

6. Discussion

6.1. Benefits, opportunities, issues and concerns

Many benefits, opportunities, issues and concerns were highlighted by stakeholders, which fell into a number of advantage and problem categories. It is important that all of these topics are considered by policy makers for an adaptive management framework. While further issues are expected to appear in the future, the main advantage and problem categories highlighted by stakeholders as well as the main elements identified in the SWOT analysis are discussed in combination below.

6.1.a. Ecological

Ecological values are very prominent amongst the stakeholders in the LS-TFCA (Figures 7 & 8). Although exact conservation objectives and targets have not yet been set, there are specific species and wildlife groups that are expected to benefit the most, particularly due to an increase in rangelands (Tables 3 & 4). These are elephants and large predators (Table 2).

Elephant management

The issue of how to manage the elephants in the LS-TFCA has become a huge debate, which is causing tension between NOTUGRE and SANParks (Tables 5 & 6). There are presently about 1,000 elephants in the Botswana section of the LS-TFCA (Modise, 2002), while the South African section has been void of an elephant population for around 200-250 years. There are still border fences on the South African side of the Limpopo River; these are predominantly veterinary fences, but they also act as a barrier to the majority of the elephant population. However, elephants do occasionally break through the border fences (Appendix 3A) and there are presently about 150 elephants in the South African TFCA region.

There is a high level of environmental degradation in the Botswana LS-TFCA, which many people attribute to elephants (Appendix 3B). Many of the Botswana landowners, particularly those in NOTUGRE, see the LS-TFCA as a solution to the overgrazing problem. However, many feel that if the border fences are removed, the elephants will move into the South African TFCA very rapidly. SANParks is concerned about potential elephant damage in the South African LS-TFCA and is therefore reluctant to remove the fences.

Botswana policy does not allow for culling of elephants and South Africa halted culling of elephants in 1995, mostly due to public pressure. Botswana landowners seem to be waiting for SANParks to decide on how the issue will be dealt with.

Mapungubwe National Park is a UNESCO World Heritage Site and was created particularly to protect cultural resources. The landscape in the park is spectacular and SANParks is concerned that by letting elephants into the park in large numbers this landscape will be severely impacted. Furthermore, there are certain plant species that elephants prefer over others, particularly species such as the Marula Tree (*Sclerocarya birrea*) and Lala Palm (*Hyphaene coriacea*). These species are sparsely distributed in Botswana, which has been attributed to elephants. However, these species are widely distributed in the South African LS-TFCA and a major concern is that the elephants will destroy the populations of these species.⁵

There is an inherent assumption within the elephant debate that the density of elephants in the Botswana LS-TFCA is problematic. It is very typical to assume that as elephants are having a detrimental impact on the environment in one place, they will have the same impact in another place. Vegetation change can be interpreted in three different ways, depending on underlying assumptions about nature: degradation (negative interpretation), a phase in a dynamic system (neutral or positive interpretations) or incompletely understood (Gillson *et al.*, 2003). Similar to what Gillson *et al.* (2003) found in three case studies for reported elephant destruction in Tsavo National Park, east Africa, the assumption underlying negative interpretations of vegetation change in the Botswana LS-TFCA is that of the 'balance of nature' - an equilibrium-based theory. According to equilibrium theories, at the carrying capacity a population is assumed to be in equilibrium with the environment. In Botswana, the main interpretation is that the elephant density has exceeded the carrying capacity of the lands, causing negative changes to the vegetation. Nowadays, theories on ecological change have shifted more towards a non-equilibrium paradigm. A discussion of these theories is beyond the scope of this paper, but in this context it is suffice to say that ideas about degradation and ecological change also stem from peoples' values as well as their interpretations of nature. By allowing the elephants access across the Limpopo River into South Africa, how much damage will they cause in the South African environment? Should this damage be seen as destruction or simply a phase in a changing dynamic system?

⁵ Interview 8: Jeanetta Selier, elephant researcher, NTGR, Johannesburg, 10 July 2006; & Dr Paul Funston, Coordinator: Venetia Limpopo Nature Reserve Lion Project, Pretoria, 11 July 2006

The elephants could be restoring the system to a state that existed in the past when it had elephants. However, others feel that these days conservation organisations cannot experiment with such factors. Mapungubwe National Park has a tourism product based on landscape and cultural values. Anything that destroys that would be seen as undesirable as the tourism, and therefore revenue to the area, could potentially be reduced.

However, Johan Verhoef, SANParks coordinator for Mapungubwe National Park, does realise the ideals of the TFCA concept and feels it would be unethical to exclude elephants from the South African LS-TFCA. The fences have to be dropped, otherwise the TFCA concept is of no value. However, it is unlikely that SANParks will drop the fences until there is a management plan as well as sufficient land in the South African LS-TFCA to cope with the increase in elephant numbers.

It is vitally important for the stakeholders of the LS-TFCA to decide on a desired state for the TFCA and to manage for that. Anticipating the future – particularly if stakeholders agree with this desired future state – enables those implementing an initiative to prioritise those activities that will contribute towards achieving these ends (van der Linde *et al.*, 2001). Human expansion has resulted in species such as elephants being unable to roam freely as they used to; therefore, species have to be managed. Once a desired state for the LS-TFCA has been agreed upon, the elephants will need to be managed in a relevant way for that desired state. This is in itself a good reason why adaptive management should be implemented, as nobody knows how and at what rate the environment will change.

Large predators

Large predators are also expected to benefit from an increase in range lands. Researchers from all three countries studying large predators have formed a predator research group, the Shashe Limpopo Predator Research Group (S-LPRG). Due to the wide ranging behaviour of large predators, this group has determined that none of the current conservation areas inside the LS-TFCA area would be able to maintain sustainable large predator populations without the TFCA, apart from potentially the leopard or the brown hyena.

Increasing the range lands for wild dogs was highlighted as the tenth most important benefit that the LS-TFCA could bring (Table 3). Venetia Nature Reserve (Figure 2) coordinates a wild dog project (Potgieter, 2006); however, the reserve is running out of space for these animals. Wild dogs roam very large areas; therefore, once Venetia is incorporated into the LS-TFCA, the wild dogs will be able to cross boundaries and will have a much larger range. However, there is some concern amongst S-LPRG that the boundary delineation of the LS-TFCA might not be sufficient to support wild dog populations.

The LS-TFCA also has the potential to minimise human-wildlife conflict (Table 2). In recent years, many African people have moved back to rural subsistence lifestyles, which has brought more people into conflict with wildlife as human populations around PAs have increased.⁶ Human-wildlife conflict will never be removed, but the LS-TFCA has the potential to minimise conflict. Dr Paul Funston, who researches lions in the LS-TFCA, believes that the bigger the conservation area, the larger or the more home ranges of each species can be occupied in the conservation area. The parks that effectively conserve large carnivores are the ones where several or more home ranges fit into them. Parks with fewer carnivore home ranges in them have a larger proportion of the carnivore populations at the park boundaries, which bring the animals into conflict with humans.

Jeanetta Selier, a researcher in the NTGR, has reported a fragmented lion population in the NTGR due to hunting in the Tuli Circle Area, Zimbabwe, and there is also the possibility of inbreeding due to the lack of males. Ms Selier feels “the problem is that we [Botswana and Zimbabwe] have two different management systems”. Once the LS-TFCA management plan has been drawn up, issues such as this can be dealt with and the lion population across the entire LS-TFCA can be managed as one unit, thereby allowing it to stabilise.

Other predator species such as leopard are also hunted. However, there is a lack of data in the LS-TFCA to assess the impact that hunting has on these species. Without baseline information on the status of carnivore species, its principle prey, and its range and habitat requirements, sound conservation planning and management are impossible (Weber & Rabinowitz, 1996). S-LPRG is working hard to collate information on large predators in order to inform policy makers and managers in the LS-TFCA.

⁶ Interview 12: Dr Paul Funston, Coordinator: Venetia Limpopo Nature Reserve Lion Project, Pretoria, 11 July 2006

Watershed management

An important potential benefit of the LS-TFCA that was only mentioned by a few Botswana landowners and National Parks authorities is that of shared watershed management. The SADC⁷ region is faced with a number of water related issues; cooperation in the use and development of shared resources is important and is being realised through the SADC Protocol on Shared Watercourse Systems⁸ (IUCN, 2005). The IUCN Water Programme is currently managing a project investigating environmental flows in the Limpopo River Basin to address these issues in the region (see IUCN, 2005).

The Limpopo and Shashe Rivers are highly impacted through agriculture and damming. According to Tanya McKenzie, a landowner in NOTUGRE, “In the past the Shashe used to flow all year round. Now it only flows when it rains; otherwise it is dry for most of year.” Joint watershed management in the LS-TFCA would be highly beneficial to these watercourses as issues such as damming can be controlled and policies preventing pollution from agriculture can be jointly implemented and enforced.

Introduction of species

Introduction of species is an important perceived benefit (Table 4). SANParks is planning to introduce certain species in the South African TFCA; many Botswana stakeholders expect to benefit from this as these species should cross the borders. For example, Stuart Quinn, a researcher on a private farm south of the NTGR, is excited at the possibility of rhinoceros being reintroduced into South Africa. Charismatic species such as these would also create a much improved tourism product.

Poaching

Poaching was the top issue highlighted by stakeholders (Table 6) with five out of the seven stakeholder groups mentioning the problem (Table 5). However, poaching is a sensitive subject and, as a concept, depends on which angle you view it from. Professor Rudi van Aarde, who researches elephants in sub-Saharan Africa, views ‘poaching’ as a very Eurocentric term, which does not exist for the local

⁷ SADC: Southern African Development Community, consisting of member states in southern Africa. The SADC vision is one of a common future that will ensure economic well-being and improvement of the livelihoods for the peoples of southern Africa (www.sadc.int; accessed 11 August 2006)

⁸ This Protocol lists the environment as a key user of water in the region. Member States are encouraged to allocate sufficient water to maintain ecosystem integrity and biodiversity in their mechanisms for allocating water resources among many users (IUCN, 2005)

communities of Africa. Hunting an animal might be seen as poaching from a private landowner's point of view, but to a community it could simply be hunting for food. However, we do need to be careful as the line has to be drawn somewhere with regards to the hunting of wildlife.

Furthermore, westernised thinking tends to place all local communities into homogenous groups when this is not the case. For example, Ofentse Moleofe from the Lentswe-le-Moriti Community in Botswana has strong views on the LS-TFCA and on poaching. Mr Moleofe would rather people in his and other communities buy meat from the butcheries rather than set snares to trap wildlife. There is a large amount of poaching in the southern section of the Botswana LS-TFCA and the impact of this is thought to be very high. Poaching (the Eurocentric concept of it) is a current threat that stakeholders hope the LS-TFCA management plan can deal with by implementing joint anti-poaching patrols and programmes.

6.1.b. Tourism

Tourism and economic advantages are ranked second out of the advantage categories (Figure 7). Tourism benefits are related to economic benefits as increased tourism to the area will bring increased revenue – a benefit ranked fifth out of the benefit and opportunity statements (Table 3).

It is mainly the landowners and national parks authorities who see the potential for an improved marketing product with the implementation of a TFCA (Table 2). The LS-TFCA could offer a diverse tourism package as it covers three countries, it includes both wildlife and cultural heritage and lodges already in the area cater for a range of cost brackets. This has the potential to be a win-win situation as it will appeal to different markets and could therefore reduce competition between stakeholders. South Africa is hosting the Football World Cup in 2010, which government officials expect will create cross-border benefits. However, this is only 4 years away and the LS-TFCA would have to be successfully running by then in order for it to benefit from the potential increase in tourism.

Stuart Quinn, a researcher in the southern Botswana LS-TFCA, sees benefit in the credibility of being involved with a TFCA. From a marketing point of view, being part of a much larger project could attract more researchers to his operation.

However, there are also some concerns regarding tourism (Table 5), including the assumption that tourism to the LS-TFCA region will increase sufficiently for all of the lodges to be successful. Also, the tourism product has to outcompete other areas in southern Africa in order to attract tourists to the area. Scenically the area has a lot to offer; however, ecologically, the region is not conducive to supporting high game densities.⁹ Stakeholders need to keep this in mind when creating and marketing their tourism product.

Another option to increase the diversity of the tourism product is to include hunting as a land use. A small percentage (10%) of the total ecological values of the stakeholders interviewed were direct use values, highlighted particularly by government officials (Figure 8). This direct use related to the potential for source-sink programmes for community benefit (through for example trophy hunting) as well as the possibility of improved management of hunting in demarcated zones. Dr Paul Funston, coordinator of the Venetia Reserve lion project, suggests that hunting lodges could remain as they are as a land use option, but to be part of the LS-TFCA to allow free movement of wildlife. There is mixed opinion on combining hunting and conservation zones, but in a situation such as the LS-TFCA where there are so many stakeholders and land use options, it might make more sense for policy makers to incorporate mixed land use in order for all stakeholders to benefit.

6.1.c. Social - communities

There are two main communities that need to be incorporated into the LS-TFCA – the Maramani Community in the south western corner of Zimbabwe (Figure 2) and the Lentswe-le-Moriti Community in the southern section of the NTGR in Botswana. Social benefits to communities were highlighted as an important advantage (Figure 7 & Table 2); the potential for increased employment was the third most important benefit statement given (Table 3). However, there are also concerns as to how these communities can be integrated into the LS-TFCA.

The Marimani Community, Zimbabwe

It was not possible to speak to anybody from the Marimani Community; therefore information provided in this report is the opinions of other stakeholders interviewed. I cannot be certain as to how the Marimani

⁹ Interview 12: Dr Paul Funston, Coordinator: Venetia Limpopo Nature Reserve Lion Project, Pretoria, 11 July 2006

Community feels about the LS-TFCA or to what extent the community members are receiving information regarding the project.

The Marimani Community consists of about 6,000 people and currently farms crops and livestock. Many NOTUGRE members are concerned about the current cattle encroachment as the community drives their cattle across the Shashe River into the NTGR for better grazing. In addition, landowners often find snares and traps on their land.¹⁰ However, the root causes of these problems have to be taken into consideration. The political situation in Zimbabwe is currently highly unstable, which has led to poverty and hunger. In order for problems such as encroachment and poaching to be solved, the community has to be successfully integrated into the LS-TFCA by reducing the poverty and hunger in the region.¹¹

According to SANParks officials, the Marimani Community is eager to be involved in the LS-TFCA. However, a land use option has to be agreed with them that will result in all community members benefiting. Together with an Italian NGO (CESVI), the local Zimbabwean district council for the Maramani (The Beitbridge Rural District Council) has been exploring various land use options for integrating this community. A combination of high temperatures, poor soils and low, erratic rainfall results in the Limpopo-Shashe area having the lowest agricultural potential in Zimbabwe (Cumming, 2003). Farming is therefore very difficult in the region and direct dependence on the productivity through crops and livestock will not be sufficient to maintain the present population let alone provide for any further increase in population (Cumming, 2003). Other higher valued uses of the land are therefore being investigated, such as tourism, where dependence on primary production is not as high. There is also the possibility for mixed land use options to be implemented as well as for the revival of the Zimbabwean community conservation programme CAMPFIRE.¹² CAMPFIRE has operated in the area in the past; however, revenues earned from hunting have declined drastically and the contribution of CAMPFIRE revenues to food security in the district is minimal (Cumming, 2003).

¹⁰ Interview 1: Andrew Gilfillan, Botswana landowner, NOTUGRE, telephone interview, 22 June 2006

¹¹ No interviewees felt the community should be relocated

¹² Interview 25: Piet Theron, TFCA coordinator, SANParks, Pretoria, 27 July 2006

Increased tourism is expected to create increased employment opportunities for communities. However, it is unclear at this stage whether increased employment in the surrounding lodges will benefit 6,000 people. Another option is for the Maramani Community to develop its own tourist lodges. An important point raised by Jeanetta Selier, researcher in the NTGR, is that developing a tourism lodge is a long-term project. Ms Selier is based at a lodge called Mashatu Lodge, an operation which has taken 20 years to make a profit. Time frames such as this one might not be realistic to a community unless significant investment can be sourced for development. Further livelihood options include curio production¹³ and cultural 'shows' (Table 2). Johan Verhoef of SANParks has also suggested that a corridor could be built to link Botswana to the Sentinel and Nottingham Ranches (Figure 2), while implementing various land use options for the Marimani Community.

While some feel that the LS-TFCA will minimise human-wildlife conflict, the question that remains is whether the Marimani Community will have a good enough reason to tolerate wildlife. The community members would need to see genuine prospects of receiving greater benefits from the LS-TFCA development than from their current use of the areas. If it is not possible to improve their lives, it will not be fair to include them. The key issue of population to resource base ratio will clearly have to be dealt with in the development of the LS-TFCA; presently most households are supported by high levels of remittances from off-farm employment in the cities or in South Africa (Cumming, 2003).

Lentswe-le-Moriti Community, Botswana

This community is in the NTGR but are not members of NOTUGRE as they currently have cattle. Private game reserve policy in Botswana prohibits agriculture and farming.¹⁴ It is not yet clear how they will be incorporated into the LS-TFCA.

Mr Ofentse Moleofe, Chairman of the Community Development Committee, is extremely positive and enthusiastic about the LS-TFCA. He envisages benefits through increased employment for his community as well as skill development and education about conservation. However, the rest of the community are sceptical and worried about the LS-TFCA and are not yet sure how they will benefit. The community is also

¹³ A potential issue that stakeholders do not seem to have thought of is where the materials for the curios could be sourced from

¹⁴ Interview 23: Jannie Willemse, farmer on private land, Botswana, 24 July 2006

worried about living with wildlife because of the potential for increased conflict. However, Mr Moleofe has pointed out that the community already lives with wildlife and is working hard to help his community members realise the potential benefits of the LS-TFCA. He feels the community should be happy at the thought of conserving their natural resources and living in harmony with nature again. There is also benefit for cultural values as the LS-TFCA would reconnect cultural regions previously split up by borders.

Livelihood development goals do not just include income improvement but also the recognition of local identity, effective participation and secure rights to land and natural resources (Metcalf, 2003). The Lentswe-le-Moriti Community would need to see genuine prospects of receiving greater financial and livelihood benefits from the LS-TFCA than from their current use of the areas.

6.1.d. Institutional

Cattle farmers in the southern section of the Botswana LS-TFCA seem to be a cause of concern for many stakeholders in the region. These farmers hunt wildlife and drive their cattle onto private land to find water. Stuart Quinn, a researcher in the region, hopes that the LS-TFCA management plan could help to stop this. Furthermore, the current land management on the cattle farms in the southern Tuli is poor and there is a great deal of erosion. A TFCA management framework has the opportunity to implement improved policies to control land management as well as to control issues such as the collection of firewood, damming of the rivers and trespassing.

South African researchers working in Botswana are concerned about potential TFCA policies that might hinder what certain organisations do.¹⁵ For example, further permits, guide licenses and qualifications might be necessary. Furthermore, a few lodges on the Botswana side import food from South Africa. With a TFCA in place, the question has been raised as to whether it would still be seen as importation in a TFCA context (with the taxes and duties that currently have to be paid at the border).

¹⁵ Interview 8: Jeanetta Selier, elephant researcher, NTGR, Johannesburg, 10 July 2006; & Interview 22: Stuart Quinn, private researcher, southern Tuli, Botswana, 23 July 2006

6.1.e. Tension between stakeholders

One of the main current threats facing the successful implementation of the LS-TFCA identified in this study is the level of tension between stakeholders (Figure 9). Landowners in both Botswana and South Africa seem particularly worried about the issue.

There is a distinct division in the Botswana section of the LS-TFCA – those who are members of NOTUGRE in the NTGR and those who are not. Non members have private farms in the southern Tuli area, south west of the NTGR (Figure 2); for ease of reference these stakeholders will be referred to as being in the southern Tuli.

At present, only NOTUGRE is officially part of the LS-TFCA; the southern Tuli will be included at a later date. Stakeholders in the southern Tuli feel completely excluded from the TFCA process. Some feel that NOTUGRE has their own hidden agenda and wants to create a tourism product for themselves without regarding other stakeholders. It seems that only if stakeholders are part of NOTUGRE will they be part of the body that is controlling the LS-TFCA. While NOTUGRE has excellent internal communication, this communication does not extend to non-members. Stakeholders in the southern Tuli receive no information about the LS-TFCA and seem to have no idea as to what is happening with the project.

Jannie Willemse, a farmer in the southern Tuli, used to be a member of NOTUGRE. Since leaving the association, he has had no information or communication about the LS-TFCA, even though his farm is in the middle of the LS-TFCA region. His farm (Talana Farms) has not yet been included in the official LS-TFCA (MoU, 2006). The reasons for this are unclear, but I suspect that firstly it is because Mr Willemse is not a member of NOTUGRE and only NOTUGRE at present has an agreement with the government of Botswana to be part of the LS-TFCA. Secondly, 400 out of the 1,800 hectares of Talana Farms is still an agricultural and ostrich farm, which is not allowed under strict game reserve policy in Botswana.

Stuart Quinn, a researcher in the southern Tuli, has also received no information about the LS-TFCA and in fact was not even aware that the farm on which he works is designated to be included in the LS-TFCA. Both Mr Willemse and Mr Quinn would like to know what management plans are going to be implemented and

how they will fit into them. There is also tension within NOTUGRE, with one known member being unhappy with the operations and potentially wanting to leave the association.¹⁶

David Evans, a NOTUGRE member in the NTGR, has suggested that the landowners in the southern Tuli form their own association. NOTUGRE has issues specific to it, such as foot and mouth areas and border posts, which southern Tuli landowners do not have. The various Botswana LS-TFCA associations could then meet from time to time over issues of commonality, but not issues that they do not share.

This lack of information sharing and communication has led to a lack of trust between the two groups. The main threat that stems from these tensions is the potential for a split between the two groups in Botswana. This would undermine all that the TFCA concept stands for, impeding joint management, communication and collaboration on issues such as biodiversity conservation. It is unclear when the southern Tuli will be incorporated into the LS-TFCA, but tensions such as these will place a serious constraint on TFCA development.

Communication between NOTUGRE and SANParks also seems to be difficult at times. As mentioned above, this tension seems to revolve mostly around the elephant issue. Some members of NOTUGRE are unhappy with how SANParks is dealing with the development of the LS-TFCA. They feel that SANParks is attempting to push their agenda onto NOTUGRE, when NOTUGRE members have many years worth of management experience in the area.¹⁷

South African landowners are also unhappy with the lack of communication and information from SANParks and the government.¹⁸ SANParks has a land acquisition fund and has been buying up land in the area to consolidate into Mapungubwe National Park and the LS-TFCA. South African landowners are unhappy with how this acquisition has been carried out; some also claim that they were verbally promised many things by SANParks if they sold their land, but that nothing has ever come of that. Johan Verhoef from

¹⁶ Undisclosed source

¹⁷ Interview 8: Jeanetta Selier, elephant researcher, NTGR, Johannesburg, 10 July 2006; & Interview 10: David Evans, NOTUGRE member, Johannesburg, 10 July 2006

¹⁸ Interview 20: Gerhard de Beer, landowner, South Africa, LS-TFCA, 19 July 2006; Interview 21: Steve Wigg, landowner, South Africa, LS-TFCA, 19 July 2006; & Interview 27: Paul Hatty, landowner, South Africa, telephone interview, 7 August 2006

SANParks is aware of tensions to do with the fact that land value has increased over the years, and farmers are presently being offered a lot more money for their land than the farmers a few years ago were. This is simply because the value of the land has increased over the past few years.

Landowners feel that SANParks is focusing on Mapungubwe National Park without providing any information on their intentions for the LS-TFCA. SANParks held a public participation meeting in Musina (18 July 2006) to discuss the drafting of the Mapungubwe National Park management plan. Landowners from the area attended the meeting in the hopes of receiving information about the LS-TFCA as this is what is going to affect them the most. However, no information was given regarding the LS-TFCA, which left landowners feeling highly irritated. While meetings such as this one are difficult to co-ordinate as a level of communication has to be found for many different stakeholders, the landowners do need to be kept informed of LS-TFCA developments.

6.1.f. Political and border concerns

Political and border concerns ranked highly in the issues highlighted (Table 6), particularly by National Parks authorities and government officials (Figure 9).

The successful TFCAs to date have been those that have border posts without problems and have not had to deal with the social and political issues that the LS-TFCA is facing (e.g. the Kgalagadi TFCA, Botswana/South Africa).¹⁹ For example, the unstable political situation in Zimbabwe is a big concern. “Botswana experienced a 90% decline in tourism when the situation reached critical levels a few years ago, while in Zimbabwe tourism collapsed completely”.²⁰ While many people are concerned about the potential lack of enthusiasm in the Zimbabwean government, Piet Theron from SANParks believes there is strong political will in all three countries due to the potential for increased tourism with the Football World Cup in 2010 (South Africa). However, it is hoped that this enthusiasm will extend beyond that date.

As Wolmer (2003) reported for the Great Limpopo Transfrontier Park (South Africa / Zimbabwe / Mozambique), the LS-TFCA could interfere with current informal transborder livelihood strategies that are

¹⁹ Interview 2: Belinda Reyers, Scientist, Natural Resources & the Environment, CSIR, Stellenbosch, 28 June 2006

²⁰ Interview 12: Dr Paul Funston, Coordinator: Venetia Limpopo Nature Reserve Lion Project, Pretoria, 11 July 2006

crucially important to local livelihoods, such as informal trading and labour migration. Many Zimbabweans cross the border into South Africa to find work. Although the border fences are regularly checked, finding a way through them is not difficult, especially as the elephants have broken through in many places (Appendix 3A). Many of these people are from the Marimani Community and find employment on farms in South Africa. When the farms are acquired for inclusion in the LS-TFCA, these workers have to leave, increasing the problems of poverty in their communities. The workers might be illegal, but the TFCA concept as a whole and as a benefit to local people also needs to assess jobs lost versus jobs created and opportunities lost versus opportunities created. Johan Verhoef from SANParks assured that this issue will be addressed when the Marimani Community is incorporated into the LS-TFCA.

The political situation in Zimbabwe also results in difficulty for the country to obtain donor funding. Developing TFCAs when some countries are wealthier than others is problematic. Stakeholders from both SANParks and PPF find it hard to coordinate meetings when officials from Zimbabwe do not have the resources to attend. However, the LS-TFCA could also be seen as a benefit as the TFCA concept could add credibility to the south western region of Zimbabwe and could therefore help to obtain funding for regional socio-economic development.

Smuggling, particularly of zebra skins and tobacco, is also a big problem in the area. Smuggling across borders is an area of concern for all TFCAs. However, TFCAs could be interpreted as strategies for internal state security. In practice, they could police previously remote border areas, bringing them further under the arm of state control, enabling the state to cut down on activities such as poaching and smuggling (Wolmer, 2003). The placement of the actual border posts within the LS-TFCA still has to be decided. Johan Verhoef of SANParks said that either the border posts will stay on the actual borders, or they will be moved to the edges of the LS-TFCA.

6.1.g. Mining

Mining is a concern that was mentioned by National Parks authorities, academics and South African landowners. National Parks authorities and South African landowners are directly affected by mining operations in the LS-TFCA.

De Beers Consolidated Mines Ltd. owns Venetia Nature Reserve in South Africa (Figure 2). They operate a large diamond mine on the southern border of the reserve and run the rest of the land as a conservation area.²¹ Venetia is not yet part of the official TFCA (MoU, 2006); however, SANParks is negotiating with De Beers to include the reserve on a contractual basis (Modise, 2002).

The region is semi-arid and there are concerns regarding the water which De Beers needs for its mining operations. A further concern is that by law, landowners in South Africa do not own any mineral deposits that might be found on their land. These are owned by the state, and prospectors can apply for permits from the government to mine minerals on private land. Venetia Nature Reserve is very rich in coal and Warwick Davies Mostert, an ecologist at De Beers, is concerned that somebody will acquire a prospecting permit to mine the coal on their land. If this happens, it would be disastrous for the conservation area. Steve Wigg, a private landowner in the area, has also been approached by prospectors. A potential opportunity by becoming part of the LS-TFCA is that landowners could ensure that their land receives PA status, which would prohibit mining operations.

6.1.h. Veterinary diseases

Wildlife diseases such as foot and mouth and bovine tuberculosis are a major concern in the LS-TFCA region (Table 6). The border fences between South Africa and Botswana are predominantly veterinary fences. Apart from the elephant issue, officials are reluctant to drop these fences due to the potential threat of the spread of veterinary disease. Stakeholders in NOTUGRE are concerned about the spread of foot and mouth disease from cattle to wildlife and where the veterinary control boundaries will be situated.

Wildlife disease is also a concern for other TFCAs; for the purpose of disease control in the Great Limpopo TFCA, Zimbabwe does not want free movement of animals from South Africa into Zimbabwe (Metcalf, 2003). This conflicts with the principles of the GLTP, where animals should move freely within the park.

²¹ Interview 17: Warwick Davies Mostert, Ecologist, De Beers Ltd, Venetia Nature Reserve, 17 July 2006

6.2. Values

“Conservation is a social movement working to develop and maintain (sometimes impose) values in society concerning the human-nature relationship” (Jepson & Canney, 2001). The field of conservation is filled with value laden terminology and value systems which motivate conservation action in many nations (Trudgill, 2001; Whittaker *et al.*, 2005). However, positivism, the belief that genuinely scientific discourse is value-free, appears to have gained the upper hand in conservation biology (Barry & Oelschlaeger, 1996).

The view of conservation biology as value-driven does not discredit its scientific legitimacy (Barry & Oelschlaeger, 1996); it is the express acknowledgement of the values that inform conservation science that provides the context in which the validity of its conclusions can be assessed (Maguire, 1996). Even so, most often than not values assessments are left out of conservation programmes.²²

The vision for the LS-TFCA, as stated by the PPF, is ‘the establishment of a viable and sustainable TFCA that restores and conserves natural processes and cultural features of the dynamic ecosystems around the confluence of the Limpopo and Shashe rivers, as well as creating tourism opportunities for the people in the region’ (Modise, 2002). It will endorse the declaration of principles of ‘The Parks for Peace conference, 1997’ as a vehicle for international cooperation, biodiversity conservation and economic development (Parks for Peace Conference Proceedings, 1997) and will enable a homogeneous approach to management and conservation of the area and preservation of cultural values.

Many stakeholders expressed social values in their statements. Many of these social benefits are also closely linked to economic benefits, such as regional socio-economic development. In addition, tourism and economic values, which are highly interlinked, rank very highly among the stakeholders of the LS-TFCA. These values tie in with both wildlife and cultural values as it is these elements that create a diverse tourism product. The LS-TFCA has a rich cultural heritage with many SAN rock paintings and archaeological sites. It is therefore surprising that cultural benefits and opportunities only accounted for 5% of the statements given by stakeholders.

²² Interview 16: Harry Biggs, Senior Scientist, SANParks, Skukuza, 15 July 2006

However, it is the values associated with ecological benefits that showed to be most important for the LS-TFCA stakeholders. I have to note that the analysis of ecological values is extremely assumption laden. I cannot be certain of the exact value types that the statements belonged to; the values that I assigned to the statements were the best interpretation possible. I recommend that if more work is done in this area, a precise values analysis should be designed to determine the value sets of the stakeholders. For example, stakeholders could be asked specific questions about ecological values systems rather than just benefits, opportunities, issues and concerns, therefore minimising assumptions and interpretations.

However, the analysis did still produce some interesting insights and it would appear that the stakeholder groups have different thoughts on how they express their views (Figure 8 & Table 4). I raise this as a tentative working hypothesis, requiring more rigorous research to determine whether this hypothesis is valid or not.

Interestingly, South African and Botswana landowners displayed very similar value systems. Also, it is obvious that intrinsic and indirect use values are important to all stakeholders. Intrinsic values were particularly important to Ofentse Moleofe of the Lentswe-le-Moriti, Botswana. Mr Moleofe gave many statements that expressed intrinsic values, for example "...we are going to live in harmony with everything – animals, humans, vegetation, we are going to conserve and take care of everything...".

All groups expressed values relating to indirect use, particularly ecological values. These related to ecosystem services and ecosystem health. National Parks authorities and government officials placed particular importance on these factors and much less on intrinsic values. The interpretation of this is that these authorities are responsible for the management and efficient conservation of systems. They are therefore more concerned with ecological systems as a whole rather than the value of the pure existence of a particular species for itself. Johan Verhoef of SANParks sees benefit in "the extension of the ecological landscape" as a way to improve the conservation of the ecosystem.

Surprisingly, direct use values related to tourism did not appear as important as was expected. However, many of the ecological values (indirect use) could relate to tourism. For example, the statement "extension of

the ecological environment” was interpreted as an intrinsic and ecological value; however, this could also result in a better tourism product and therefore be a direct use (tourism) value.

Apart from direct use values related to tourism, direct use of animals for hunting and use of rivers were also considered important. Geoff Norris, chairman of NOTUGRE, feels that with an increased range for elephants, a source-sink programme could be implemented for the surrounding communities to “provide a reservoir of protein”. Government officials mentioned the possibility of hunting more than the other groups. This could be because the government is responsible for policy and decision making and are investigating various solutions for the inclusion of communities, which could include the “possibility of hunting” (Aruna Seepersadh, Assistant Director: TFCAs, DEAT).

The protection of the river systems was not mentioned by many stakeholders. National Parks authorities felt more strongly about the impacted river systems than the other stakeholder groups. For example, Piet Theron, TFCA coordinator for SANParks, highlighted “...impacts on the water quality and river flow...and impacts on the park downstream...the river systems are definitely a key issue...”.

Social values embrace a range of qualities for a place such as spiritual, cultural, traditional, economic, political, or national qualities which are valued by the majority or minority group of that place (Lennon *et al.*, 2001). Values form an integral part of our research, teaching and community involvement and they cannot be separated from our practice of science (Roebuck & Phifer, 1999). The value systems of the stakeholders have to be taken into account when implementing adaptive management for the LS-TFCA; however, more rigorous research is needed in this area.

6.3. The policy and management environment

In addition to an assessment of stakeholders' views and values, it is useful to provide a context of the current policy and management environment into which an adaptive management framework can be adopted.

6.3.a. Governance

Governance is defined as “the interactions among structures, processes and traditions that determine how power and responsibilities are exercised, how decisions are taken, and how citizens or other stakeholders have their say” (Graham *et al.*, 2003a). Graham *et al.* (2003b) have developed an array of governance types to describe the variety of forms that management has taken in a PA context (Table 8).

Table 8: PA governance types (Graham *et al.*, 2003b)

Protected Area Governance Types									
A. Government management			B. Multi-stakeholder management		C. Private management			D. Traditional community management	
National or provincial / state agency	Local / municipal government	Delegated management	Collaborative management	Joint management	Individuals	Not-for-profit organizations (NGO's, other institutions)	For-profit corporations	Indigenous peoples	Traditional local communities

The LS-TFCA is of Type B governance: multi-stakeholder management. The MoU for the LS-TFCA (an understanding that a TFCA will be created) was signed by environment ministers for the three countries on 22 June 2006. The governance process now involves the creation of a technical committee, which is to be the decision making body of the LS-TFCA until the treaty is signed. The treaty is a contractual arrangement signed by the heads of state; once this is signed, a Joint Management Board (JMB) is formed. Each country decides who sits on these committees; the JMB will include stakeholder representatives from all three countries and will be responsible for management decisions for the LS-TFCA. The management plan for the

LS-TFCA still has to be drawn up; this process is driven by the technical committee and involves the harmonisation of legislation within and between the countries involved.²³

The effective management of TFCAs requires clear harmonisation of objectives across borders (Bakarr, 2003). A potential constraint on the establishment of TFCAs is varying administration systems of different countries (Almdirawi & Faraj, 2004). However, Johan Verhoef of SANParks feels this is not a problem in the LS-TFCA. South Africa has already entered into relations with both Zimbabwe and Botswana for separate TFCAs. This has meant that the countries had already communicated on topics such as policy, and were willing to work together before discussions on the LS-TFCA began. Botswana and Zimbabwe do not have any TFCAs between them; however, it has not been felt that the administration systems of the two countries have been so different as to pose a problem to the development of the LS-TFCA.

6.3.b. Zoning and land use planning²⁴

The Peace Parks Foundation (PPF) and SANParks are the drivers behind the drafting of zoning plans for TFCAs involving South Africa. This is done in a series of workshops with stakeholders from the TFCA area where common goals and objectives have to be found. In the LS-TFCA, a zoning plan has already been developed for Mapungubwe National Park. However, a full planning process with workshops is still needed for the whole TFCA area.

6.3.c. Review of international context

TFCAs support the ecosystem approach to conservation. The ecosystem approach is a strategy for the integrated management of land, water and living resources, and was endorsed by the Convention on Biological Diversity (CBD) in 2001 (Slootweg *et al.*, 2006). It is considered the primary framework for addressing the three objectives of the CBD – conservation, sustainable use and equitable sharing of benefits derived from biodiversity. Integrated management of land, water and living resources is the cornerstone of TFCA development and TFCAs are therefore viewed as a good application of the ecosystem approach.

²³ Interview 18: Johan Verhoef, SANParks, Musina, 18 July 2006; &, Interview 25: Piet Theron, SANParks, Pretoria, 27 July 2006

²⁴ Interview 3: Craig Beech, GIS & Planning, PPF, Stellenbosch, 28 June 2006; &, Interview 4: Willem van Riet, Land use planning, PPF, Stellenbosch, 28 June 2006

In this context, the LS-TFCA strongly supports the CBD. However, whether the three objectives of the CBD are successfully addressed remains to be seen; it will take some time before the conservation and socio-economic benefits are felt and before achievement can be assessed.

Further international conventions applicable to the LS-TFCA include: CITES (Convention on Trade in Endangered Species, 1973); The Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals, 1979); and, the Convention concerning the Protection of the World Cultural and Natural Heritage, UNESCO, 1972 (for Mapungubwe National Park).

The New Partnership for African Development (NEPAD) recognises TFCAs as an ideal conservation strategy and a vehicle for social and sustainable economic development (Modise, 2002). The establishment of the LS-TFCA also has the backing of two regional protocols signed by the SADC heads of state, namely:

- the SADC Wildlife Policy (1997), which recognises TFCAs as a means of promoting regional cooperation
- the SADC Protocol on Wildlife Conservation and Law Enforcement (1999) (Modise, 2002).

6.3.d. Review of national context

It is important to understand how national and international policies, legislation and government actions affect the LS-TFCA. For example, it is useful to know whether governments are supportive of the site and the degree to which legislation is helping to maintain values (Hockings *et al.*, 2004). It is equally important to know whether policies are adequate and whether they are being followed through in practice.

However, it was not possible to organise interviews with government officials for Botswana or Zimbabwe. It is a recommendation of this study that further research is needed regarding the national context for all three countries of the LS-TFCA.

6.3.e. The financial situation

PPF was instrumental in initiating the LS-TFCA. Donor funding provided through the PPF helped to organise the initial process, such as the drafting of the MoU. The South African government has provided funding for the development of the LS-TFCA within South Africa. NOTUGRE consists of private landowners who are self-funded, although the government of Botswana does have shares in some properties. Currently, landowners within the LS-TFCA do not receive any financial help for being part of the TFCA. As mentioned previously, the political situation in Zimbabwe results in difficulty for the country to obtain donor funding; at this stage, it is unclear where funding for the Zimbabwe section comes from.

6.3.f. Transboundary Natural Resource Management (TBNRM)

Monitoring and evaluation is a key element of adaptive management in order to assess the ecological, political and socio-economic impacts of a conservation initiative. According to Trevor Sandwith who has extensive TFCA research experience, in a transboundary situation it is vital to determine what transboundary objective is to be achieved and then to establish a system of measurement for that objective. Some objectives might not require joint management, but simply a level of cooperation (Zbick, 2001) or information sharing.

Exact conservation objectives and targets have yet to be set for the LS-TFCA. Whilst stakeholders have highlighted what resources they think will benefit mostly from the LS-TFCA, exactly how these resources are going to be managed still has to be determined. There is a need to evaluate and continually monitor whether a TBNRM approach is the most appropriate to achieve the identified objectives (van der Linde *et al.*, 2001).

An excellent example of a framework for assessing TBNRM has been compiled for the Biodiversity Support Programme by van der Linde *et al.* (2001). This framework outlines an analysis for assessing the need and priorities for TBNRM programmes, as well as guidance about when and how to work across boundaries. Each TBNRM situation is unique and there is no fixed blueprint approach (van der Linde *et al.*, 2001). I recommend that a study such as this one is conducted for the LS-TFCA to ensure that sensible decisions are being made. I suggest that in order to improve the achievement of the conservation objectives, those natural resources that are identified as potentially benefiting most from a transboundary programme and therefore

collaborative management should be prioritised for monitoring and impact assessment within an adaptive management framework.

7. Conclusion

There is a tendency amongst many conservation practitioners to look for a 'one size fits all' solution to conservation management. However, every TFCA is different, facing different issues and threats. The LS-TFCA is set in a complex environment of changing and evolving ecological, political and socio-economic conditions. For this reason, it makes sense to adopt an adaptive management framework in order to adapt to new situations and to promote the assessment of ecological and socio-economic impacts of the initiative. To successfully implement adaptive management, stakeholders have to be consulted in order to understand their views and ideas. If stakeholders are not consulted and included in decision making, they are less likely to support policies and management plans. The LS-TFCA has many different stakeholders and in order to efficiently set common objectives and management goals, policy makers must understand the values and perspectives of all these stakeholders.

At present, the approach in the LS-TFCA is too top-down and seems to be driven by a small percentage of the total stakeholders. The weak level of communication and lack of trust between some stakeholder groups is one of the biggest threats currently facing the successful development of the LS-TFCA. Non-NOTUGRE members need to be given more information about the LS-TFCA and their future involvement in it. Similarly, SANParks and the South African government need to communicate more effectively with the South African landowners. Managers need to find ways to incorporate the non-scientific knowledge and data that stakeholders possess into the adaptive management process. A suggestion here is for decision makers to hold one-on-one interviews with stakeholders to elicit individual stakeholders' views and concerns and to engage the stakeholders in the LS-TFCA process more effectively.

On the other hand, some stakeholders seem to lack initiative and are quick to criticise other stakeholder groups without trying to do anything about their concerns themselves. It would be a good idea if the landowners in both South Africa and the southern Tuli section of Botswana form their own associations. This could potentially give these stakeholders credibility and increased power to contribute to decision making and policy.

Reducing and eliminating threats is a key aspect of effective management of TFCAs. Threats should be identified at an early stage of management planning, so that appropriate decisions can be made to guide management. The LS-TFCA is a good example of the many problems that TFCAs face, such as many different stakeholder interests with people pulling in different directions. While stakeholders do support the LS-TFCA, this support seems to be individual within the actual stakeholder groups. This threatens the very ideology of what the TFCA concept stands for - collaboration, peace in the region and joint management of natural resources. Unless stakeholders can agree on how to manage natural resources such as elephants, it will be difficult to successfully develop both the LS-TFCA and adaptive management of it. The stakeholders need to agree on management objectives for the LS-TFCA and importantly for a desired future state. Only once this is decided can issues such as the elephant management debate be resolved.

Further current threats highlighted by stakeholders that need immediate attention are veterinary diseases, how to incorporate the communities in the region and how to reduce poaching and smuggling. It is going to be a challenge to draw up a management plan that is going to be ecologically sound and accepted by all relevant parties, not only for ecology, but for all management. Innovative strategies will be required to balance the varying activities and demands that are likely to occur in the LS-TFCA. The challenge remaining is to ensure all stakeholders view the LS-TFCA as a single reserve rather than for their own objectives.

In addition, the problems caused by the unstable political situation in Zimbabwe highlight how vulnerable TFCAs are to changing political circumstances. Instability in one country can seriously affect the tourism and economy in a neighbouring country and can also prevent donors from wanting to invest in the region. In such a climate, adaptive management involving local stakeholders would be highly beneficial as on-ground cooperation across the border can proceed even in the presence of some level of tension between the relevant states. However, the credibility of a TFCA concept could potentially be a mechanism to generate donor funding for Zimbabwe.

While there are many current and potential threats facing the development of the LS-TFCA, there are also numerous benefits and opportunities. The enthusiasm of stakeholders to be part of the LS-TFCA should be appreciated more by decision makers. The stakeholders place a lot of value in the natural resources in the

area and the LS-TFCA has the potential to benefit the conservation of these resources for this reason. Stakeholders perceive many benefits and opportunities with the project. These are predominantly ecological benefits including increased range for elephants and large predators, species introductions, joint watershed management and improved policies to reduce poaching. Most stakeholders are looking forward to opportunities related to a possible increase in tourism. There is excellent potential for regional socio-economic development, as the LS-TFCA as a concept would create an excellent marketing product. The combination of cultural and natural resources as well as the striking landscape would create a very diverse tourism package that could appeal to many different markets. Communities could benefit through increased employment as well as various land use options that would improve their livelihoods. Extension of the cultural landscape would also reconnect social relationships and links between countries.

The variety of land uses and stakeholders in the area makes the LS-TFCA challenging to implement, but not impossible. It is expected that it will be some years before the impacts of the LS-TFCA are fully felt or observed. Thus, a long term commitment – not only to the implementation process, but also to adaptive management, monitoring and evaluation and impact assessment – is required from implementing agencies and other affected parties. However, applications of adaptive management can be improved by including more open discussion of differences in stakeholder values with the goal of developing objectives, perhaps very broad, that most stakeholders can agree to. Stakeholders do need to agree on what the TFCA is being set up to protect, how it should be managed and whether a TBNRM approach is needed. Only through a stakeholder partnership based on trust, transparency and accountability can transboundary cooperation integrated in ecological, socio-economic and political dimensions be realised.

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Appendices

Appendix 1: Break down of stakeholder groups interviewed

Group	Affiliation	Name	Position / TFCA involvement
Government ²⁵	Department of Environmental Affairs and Tourism (DEAT), South Africa	Dr Tebogo Matolong	Deputy Director: TFCAs, Department for Biodiversity and Conservation
		Aruna Seepersadh	Assistant Director: TFCAs, Department for Biodiversity and Conservation
	South African National Parks (SANParks)	Piet Theron	TFCA Coordinator
		Johan Verhoef	Project coordinator: Mapungubwe National Park
		Harry Biggs	Senior scientist, Kruger National Park Scientific Services
		Antonia Bezuidenhout	Nature conservation student working in Mapungubwe National Park
	South Africa National Biodiversity Institute (SANBI)	Mandy Driver	Biodiversity Policy and Planning - experience with policy and biodiversity conservation
		Mandy Barnett	CAPE programme co-ordinator - experience with policy and biodiversity conservation
		Trevor Sandwith	CAPE programme director - extensive TFCA experience
		Council for Scientific and Industrial Research (CSIR), South Africa	Belinda Reyers
Academics	Pretoria University	Prof Rudi van Aarde	Conservation Ecology Research Unit; Elephant research specialist
	Pretoria Technikon	Dr Paul Funston	Department of Nature Conservation (Co-ordinator, Venetia Limpopo Nature Reserve Lion Project)
NGOs	Peace Parks Foundation (PPF), South Africa	Craig Beech	GIS & Planning
		Willem van Riet, jnr	Land use planner

²⁵ Unfortunately, it was not possible to include government stakeholders from either Botswana or Zimbabwe. This was in a large part due to difficult communications, lack of co-operation and non-responses to emails and messages. This is recognised as a weakness in this report. It is recommended that a longer study is carried out, and a significant amount of time is spent sourcing these stakeholders.

Appendix 1 (cont'd): Break down of stakeholder groups interviewed

Group	Affiliation	Name	Position / TFCA involvement
Private landowners	Botswana	David Evans	Landowner; vice-chairman of NOTUGRE
		Geoff Norris	Landowner; chairman of NOTUGRE
		Tanya Mckenzie	Landowner
		Andrew Gilfillan	Landowner
		Jannie Willemse	Farmer on private land (Talana Farms)
		Stuart Quinn	Runs a private research organisation on Kwa-tuli Private Game Reserve through African Conservation Experience
	South Africa	Warwick Mostert	Ecologist - De Beers Consolidated Mines Ltd.
		Gerhard de Beer	Landowner
		Steve Wigg	Landowner
		Paul Hatty	Landowner
Researcher	Botswana	Jeannetta Selier	Elephant researcher – Northern Tuli Game Reserve
Communities	Botswana	Ofentse Moleofe	Chairman of Community Development Committee, Lentswe-le-moriti community
Other	Botswana	Sue Holmes	Visitor to Northern Tuli Game Reserve for last 20 years

Appendix 2: Details of people interviewed in chronological order (all conducted in English)

No.	Interviewee	Affiliation	Date	Venue
1	Andrew Gilfillan	Botswana landowner	22 June 2006	Telephone interview
2	Belinda Reyers	CSIR, experience in TFCA research	28 June 2006	CSIR offices, Stellenbosch
3	Craig Beech	Peace Parks Foundation	28 June 2006	Peace Parks Foundation offices, Stellenbosch
4	Willem van Riet, jnr	Peace Parks Foundation	28 June 2006	Peace Parks Foundation offices, Stellenbosch
5	Trevor Sandwith	CAPE programme director; TFCA specialist	3 July 2006	SANBI offices, Cape Town
6	Mandy Barnett	CAPE programme coordinator; policy and conservation	3 July 2006	SANBI offices, Cape Town
7	Prof Rudi van Aarde	Academic, Pretoria University	6 July 2006	Pretoria University Campus
8	Jeanetta Selier	Researcher, Northern Tuli Game Reserve	10 July 2006	Johannesburg
9	Geoff Norris	Botswana landowner; Chairman of NOTUGRE	10 July 2006	Johannesburg
10	David Evans	Botswana landowner; Vice-chairman of NOTUGRE	10 July 2006	Johannesburg
11	Tanya Mckenzie	Botswana landowner	10 July 2006	Johannesburg
12	Dr Paul Funston	Coordinator, Venetia Limpopo Nature Reserve Lion Project	11 July 2006	Tshwane University of Technology, Pretoria
13	Dr Tebogo Matolong	DEAT: Deputy Director: TFCAs	12 July 2006	Department of Environmental Affairs and Tourism offices, Pretoria
14	Aruna Seepersadh	DEAT: Assistant Director: TFCAs	12 July 2006	Department of Environmental Affairs and Tourism offices, Pretoria
15	Mandy Driver	SANBI: Biodiversity Policy and Planning	14 July 2006	SANBI offices, Pretoria
16	Harry Biggs	SANParks, Kruger National Park Scientific Services	15 July 2006	Scientific Services Offices, Skukuza, Kruger National Park
17	Warwick Davies Mostert	Ecologist, de Beers (landowner)	17 July 2006	Venetia Reserve (de Beers), South Africa
18	Johan Verhoef	Project Coordinator: Mapungubwe National Park	18 July 2006	Musina Municipality Offices (after public participation meeting), South Africa
19	Antonia Bezuidenhout	Nature conservation student working in Mapungubwe National Park	18 July 2006	Mapungubwe National Park, South Africa
20	Gerhard de Beer	Private landowner, South Africa	19 July 2006	Mr de Beer's private lodge, South Africa
21	Steve Wigg	Private landowner, South Africa	19 July 2006	Mr de Beer's private lodge, South Africa
22	Stuart Quinn	Private researcher	23 July 2006	Kwa-Tuli Private Game Reserve, Botswana
23	Jannie Willemse	Farmer, Botswana	24 July 2006	Talana Farms, Botswana
24	Ofentse Moleofe	Chairman of Community Development Committee: Lentswe-le-Moriti community, Botswana	24 July 2006	Lentswe-le-Moriti community, Botswana
25	Piet Theron	SANParks: TFCA co-ordinator	27 July 2006	SANParks headquarters, Pretoria
26	Sue Holmes	Visitor to Northern Tuli Game Reserve for last 20 years	2 August 2006	Kirstenbosch, Cape Town
27	Paul Hatty	Private landowner, South Africa	7 August 2006	Telephone interview

Appendix 3

A: Elephants break through the border fence between South Africa and Botswana with ease. At present, these gaps in the fences also create security issues as it is not difficult for illegal immigrants (particularly from Zimbabwe) to find a way into South Africa.



B: An example of the difference in vegetation and environmental degradation between South Africa (left) and Botswana (right) within the LS-TFCA. Most people attribute this degradation to elephants. The elephant in the picture on the left is one that has broken through the border fence from Botswana into South Africa.