park, primarily Southern savanna woodland and grassland, encompasses 17 distinct ecozones, ranging from relatively open acacia lowlands to thick scrubby mopane bushveld. Yet while the transfrontier park, in aggregate, places enormous tracts of land under conservation, the significance of the ecological benefits is not fully clear. Basic conservation biology outlines the benefits of reducing landscape fragmentation and increasing a park's perimeter to area ratio, and island biogeography theory indicates that larger areas under conservation will more effectively prevent local species extinctions. However, with huge amounts of African savanna landscape already under conservation and few, if any, additional endemic species protected by enlarging the previously existing parks, it is unclear if the newly formed GLTP furthers conservation goals more effectively than previous plans. Furthermore, unlike the migrations in the Kgalagadi, it is not readily apparent whether significant migrations or large-scale seasonal movements historically took place between any of the three national parks. In fact, from an ecological perspective, few baseline studies have been conducted to ascertain the true biodiversity benefits to the transfrontier park (van Aarde, 2007). This fact is not meant to discount other political, social, or economic benefits arising from park creation but rather to indicate current knowledge gaps and flaws in the argumentation of park promotions.

Another significant difference between the KTP and the GLTP, and one of the major disturbances facing park management, is that the GLTP has much more formidable relationships with neighboring communities. Unlike the sparsely populated areas of the Kalahari, the lowveld land of the GLTP is densely populated. The western border of Kruger has several million residents in dozens of communities immediately adjacent to the park. Additionally, Kruger continues to negotiate several land claims with communities previously displaced in the creation of the park. One of these has resulted in the creation of the Makuleke contractual park, an area in the north of Kruger now owned and managed under the guidance of a communal property association (Reid et al, 2004). In Zimbabwe, communal land, known as the Sengwe Communal Corridor, comprises the area connecting Kruger and Gonarezhou Parks. In Mozambique, the newly proclaimed park still has over 28,000 people living within the park, of which several thousand are undergoing the process of relocation. These tight quarters create challenging relations between local communities and park management. Compounding the challenges of working,

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managing, and collaborating within this crowded environment, two other disturbances frequently arise. The first, similar to the problems in the Kgalagadi, arises from human-wildlife conflict. In particular, the communities adjacent to the western border of the park and the villages still living along the Shingwedzi River within the Limpopo Park, continually face the risk of predation of livestock to predators; the destruction of crops by elephant, warthog (*Phacochoerus africanus*), chacma baboon (*Papio ursinus*), and other sources of crop raiders; and direct risk to their lives in living side by side with dangerous animals. Another risk further threatening such lives and livelihoods also comes from close interaction between humans, their domestic stock and wild animals (Cumming et al, 2007). The threat of transmission of veterinary diseases between wildlife and domestic animals worries veterinary authorities in each of the three countries and has resulted in the formation of a working group, the Animal Health for Environment and Development or AHEAD group. The threats of veterinary disease and damage-causing animals directly link to one of the most challenging and problematic issues facing the GLTP – removing fencing and the subsequent threats to border security (Peddle et al, 2004). With the GLTP, security officials had multiple disturbances to address regarding the transboundary nature of the park. First, in addition to the problems of human-wildlife conflict and veterinary disease control, the need to remove fencing created problems for border control with respect to smuggling, illegal migration, and general border security. Second, security officials and tourism leaders disagreed on how to allow the flow of park visitors between the three national parks. Questions arose about whether the transfrontier park would be internally “borderless”, whether border posts would be placed along the external border of the park, or whether border posts would be placed within the park. Third, beyond the flow of animals and tourists, park management wanted to know whether staff could freely travel across the border in the course of the daily business of following poachers, researching animals, or other routine tasks. Each of these disturbances and many more specific security issues continued to create debate and dissention over how the transfrontier park should operate.

Similar to the situation in the KTP, tourism provides additional challenges for transfrontier park managers. With 23 rest camps and over 3000 kilometers of road in Kruger, at one extreme, and only one camping concession and a few 4x4 tracks in Limpopo, at the other extreme, tourism infrastructure in the three national parks is highly unequal. While Kruger Park hosts over a million tourists per year, Limpopo hosted roughly 15,000 day visitors in 2006, and less than a few thousand currently visit Gonarezhou (DNAC official, 11/21/2006). Like the KTP, the GLTP has vastly unequal levels of tourism development between the partner countries. Unlike the KTP, however, park officials believe that tourism numbers in Kruger are at the park’s carrying capacity (SANParks official, 5/18/2007). As a result, Mozambique and Zimbabwe hope to share in Kruger’s largesse. In the words of a Zimbabwean representative, “We want

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Kruger’s tourists, not their animals.” (DWLNP official, 6/19/2007). The resulting debate has pit the national governments against each other in the sharing of gate revenue, the development of infrastructure, and the joint marketing of the transfrontier park. These disturbances, and the ones facing the Kgalagadi, challenge management and form the heart of this study, with managers confronting classic collective action problems of a complex nature. The task remains to determine how to effectively manage disparate visions for the resolution of these ‘wicked’ problems in transfrontier parks through their collective management (Rittel and Webber, 1973).

3. Theoretical and Practical Questions about Transboundary Protected Area Governance

In what follows, the two case studies and the challenges confronting them serve as the foundation for studying some of the theoretical and practical questions emerging in transfrontier conservation management. Whether responses to large-scale disturbances influence the actions of a protected area’s international management group, involve only management at the level of the national park service, or include narrower levels of management depends on several factors. These include the size, location, and salience of the disturbance, the social surroundings and its interlinked ecosystem, the existing governance system, the path dependency of prior institutional arrangements, and many others. With this in mind, the first theoretical puzzle that I will explore consists of how to manage within a multi-level, polycentric governance system where multiple levels of representation are consistent with the underlying goals of peace parks (biodiversity conservation, regional development, and the promotion of peace and good neighborliness). In this case, a polycentric governance system is where many elements are capable of making mutual adjustments for ordering their relationships with one another within a general system of rules where each element acts with independence of other elements (Ostrom, 1999). In other words, decision-making is not all top-down, but there is “coordinated” autonomy between governance groups at various levels as is the case in the transfrontier parks. Decisions arise from within the sovereign states, and the Joint Management Boards seek to coordinate action rather than dictate it. Rather than viewing the governance of the transfrontier parks in the typical manner of a hierarchical structure of national government, a more appropriate view would take the perspective of a network of interconnected entities working for the collective advancement of the park. The network goes beyond national governmental actors, although they remain many of the main players. It also includes the international management bodies – the Joint Management Board in the case of the GLTP and the Bi-lateral Committee for the KTP. In addition, NGOs and international organizations play key roles in the on-going advance of TFCA’s. From the complexity, this analysis intends to provide insight into managing between, across, and through such a disparate group of policy actors. In studying this theoretical puzzle and the other intellectual queries below, an institutional perspective guides the way, taking a view of institutions as products of collective interests that serve to increase cooperation (North, 1990). More specifically, institutions are the

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rules, norms, and codes of conduct for specific social interactions (Ostrom, 1990; Young, 1994). The second theoretical puzzle under examination is how to improve the robustness of governance institutions in general. In doing so, I seek insight into what enables long-lasting institutions to withstand the shocks and pressures encountered over time. In the words of Popper, “Institutions are like fortresses. They must be well-designed and manned” (1966, p. 126). In the design of institutions for transfrontier conservation, many have emerged from the experience and knowledge of intelligent and seasoned park experts. Few, however, have had the luxury of time for reflection or purposeful re-design. My humble hope is that the findings of this study may help to shed light into the improvement of transboundary governance of peace parks.

In seeking to provide pragmatic advice to policymakers and park officials, this study also intends to address real world management dilemmas as well. In this pursuit, the policy puzzle concerns making explicit what roles the joint management board of a transboundary protected area could play vis-à-vis the national park staffs. Particularly due to the higher transaction costs inherent in negotiating and coordinating decisions by consensus across an international border, not all decisions should be made through the international governing body. Instead, decisions made at the national park level or within groups of technical specialists can often lead to more efficient and effective outcomes. The challenge lies in determining the appropriate level at which to resolve crises and the appropriate degree of cooperation at these levels of governance. In ordering relations within a TFCA, the national partners may choose to work together on interests vital to both parties (such as current efforts on veterinary disease control in the GLTP), may decide to keep the other parties informed about other issues (like ongoing KTP research initiatives) and completely do their own thing at a national level (as is the case with local community relations in both the GLTP and the KTP). As one of the GLTP officials stated, “We don’t manage across the border. Both sides manage their own areas, and we (the Joint Management Board) try to coordinate their work.” (SANParks staff interview, 04/19/2007). A second practical challenge that this project intends to inform is how to improve transboundary cooperation in areas so desired. In addressing these questions, I will focus primarily on the capacity of institutional arrangements to be robust in environments with shifting ecological, political, and demographic challenges. As a consequence of these theoretical and pragmatic puzzles, the principle research question that I hope to answer is “how does the institutional design of transboundary protected areas change in response to various types of disturbance?”. The following analysis will attempt to provide preliminary answers to this question as the field work stage of this research project comes to an end. Further analysis in the coming months will shed more light on the theoretical and practical puzzles highlighted above.

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4. Disturbances

With the question of how institutions change in the face of disturbance in mind, I pursue a goal of informing park management about the interlinkages between institutional development and cooperation in transfrontier conservation. Because management across a boundary entails increasing transaction costs at the same time that transfrontier park managers work with limited budgets and human resources, we face an optimization problem necessitating difficult choices (Singh, 1999). Many advocates of transfrontier conservation tend to ignore these costly realities and propose transfrontier conservation as a rapid progression towards a single unified, cross-border entity with cooperation occurring any and everywhere. By contrast, this proposal endorses a careful and detailed analysis to identify key areas for cooperation and helps to prioritize competing and often conflicting choices. For example, should transboundary park management work toward improving relations with communities along its borders, attempt to prevent the spread of veterinary disease, or improve international river governance? The answer from many appears to be an unqualified “yes”. However, this answer fails to recommend a prioritization of rapidly diminishing finances and limited staff resources. It also fails to acknowledge that management will always reach finite limits both regarding levels of cooperation desired, their ability to achieve this cooperation, and their capacity to move beyond conflict and contention. Instead, the methodology proposed here uses the results from over 150 interviews and codes them to identify key challenges or disturbances facing management. By then looking at the disturbances facing park staff on both sides of a transboundary protected area and in different sectors of the park (biodiversity conservation, tourism, etc.), we can see what concerns arise most frequently, with what levels of intensity, and whether cooperation occurs in these areas or not. Often, as expected, we see high levels of cooperation in areas of common concern or interest. However, careful examination also shows areas of low interest coupled with high levels of cooperation, perhaps due to the ease of collaboration in non-confrontational areas, as well as areas of great cross-border concern with little cooperation transpiring. Ultimately what we find is a hodge-podge of varying levels of cooperation with little immediate discernable order. Levels of cooperation vary because of ease of partnership and ideas about what to do, differing thoughts on how to act or what to do, political considerations, and financial and technical constraints, among others.

In what follows, I will introduce a typology of “disturbances” or challenges facing park management, noting how these disturbances vary temporally, spatially, and at different levels of governance. Next I will introduce the methods used to identify these disturbances as well as areas of cooperation between park administrations across borders. The identification of these disturbances then serves as a base for the examination of institutional responses to these disturbances. The disturbances and responses then help to test the hypotheses posed below. In that manner, I intend to provide useable, scientific feedback to park

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management to facilitate the prioritization of transfrontier conservation initiatives and begin to answer the theoretical and policy puzzles identified earlier.

4.1. A Typology for Disturbances

The use of the term “disturbance”, rather than simply talking about management issues, challenges, crises, or something else, emerges from literature on the resilience of social-ecological systems. Resilience theory introduces the concept of a system in a particular state that may then be perturbed by a disturbance, or what economic literature frequently terms an externality. Depending on the size of the disturbance and the resilience of the system, the system would either “absorb” the disturbance or be pushed (shift) into another state (Holling, 1973; Gunderson, 2000). In ecology, research often distinguishes between large, infrequent disturbances or LIDs and smaller, micro-disturbances (Turner and Dale, 1998; Dale et al., 1998). These LIDs would include major fires, flood events, and other similar phenomena that occur over a relatively short period of time. Meanwhile, political scientists, economists, and other social scientists often discuss policy pressures, shocks, and externalities (Baumgartner and Jones, 1994; Fullerton and Stavins, 1998). Interesting examples of shocks, pressures, and externalities in both the natural and social sciences build upon the work of Gould and Eldridge (1993). In this work, the authors draw upon archaeological records to build a case for punctuated equilibriums in the natural evolution of species. Their hypotheses explore how systems undergo rapid change in response to major disturbances rather than through a slow, continuous process of evolution or, as it is known in the policy world, incrementalism (Lindblom, 1959). Drawing upon this idea, political scientists have re-examined political events, such as the policy process and elections, also looking for punctuated equilibria and key disturbances that may create rapid, fundamental systems changes, or in resilience jargon – state shifts (Jones et al., 2003; Sabatier, 1999). But are there fundamental differences between the disturbances of the ecologists and the externalities of the economist? Do multiple micro-disturbances impact a system substantively different from LIDs? Can we contrast the effects of shocks occurring over a short timeframe and pressures that build over time? Is there any direct comparison between types of disturbances?

One of the first challenges in studying disturbances in a social-ecological system is semantic – how to define and delimit a disturbance. Very few answers emerge from the literature. Some view disturbances as anything that creates a change in policy (Jones et al., 2003) or that can cause a state shift (Gallopín, 2006), but this view can become all-encompassing and defining a state or a state shift within social-ecological systems can be easier said than done. In this study, the system under analysis is a transboundary protected area and its affected surroundings and is bounded spatially and temporally to this geographic area over the history of the park and its component national parks. The disturbances, as

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externalities to the system, however, can emerge at multiple levels and multiple scales. These may range from global climate change trends and market globalization effects down to local impacts of alien species invasions and relations between park staff and local populations. Rather than explicitly delimiting disturbances impacting a transboundary protected area, park managers self-defined disturbances as the events which challenged them in the day to day management of the TFCA.

To understand state shifts in response to disturbances in a social-ecological system, this study draws upon a typological design to help categorize how different types of disturbances influence a system in diverse ways. The typology must equally handle predominantly ecological disturbances, predominantly social challenges, and various mixtures in between. Likewise, it attempts to differentiate where in the policy process or at what level of governance the impacts of the disturbance are felt within the system (Lasswell, 1971; Brewer and de Leon, 1983). In so doing, the intent is to first provide a means of understanding and mapping disturbances systematically in order to more effectively analyze their effects upon a system. The more relevant goal for this study is to then see when and where cooperation arises in relation to these disturbances and if the size and type of disturbance has any relation with the level of cooperation thus achieved or rather partners foster cooperation due to political considerations, ease of action, or some other reason. From there, analysis can shift to look at institutional responses to the disturbance. As the previous discussion alludes, analysts have identified several factors along which to characterize disturbances, including size, duration of effect, type of system it impacts, where in the policy process its influence is felt, and many others. Of direct relevance to the hypotheses identified below, this study focuses on two of these dimensions – the disturbance spectrum ranging from short, high-impact shocks to persistent, slow-building pressures and the level of governance most influenced by the disturbance (either operational or political). Let us look at two pertinent examples of disturbances at opposite ends of both dimensions to gain insight into the categorization. The challenge of veterinary disease control in the Great Limpopo provides a continuous pressure seen by park veterinarians in an operational context. By contrast, regime change immediately “shocks” the political environment. And of course, other cases provide examples of shocks felt at the operational level (dealing with the aftermath of a one-hundred year flood on infrastructure) or pressures felt at the political level (settling land claims of historically disadvantaged peoples). Obviously, many disturbances lie between the extremes of this two-by-two categorization matrix, the dimensions of which are continua rather than dichotomous classifications. Additionally, it may not always be clear as to the level of governance most impacted.

The first step in answering the questions highlighted above entailed gaining background and history on the two cases discussed previously. With this accomplished, semi-structured interviews with key

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individual actors crucial to the management and development of the two parks began. Between 2005 and 2007, during 18 months of field work, the author interviewed over 150 individuals in the five partner countries. Interviewees were selected through a snowball sampling method where 25 key players were identified for initial interviews and additional target interviewees emerged in the course of the original interviews (Bernard, 2005). Through these interviews, interviewees were asked about the key challenges facing the national park and transfrontier park that they worked in, researched, or were knowledgeable about. These challenges, what I label management disturbances, form the heart of this study. From the interviews over 700 disturbances from the trivial to the most vital were disclosed. These disturbances group into roughly two dozen distinct areas of disturbance confronting park management. I then identified institutional responses to those disturbances most frequently mentioned – the disturbances discussed earlier in the case introductions. With these disturbances, I looked for areas where policies and operating procedures changed, at what governance level the response took place, and if any coordination or cooperation occurred either through the JMB or autonomously.

4.2. Testable Hypotheses

Using institutional responses to disturbance, this research seeks to test several hypotheses in an effort to provide answers to the questions outlined earlier. The first hypothesis, H1, states that large disturbances, or disturbances of immediate concern to multiple countries, will generate greater degrees of transboundary cooperation. This hypothesis directly links to the theoretical puzzle regarding cooperation in a multi-level, cross-border governance system, the desire to flesh out the concepts of resilience and robustness, and, when connected with the following two, provides a link to studies of polycentricity by looking at how different governance levels may cooperate and under what circumstances. While at first glance, it may seem self-evident that large disturbances may generate greater levels of cooperation, these may also serve as flash points of conflict. Often these disturbances serve as issues of conflict, as in the literature on water wars and environmental scarcity (Homer-Dixon, 1999). Instead small, incremental challenges may prove easier areas in which to build cooperation through either the slow, progressive building of trust and social capital (Coleman, 1998) or through a more functionalist path of harmonizing legislation and moving forward on smaller issues first (Haas, 1964).

The second hypothesis, H2, asserts that cases of bottom-up transfrontier conservation, such as in the origins of the Kgalagadi Transfrontier Park, will have higher degrees of operational cooperation than situations of the top-down TFCA origination. Basically, when ground-level workers begin working across a border on issues of concern to them, this type of work will continue. In the case of the KTP, rangers began collaborating on cross-border issues prior to 1948. The recent “inauguration” of a transfrontier park builds on the foundations established over the past 60 years. By contrast, rangers and

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scientists in the Great Limpopo have had little cross-border interaction until recently. Rather, efforts in support of border security have inhibited cross-border relations at the operational level. By contrast, the third hypothesis, H3, takes the opposite approach. In cases of top-down transfrontier conservation, such as in the origins of the Great Limpopo Transfrontier Park, higher degrees of political cooperation will be found than in cases of bottom-up TFCA origin. With high-level political actors working for the GLTP from the very beginning, we would expect political involvement to remain high. The GLTP emerged from the efforts of the World Bank, influential policy entrepreneurs like Anton Rupert, and the presidents of South Africa and Mozambique. The challenge will be to avoid conflating cooperation levels within a dynamically shifting policy process with other factors contributing to or limiting the success of institutional responses to crises.

The fourth hypothesis, H4, posits that the higher transaction costs of international coordination and the lack of direct enforcement abilities will minimize the amount of institutional development at the international level relative to national and sub-national levels. As mentioned earlier, this possibility often gets neglected in many discussions on peace parks. Rather than assume that it makes little difference in cost to bring activities to the international level or not, we can test this hypothesis by comparing costs associated with different choices of institutional design. Similar to hypothesis H4, we can further speculate that transaction costs will decline over time as levels of cooperation improve. This may be due to increasing trust, allowing for the specialization of tasks, or the streamlining of international administration. Finally, we can conjecture that different types of disturbance may lead to different degrees of cooperation at either a political or an operational level depending on whether the disturbance is a shock or a pressure, whether the issue is politically salient in its timing (Kingdon, 1994), or is a recurring issue. To test these hypotheses, the paper turns to the institutional responses to several of the key disturbances mentioned earlier.

5. Understanding Institutional Responses to Disturbance

From the list of several hundred disturbances that emerged in the course of interviews with park officials and protected area experts, several surfaced repeatedly. Many of these disturbances closely interlinked with each other, particularly regarding relations between the parks and local communities. The most frequently mentioned disturbances in the GLTP include veterinary disease control, border security, human-wildlife conflict, and relations between the park and local communities. Loosely grouping several key disturbances under the category of relations with local community, management faced a multitude of challenges ranging from the co-management of contractual parks and their coordination within a transfrontier park to the resettlement of local communities, the creation of multi-use zones and park buffers, and the implementation of the “People and Conservation” program. The KTP also featured many

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of the same disturbances – particularly with regard to local community relations and the challenge of human-wildlife conflict, in addition facing challenges with joint tourism development.

Drawing upon theories of resilience and robustness, the park managements’ responses to these disturbances were assessed to see whether the park went through a transformative change, adapted to the disturbance without significantly altering the state of the system, or whether no major changes took place. Walker et al. (2004) note that a transformation occurs “when ecological, economic, or social conditions make the existing system untenable” (p 3), resulting in a new system. By contrast, adaptability involves the capacity to manage resilience. In other words, the system can adapt to “absorb” disturbances without significantly changing its underlying function or structure and, the system remains in the same general state (ibid). Partly as a consequence of the “New South Africa” in the post-apartheid world and the end of civil war in Mozambique, many of the transformations experienced in southern Africa in transfrontier conservation and in conservation in general tie to the relations between park management and local communities. As the early discussions regarding the creation of the GLTP in the late 1990s moved from the idea of a multi-use transfrontier conservation area pushed by the World Bank and the Mozambican government toward the creation of a transfrontier park, as advocated by international NGOs and the South African government, relations with local communities became contentious (van Amerom and Büscher, 2005). In the process several transformative events took place. First, with the creation of SANPark’s Social Ecology program in 1995, and its subsequent re-vitalization in 2003 as the People and Conservation group, SANParks began to transform itself from an old-school “fortress conservation” mode of thinking to a more progressive model, engaging with surrounding communities. This process slowly continues, waxing and waning over time. In response to land claims demanding restitution of land where people had been forcibly removed in the past, South Africa began to draw up plans for contractual parks (Reid, 2001; Ramutsindela, 2003). Originally conceived as contractual arrangements between conservation groups and private owners for land that the state could not afford to purchase, such as in the West Coast National Park, officials began to view contractual parks as a means to peacefully resolve land claims by returning a partial set of ownership rights back to communities while still keeping the land under conservation and ensuring state oversight (Schlager and Ostrom, 1993). In this manner, ownership rights split between community property associations and the state, with a joint management board helping to coordinate decision-making. In both the GLTP and the KTP, South African park officials worked with community members to establish the Makuleke contractual park in the Pafuri section of Kruger National Park (Steenkamp, 1999) and the Ae!Hai Kalahari Heritage Park in the Kgalagadi (Hughes, 2005).

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Meanwhile, Mozambique’s National Directorate for Conservation Areas, DNAC, was undergoing a rebirth in the park service, resulting in the rapid expansion and development of several conservation areas. One of these, the Limpopo National Park, created in 1999 to become a part of the Great Limpopo, resulted in a major transformation for the park service and local communities. Formerly a Coutada or hunting concession, Limpopo National Park began the slow process of relocate communities outside the park in creating an IUCN Category II protected area managed primarily for ecosystem protection and generally without people within it (Sandwith et al, 2001). As of this writing, relocation had not yet begun, but the intent is to move a “pilot” group before October to provide time to put in crops before the end of the growing season (DNAC interview, 6/11/2007). In total, roughly 6,000 people living in the interior of the park will move. A further 20,000 living within the park borders will remain in a park buffer zone. In an effort to respect human rights and conduct the resettlement in accordance with international standards, the resettlement program has taken over four years of planning and still has not resulted in the movement of a single person. The government hopes that a successful outcome will result in support for the national park and improved living conditions for its constituents. It is not yet clear whether such success is possible. It is evident, however, that such policies stand in stark contrast with the creation of contractual parks and ongoing restitution under way in South Africa. Under current arrangements, the management of relations between the park and local communities resides completely under the guidance of the national government, and the international joint management of the transfrontier park completely relinquishes claim to this issue (DEAT official, 9/27/2006; DNAC official, 11/23/2006).

Partially as a response to the struggles with local communities, the controversial decision to shift from a TFCA to a TFP is now being revisited. The initial decision to focus on a transfrontier park is frequently referred now to as a “decision of political expediency” (DNAC official, 6/14/2007). Discussions have started again to expand thinking beyond the park borders to a giant multiple-use conservation area. With this decision, more discussions with communities along the Limpopo River focus on the creation of an unfenced buffer zone rather than a hard, fenced boundary. Past philosophy in South Africa used fences as hard barriers to keep animals in and people out. With the removal of sections of fencing between South Africa and Mozambique in creating the GLTP and with further decisions not to fence the eastern boundary of the transfrontier park, management reliance on this philosophy has weakened. Instead, park managers in South Africa have even started to discuss the possibility of creating buffer zones along the western border of Kruger and possible changes in resource use by community members (SANParks official, 10/30/2006).

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While relations between local communities and the park have often involved transformative change and the shifting from a fortress conservation mindset to more of an open partnership, other institutional responses to disturbances have taken a more incremental, adaptive approach. One of the major concerns in the GLTP has always been the control of veterinary disease. With parks as “conservation islands” with high concentrations of game, park veterinarians view their role as mitigating the outbreak of disease epidemics (SANParks staff, 01/09/07). Linked to the changing philosophies behind the use of fencing discussed above, as fences come down the spread of diseased animals across international boundaries, the spread from wildlife to domestic stock, and the risk to human populations increase. As a result, the veterinary sub-committee in the GLTP has worked closely together by sharing expertise, trying to minimize risk, and increasing adaptive capacity (DNAC official, 03/08/07). Working with the Wildlife Conservation Society, GLTP staff has organized a working group for the AHEAD (Animal Health for the Environment and Development) project (Cumming et al., 2007). As a result, an epistemic community has evolved out of previously separate national initiatives. Another major concern in both the GLTP and the KTP that is impacted by the removal of fencing concerns human-wildlife conflict. Whether this conflict takes the form of crop loss to elephants in the Limpopo, loss of livestock to predation in the KTP, or direct threats to human life; human-wildlife conflict has the potential to destroy lives and livelihoods and tear relations between park and community asunder. Compounding this, current policies in South Africa and Mozambique minimize compensation of loss by the state while still preventing civilian killing of wildlife in response to damage-causing animals. In the Kgalagadi, park rangers respond to the threat, capturing lion and leopard and returning them to the park (Funston, 2001). Regardless of whether the animal escapes into Namibia, Botswana, or South Africa, South African rangers play the lead role in returning the animal to the confines of the park. In doing so, they work closely with park rangers across the border, border control officials, and local ranchers. Actions over the past few years to improve cooperation have resulted in joint training on animal recovery and improved communication networks with ranchers. Such tight cooperation does not yet occur in the GLTP with a different set of challenges than the KTP – the destructiveness of elephants and the difficulty of recapture, the higher concentrations of people living in and around the park, and the higher density of wildlife.

One final disturbance of critical importance is border security. Early discussions in both parks viewed transfrontier parks as an opportunity for wildlife, staff, and tourists to have a completely borderless view of the park. Tourists could enter the park and travel anywhere within the park without officially traversing a border post. In the Kgalagadi, this concept has come close to fruition. Current travel within the park does not necessitate visiting a border post as long as entry and exit of the park occurs in the same country. However, a passport stamp is recommended in case of emergency and would be required upon

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exit in the other country (SANParks staff, 3/23/2007). Efforts are in progress to build a single border post and park entrance at Twee Rivieren directly on the border (in the riverbed) to allow for a one-stop entrance and border crossing. The situation in the GLTP is quite different. In spite of the conceptual ideas of early advocates, border security concerns soon took precedence (Peddle et al., 2004). Border officials confined and minimized fence removal along the border. Border crossings between South Africa and Mozambique required the placement of a border post in the center of the park at Giryondo, established in 2006. Park visitors must have the necessary visas and paperwork to visit both sides of the park. Travel into the Zimbabwean section of the park still requires leaving the GLTP frontiers and crossing through a standard border post at Beitbridge, although efforts are underway to build a bridge across the Limpopo River connecting South Africa and Zimbabwe. The difficulties of border crossings affect park staff and researchers alike. While joint research projects and collective staff efforts continue, border crossings require the standard border post experience. For a variety of reasons – threat of illegal migration and smuggling, population densities, historic relations – border security in the GLTP has remained far stricter and less willing to adapt within a new transfrontier entity than in the KTP. It is doubtful whether this fact will change in the near future.

6. Preliminary Conclusions

Initial analysis of the institutional changes in response to various disturbances appears to be inconclusive and without pattern. However, by closely examining the disturbances and responses in the two transfrontier parks, a few insights emerge. First, through the evolution of the GLTP from a TFCA to a TFP and the current movement back toward a TFCA, from the recent organizational change from a rotating international coordinator to a permanent secretariat, and from the primacy of border security in the decision-making process, the political considerations behind transfrontier park formation appear to drive park development in the early stages. Political expediency overrides ecological goals, economic development plans, and day-to-day park administration. Perhaps this notion surprises few, but it directly impacts management and the implementation plans for a new park. Second, of the several institutional responses outlined, transformative events often emerged at the political level, not at the operational level. Philosophical shifts from “fortress conservation” to “people and conservation”, the move toward contractual parks, and changing views toward fencing emerged at a political level first. However, implementation of these shifts takes considerable time. The “People and Conservation” program in SANParks is only now beginning to make progress after 13 years of effort, with efforts being slower at the park level. It takes time to shift thinking and to implement new policies and operating procedures. One of the constant challenges in TFCA development emerges from this discrepancy between political time frames and the time requirements of implementation. Both politicians and donor organizations often want rapid results, but the creation and management of a contractual park, the development and rollout of

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a veterinary disease control program, or changes in response to damage-causing animals all take considerable time, often years longer than the expectations of politicians. Likewise, increasing adaptive capacity to manage disturbances arising at a more operational level often takes time before changes are noticeable. In moving from political decision-making to implementation, cooperation at an operational level takes precedence. In comparing the Kgalagadi and the Great Limpopo, implementation often moves faster in the KTP in part due to the historical cooperation and experience of cross-border management. The bottom-up approach to park development seems to make a difference in operational cooperation. By contrast, the GLTP had high levels of political buy-in and cross-border collaboration, but it still struggles to move forward as a combined entity at an operational level. Of course, these differences are not exclusively due to the different development tracks, but path dependency clearly plays a significant role.

In these early stages of analysis, decisive answers to the guiding questions outlined previously are still emerging. However, it is safe to say that institutional responses to disturbances vary at a political and operational level. Cooperation levels also vary at the two levels and depend, in part, to the historical trajectory of institutions. As to providing specific advice to park managers, it is still too early to give specifics, but a few generalizations can be made. First, the time-lag between political decisions and operational fulfillment needs to be top of mind to keep expectations realistic. Second, joint management boards are not panaceas, so JMB management plans for the transfrontier park must nestle within the management plans for each of the national parks. The benefits of transboundary initiatives must outweigh the costs of coordination. Finally, early stage successes provide support that TFCAs can, but will not always, make progress toward their goals of biodiversity conservation, economic development, and the promotion of peace.

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