CHAPTER 1

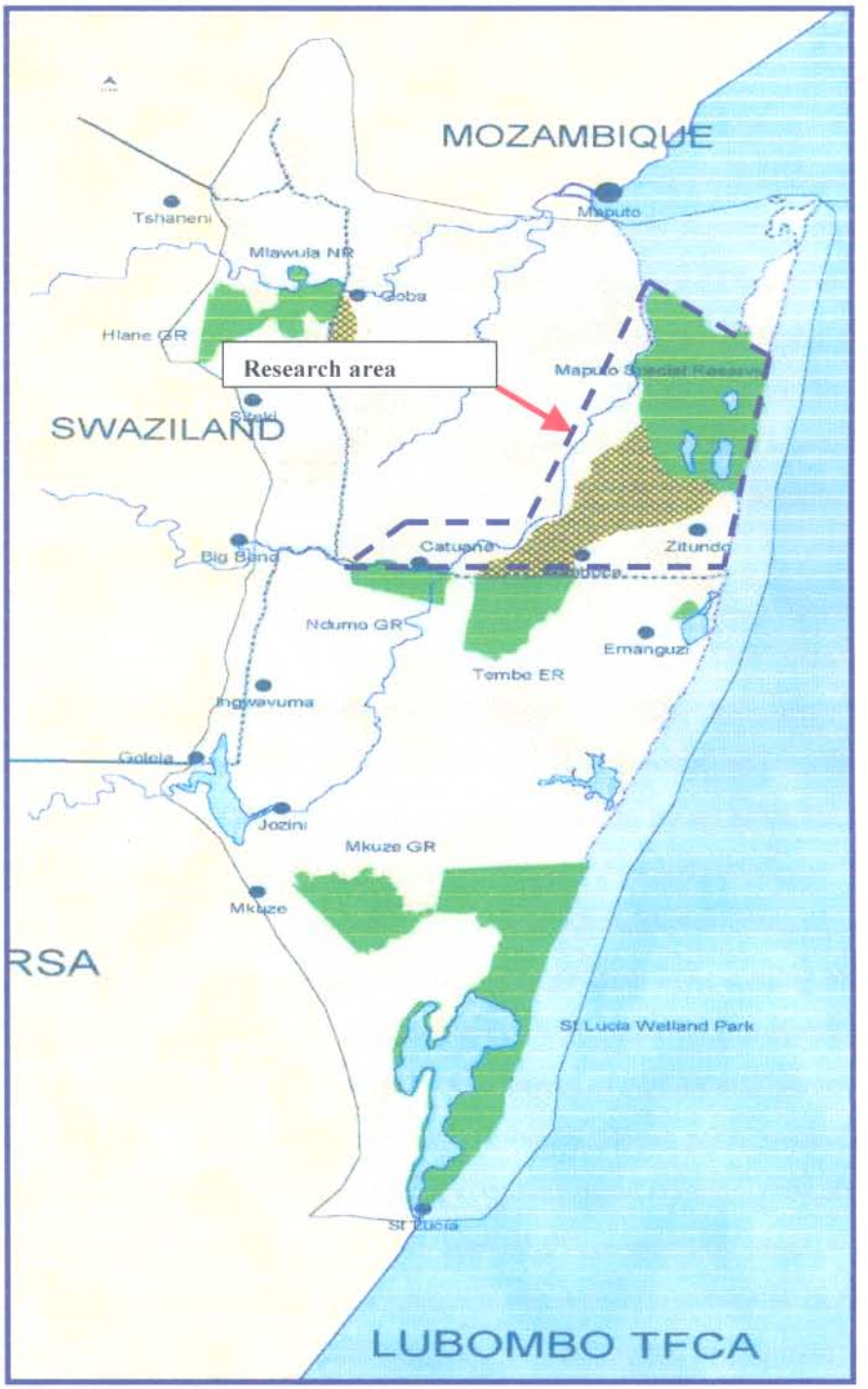
RESEARCH GOAL, THEORETICAL ORIENTATION AND METHODOLOGY

1. 1. INTRODUCTION

This dissertation deals with the economic aspect of culture (see Coertze 1973:1, 56 ff; & 1980:63) and focuses primarily on the patterns of renewable natural resources utilisation among the people living in the Matutuine District of Southern Mozambique. The study emphasises the importance of recognising these aspects to ensure the successful establishment of the planned Lubombo Transfrontier Conservation Area in the Matutuine District (Map 1).

In Southern Africa the establishment of nature conservation areas have often been coupled with the removal of people from such areas. In many instance these people were denied access to the natural resources they were previously dependent on, and forced to make a living under harsher circumstances (Adams & McShane 1992:xvii). This already negative situation is exacerbated in instances where the movement of people in the name of conservation go hand-in-hand with undelivered promises of a better life that will come about once such areas are established and tourists start to visit the areas on a regular basis (Els & Bothma 2000:20-21).

Map 1: The Matutuine District and the boundaries of the proposed Lubombo Transfrontier Conservation Area



Source: Source: Map compiled by James Culverwell: Technical advisor to the Lubombo TFCA of the DNFFB/SPFFB: Mozambique.

This study is, therefore, an effort to represent the, often neglected, human side in the planning and establishment of a conservation area in a region where people have for many generations been virtually forced to make a living from their natural surroundings in order to survive.

Although it is envisaged that the Lubombo Transfrontier Conservation Area will include areas in South Africa, Swaziland and Mozambique, this study focuses on that part of the proposed Conservation Area to be established in the Matutuine District of the Maputo Province in Southern Mozambique (see Map 1). The initial phase of the establishment of the Conservation Area will be realised in this area. The first phase of the programme concentrates on linking the Tembe Elephant Park (South Africa) and the Maputo Elephant Reserve (Mozambique) with a corridor between the Rio Maputo and the Rio Futi, commonly referred to as the Futi-corridor.

Transfrontier Conservation is a nature conservation strategy that aims to conserve biospheres that stretch across the boundaries of different states. Such areas are managed through arranged international co-operation between national governments or their conservation authorities. This ensures that larger areas can be set aside for conservation than is usually possible for one state to undertake single-handedly. Transfrontier Conservation Areas allow wild animals to migrate along traditional routes and contributes to the conservation of biodiversity over much larger areas. According to De Villiers (1999:12-13), the term conservation areas refers to 'any of the six management categories of the IUCN [International Union for the Conservation of Nature and Natural Resources] for protected areas- namely, strict nature reserve, national park, natural monument, habitat management area, protected landscape, and managed resource protected area.' The term Transfrontier Conservation Areas is applied to conservation areas where 'formal and/or informal co-operation between sovereign states or regions within such states, and in the context of international law' applies in 'achieving a common goal in the management of a shared ecological unit on either side of an international boundary' (De Villiers 1999:12).

Transfrontier Conservation is thus primarily a nature conservation strategy, but has also been heralded as a strategy to achieve rural development through tourism. The advocates of Transfrontier Conservation believe that the economic benefits that tourism brings will trickle down to rural communities living adjacent to these tourist attractions. For this reason Transfrontier Conservation in Africa is often promoted as a socio-economic development strategy (Peace Parks Foundation 2000). The history of development in sub-Saharan Africa has proved, however, that this kind of 'top-down' development programme may fail because the cultural systems of the people living where the planned development is to take place, are frequently not recognised in the design and implementation of many of these projects (Verhelst 1990:9-23).

Although Transfrontier Conservation is made out to be a socio-economic development strategy, it is essentially a nature conservation strategy. The socio-economic needs of people are secondary to the nature conservation ideals that Transfrontier Conservation Areas promote. In other words, the main emphasis of Transfrontier Conservation falls almost exclusively on nature conservation with little emphasis on the socio-economic development of people living in these areas.

In an attempt to shift the sole emphasis from nature conservation to the integration of the socio-economic needs of people in the establishment of such areas, this study focuses on a group of people who will be affected by the establishment of a nature conservation area. It explores the renewable natural resource utilisation patterns of the people living in the Matutuine District. These people subsist on whatever they can plant, gather from the veld or catch in lakes and rivers. They are extremely dependent on their natural surroundings for their survival.

The information presented in this dissertation will enable the planners of the Lubombo Transfrontier Conservation Area to make decisions that will ensure that the establishment of the said conservation area does not impair the livelihoods of the local people, as has been the case in so many instances in the past.

In this chapter the philosophy and principles of Transfrontier Conservation is further examined. In Chapters 2, 3 and 4 the history, political administration, demography and natural resource utilisation patterns of the local people who stay in the Matutuine District of Mozambique are discussed. Chapters 2, 3, and 4 are structured according to the questionnaire used in the conduct of quantitative research for this study. This should not be interpreted to mean that qualitative research was not carried out. Instead, the results of qualitative research enabled the researcher to design the questionnaire and also to interpret the answers of respondents to the questionnaire (see 1.3.3). The information presented in this study is thus an integration of qualitative and quantitative research findings, although the questionnaire was used as a logical structure within which to present these results. Chapter 5 presents a summary of the research findings.

1. 2. TRANSFRONTIER CONSERVATION

1. 2. 1. Introduction

Transfrontier Conservation Areas are defined as 'relatively large areas, which straddle frontiers between two or more countries and cover large-scale natural systems encompassing one or more protected areas'. This definition is limiting since Transfrontier Conservation Areas can actually extend far beyond fixed protected areas to encompass large biospheres and a wide range of community-based natural resource management programmes (Peace Parks Foundation 1998). Additionally, an essential component of the definition of Transfrontier Conservation Areas is that a Transfrontier Conservation Area is the unification of fragmented areas for the promotion of regional environmental and political stability (Fakir 2000:161).

According to the Peace Parks Foundation, conservation areas that stretch across international boundaries may provide a viable way to integrate the goals of rural development and nature conservation. The Peace Parks Foundation believes that Transfrontier Conservation Areas will enable indigenous people in Africa to establish

structures at community level that will make it possible for them to increase the value they derive from their natural environment (Peace Parks Newsletter 1997). Hence, Transfrontier Conservation claims not only to be a strategy of nature conservation, but also a strategy of integrated nature conservation and human socio-economic development. As such, it conforms with the current mainstream conservation philosophy.

The philosophy of integrated nature conservation and human socio-economic development is the result of the development of the nature conservation paradigm, from its genesis as a philosophy of preservationism, to the development of the philosophies of conservationism and sustainable utilisation (see 1.2.2.1). Therefore, in order to explain the philosophy of Transfrontier Conservation, the evolution of the concept of nature conservation from preservation to community-based nature conservation is examined in the next section.

1. 2. 2. Community-based nature conservation

1. 2. 2. 1. Evolution of the concept

Conservation may be defined as 'the action of keeping from harm, decay, loss, or waste' or as 'careful preservation' (Hawkins 1984:297). Traditionally, government authorities have supported this view of conservation and it led them to set aside demarcated areas, free from human influence, for the purposes of conservation. In Northern America the Yellowstone National Park was established as early as 1872, when a piece of land was set aside explicitly for the purposes of conservation. There was no permanent human settlement inside the Park (MacEwen & MacEwen 1982:3). The situation was similar to the area now known as Kruger National Park, proclaimed in 1898 (Yates 1935:17). Originally nature conservation thus translated into putting aside large areas of natural land for the sole purpose of preservation. Within these areas people not employed by nature conservation agencies were not allowed to settle (Els 1996:18).

This conservation theory was reinforced in 1969 by the International Union for the Conservation of Nature and Natural Resources. The Union declared a national park to be an area rich in biodiversity, free from human occupation and exploitation. It also stated that the highest authorities of a country must prevent human occupation or exploitation in that area, and that people should only be allowed to enter the park temporarily as visitors, for recreation and cultural activities. People in the employ of nature conservation are, however allowed to settle in the park in order to manage it. Management strategies such as culling of animal species are also excluded from the above legislation (Els 1996:18).

At the root of this philosophy lies two important factors. The first is the destruction of the European natural environment due to years of industrial development. It therefore became a goal of the international community, led by the Western countries, to avoid similar destruction in other parts of the world (Anderson & Grove 1987:5). The second factor, which is closely related to the first, is the so-called 'Myth of Wild Africa', which developed in Europe from the reports and accounts of hunters and explorers who travelled through Africa (Adams & McShane 1992:xii-xv). The narratives of explorers such as Richard Burton and David Livingstone shaped European images of Africa (Adams & McShane 1992:xii-xv). They and others, like Hemingway, Rooseveldt, Selous, Daly and Stigand, created an image of Africa as the last great wilderness (Mackenzie 1987:54-55). Africa was described as a paradise, a wilderness, and a place of refuge from an industrialised and devastated Europe (Anderson & Grove 1987:5).

Advances in cinematography helped strengthen this 'myth'. Films about the African environment were dominated by footage from Tanzania and Kenya. People in Europe and North America came to see Africa as a place consisting entirely of huge open plains with millions of wild animals roaming free, uninhabited by human beings. The image of Africa thus created was of a single sovereign state with the Serengeti stretching from the north to the south (Adams & McShane 1992:xii-xv).

The destruction of the natural environment of Europe and the 'Myth of Wild Africa' gave

birth to the conservation philosophy known as 'preservationism'. The basic elements of this philosophy were incorporated into the 1969 International Union for the Conservation of Nature and Natural Resources declaration referred to above. At the base of this philosophy lies the belief that, in order to save wild animals, they have to be kept as far away from people as possible. The basic model for establishing protected areas was thus to move people out of and away from areas designated for nature conservation. This led to a situation where many people were taken off their land and resettled on the boundaries of conservation areas. These people derive little or no benefits from these areas and in most cases do not even understand why these areas where created. As a result these people normally do not support the existence of these conservation areas (Adams & McShane 1992:xv).

Nature conservation based on the preservation model often deprived indigenous people of a resource base they had utilised for centuries, without providing them with the necessary substitutes to continue their traditional way of live (Bell 1987:80). African hunters were suddenly branded 'poachers', a term denoting a negative value judgment in the struggle between the heroes and villains of nature conservation. The people who determined the future of conservation in Africa did not recognize the age-old interconnectedness between people and their environment. Whatever African conservation ethic existed was thus overlooked (Adams & McSahane 1992:xvii). In this fashion the conservation edifice for Africa was determined by Western or European peoples (Anderson & Grove 1987:2). Even Africans involved in conservation were trained by these people and coached to adhere to a solution for Africa's problems devised in Europe (Adams & McSahane 1992:xvii).

This model of nature conservation (preservation) is especially hard on people who live adjacent to designated conservation areas. As stated above, they lose a resource base on which they have been dependent for many years. They can no longer use the land earmarked for conservation for agriculture; they cannot utilise wild animals and plants inside conservation areas for food and other purposes; and they suffer attacks and crop

damages from wild animals that escape from the conservation areas. In effect these people are disinherited and have no claims on land that no longer belongs to them (Kiss 1990:177).

Many moral arguments could be made against a conservation philosophy that deprives people of their land and livelihood. These arguments have ultimately led to the development of a new conservation paradigm to replace the philosophy of 'preservationism'. The new paradigm can best be described as 'integrated human development and nature conservation' (Els 1996:20-21). At the base of this change in conservation philosophy is the realisation that the needs of indigenous people can no longer be ignored in the name of conservation.

It is not only the moral dimension that has forced conservation authorities to change their views, but also the realisation that 'preservation' is not a workable conservation strategy for Africa. People depend on resources in protected areas for their survival. The African population is growing rapidly (Kegley & Witkopf 1995:298). This growth puts extra pressure on resources inside protected areas. Thus, conservation authorities have come to realise that excluding people from a resource base without compensating them for their loss only forces them to use the resources illegally. Where that happens people do not use the resource on a sustainable basis. Instead, they see the protected area as an 'effectively open-access resource from which an individual can best benefit by taking as much as he can as quickly as possible' (Kiss 1990:177).

Instead of allowing this scenario to unfold, conservation authorities now take into account that people who neighbour conservation areas will only agree to conserve the natural resources in their environs if they derive some benefit from the process. Wildlife conservation, they now believe, must not be viewed by indigenous people as a nuisance, but as a resource (Sibanda & Omwega 1996:180). In many cases, wildlife conservation is a better land use strategy than agriculture and animal husbandry (Enghoff 1990:93). Due to genetic adaptations, wildlife can flourish in areas that are not suited to domestic

animals and plants that are introduced to the environment. Therefore wildlife can use these resources more efficiently and in a sustainable manner (Kiss 1990:17).

The idea is that once indigenous people derive some sort of benefit from nature conservation, they will help to make nature conservation work. The opposite of this philosophy is also true: if indigenous people do not benefit from nature conservation, the political and economic pressures become so large that they have a negative impact on nature conservation.

The International Union for the Conservation of Nature and Natural Resources has come to realise the logic of this argument. In 1980 the International Union for the Conservation of Nature and Natural Resources, in co-operation with the United Nations Environmental Programme and the Worldwide Fund for Nature accepted a new document, entitled the *World Conservation Strategy* (IUCN 1980). The primary objectives of this strategy are (IUCN 1980:iv):

- the maintenance of essential ecological processes and life-support systems;
- the preservation of genetic diversity;
- the sustainable utilisation of species and ecosystems.

The aim of the third point of the *World Conservation Strategy* suggests a new paradigm in conservation thinking. Only eleven years prior to this document the International Union for the Conservation of Nature and Natural Resources advocated a total separation between human activity and protected areas. The new paradigm no longer sees conservation and rural development as mutually exclusive alternatives, but instead as mutually dependent factors (Els 1996:20).

The *World Conservation Strategy* introduced the concept of sustainable development. This was refined in the World Commission on Environment and Development report, *Our Common future*, which was submitted to the United Nations in 1987. According to

that report, sustainable development is 'development which meets the needs of the present, without compromising the ability of future generations to meet their own needs' (Department of Environmental Affairs and Tourism 1998:14).

In 1991 the three above-mentioned international agencies joined forces again to produce a document entitled *Caring for the Earth: A Guide to Sustainable Living*. This document predicts a globally sustainable society, which can be achieved if the following nine principles are applied (Yeld 1997:8-9):

- respecting and caring for the community of life;
- improving the quality of life;
- conserving Earth's vitality and diversity;
- minimising the depletion of non-renewable resources;
- keeping within Earth's carrying capacity;
- changing personal attitudes and practices;
- enabling communities to care for their own environments;
- providing a national framework for integrating development and conservation; and
- creating a global alliance.

Sustainable development is the key concept in this document. However, the document also states that any form of sustainable development is directly linked to the fertility of the planet. To ensure the fertility of the planet three objectives must be met (Yeld 1997:9):

- Essential ecological processes and life-support systems must be maintained.
- Biological diversity (all life forms on earth) must be preserved.
- Natural resources or ecosystems must be used sustainably and, in the case of non-renewable resources, such as most minerals, resources must be used wisely.

The philosophy that conservation and rural socio-economic development must be an integrated process has been well established in international legal documents and in international agreements. Sustainable utilisation, fully defined in the documents named above, has, however, become a mere buzzword. Despite enthusiasm and support for the integrated human development and nature conservation philosophy, there are only a few examples of places where this principle has been successfully implemented (Brandon & Wells 1992; Kiss 1990).

1. 2. 2. 2. The process of integrated nature conservation and human development

The process of integrating the needs of indigenous people and wildlife into the design of a conservation area is usually a struggle to find the correct balance. In one program the economic development of people is the focus, and in another more attention is paid to the conservation of wildlife. On these grounds different methods to ensure community-based nature conservation have been identified (see below). In most cases, the focus is on wildlife conservation rather than on the socio-economic development of people (Brandon & Wells 1992:560). Instead of using wildlife exclusively as a resource for economic development in the same way that other resources like minerals and oil can be used, indigenous people merely share in some of the spin-offs accrued from wildlife conservation.

- Buffer zones

The method of integrated nature conservation and human development with the least amount of involvement of rural people is the creation of buffer zones around protected areas. These buffer zones are areas just inside or outside conservation areas where indigenous people are allowed to harvest natural resources on a sustainable basis. The basic idea is that if people are allowed to harvest resources inside the buffer zone, the rest of the conservation area will be protected. The focus of this

strategy is on the protection of the conservation area rather than on the development of the surrounding communities (Brandon & Wells 1992:560). An example of this method is the community wildlife management programme around the Selous Game Reserve in Tanzania. In this programme, village wildlife management areas have been created along the borders of the Game Reserve. Indigenous people are allowed to hunt a specified quota of wild animals inside the buffer zones every year. Furthermore, indigenous communities have received so-called sustainable utilisation deeds to the village wildlife management areas to ensure their rights to the utilisation of wildlife in the buffer zones in the future (IIED 1994:41).

- Compensation or substitution

The second method in which indigenous people are made part of the conservation process is through compensation or substitution. As was stated above, one of the major problems of the conservation philosophy of 'preservation' was the fact that people were deprived of a resource base on which they depended for their survival. The aim of compensation or substitution is to give money or other forms of compensation to people who suffer crop damages or who are deprived of agricultural land and grazing for their animals (Brandon & Wells 1992:560). At the base of this strategy lies the belief that people will conserve wildlife if they are paid to do so. An example of this strategy is the compensation paid to the Maasai in the Amboseli National Park in Kenya for rights to grazing land they lost with the establishment of the conservation area in the 1960s (IIED 1994:21).

- Rural socio-economic development

The third method accentuates the importance of the socio-economic development of people who stay adjacent to conservation areas. In theory, if development takes place in the surrounding communities, people will no longer be dependent on the resources inside conservation areas for survival. The engine that drives rural development

outside protected areas is the wildlife found inside conservation areas (Brandon & Wells 1992:560). This is best explained by Sibanda and Omwega (1996:180) when they say 'wildlife must be treated as any other resource, such as oil in Texas or in Saudi Arabia'.

A very good example of this method of community-based nature conservation is the CAMPFIRE (Communal Areas Management Programme for Indigenous Resources) programme. Various authors (Child 1991; Els 1996; Murindagomo 1990; Murombedzi 1990; Murphee 1989) have described the functioning and success of this programme in detail and it is not replicated here.

CAMPFIRE is a relative success story for the philosophy of integrated conservation and rural socio-economic development, although there are problems in districts where government officials do not adhere to the initial intent of the agreement (Els 1996:29-34). Few other documented programmes have achieved the same amount of success (Kiss 1990; Brandon & Wells 1992).

According to Els (1996:32-33) the success of the CAMPFIRE programme is based on six principles unique to the programme and the area:

1. The CAMPFIRE programme is only managed in the so-called communal areas and/or safari areas of Zimbabwe. These areas are reserved by the constitution of Zimbabwe for the exclusive purposes of safaris (hunting or photographic), or communal occupation and communal utilisation according to the cultural traditions of the indigenous black people of Zimbabwe.
2. Within the communal areas political leaders are chosen democratically and each district is responsible for more than 60% of its own budget.
3. These communal areas in Zimbabwe are situated in sparsely populated wilderness areas.
4. In Zimbabwe game species with high monetary value occur naturally and in

large numbers in communal areas outside of proclaimed conservation areas. Elephant, lion, leopard, buffalo and even rhinoceros are made available for trophy hunting in these communal areas through systems of ecological monitoring and selection.

5. Research results from the World Wide Fund for Nature's *Multispecies Animal Production Systems Project* support the view that greater economic benefits can be derived from wildlife harvesting than from cattle rearing on the same marginal land in communal areas in Zimbabwe.
6. In 1990 the Zimbabwean Department of National Parks and Wildlife Management transferred the ownership of wild animals to authorities presiding over the communal areas.

Apart from being sparsely populated, none of these conditions exist in Southern Mozambique. This means that a project similar to the CAMPFIRE project can only be initiated once large-scale socio-political changes take place in Southern Mozambique. One such change would, for instance, require the authorities to stock the area with game (at great costs). Such actions would conflict with local interests since people living in the Matutuine District already complain about the negative impact that the few wild animals in the area have on their crops.

1. 2. 3. The establishment of Transfrontier Conservation Areas

1. 2. 3. 1. Transfrontier Conservation Areas worldwide

The idea of establishing conservation areas that stretch across international boundaries is not a new one. The Waterton Lakes National Park in southwestern Alberta (Canada) and the Glacier National Park in Montana (the United States of America) combined to form the first international conservation area, the Waterton-Glacier International Peace Park in 1932 (Parks Canada 1996; De Villiers 1999:64-65).

Other Transfrontier Conservation Areas include co-operation between Germany, Austria and Switzerland to manage the Bodensee (Lake Constance), the Wadden Sea Transfrontier Conservation Area, which consists of the Waddenmeer National Park in Germany, the Waddenzee State Nature Reserve in the Netherlands and the Vadehavet Wildlife Reserve of Denmark, and the joint management of the Maritime Alps Nature Park in Italy and the Mercantour National Park of France (De Villiers 1999:66-76).

The International Union for the Conservation of Nature and Natural Resources has been promoting the establishment of co-operation between trans-border conservation areas for a long time. In 1988 the International Union for the Conservation of Nature and Natural Resources' Commission on National Parks and Protected Areas identified at least 70 protected areas in 65 countries that stretch across international boundaries (Peace Parks Foundation 1998). Since that time, at least 30 more have been added to the list (Douglas 1997:31). During an international conference held in South Africa in 1997, no fewer than 136 potential Transfrontier Conservation Areas were identified worldwide. These areas involve 98 countries and cover over a million square miles (Harvey 2000:67). By 1999 there were 24 established Transfrontier Conservation Areas in Europe, involving 20 countries and approximately 100 Transfrontier Conservation Areas in various stages of development in other parts of the world (De Villiers 1999:63).

Based on the degree of co-operation between states or their respective conservation agencies, De Villiers (1999:43-48, 135-143) identifies four different models of Transfrontier Conservation Areas:

- **Exchange of information** is the most basic form of co-operation between two states or their conservation agencies. It involves the exchange of data and ideas and the discussion of mutual concerns regarding nature conservation areas. When states do not have an explicit agreement to exchange such information, it is possible for the conservation agencies of different states to co-operate, independent of their states.

- **Formal consultation** is a more advanced form of co-operation between conservation agencies or states and occurs when there is a formal interaction on matters of common concern regarding the management and control of respective nature conservation areas.

- **Formal co-operation** involves the signing of joint declarations or treaties between states or conservation agencies on matters pertaining to nature conservation areas. An example of this is the Bilateral Agreement between the governments of the Republic of Botswana and the Republic of South Africa on the Recognition of the Kgalagadi Transfrontier Park.

- Countries may decide to **establish an international agency** with its own jurisdiction over a specific area. Those countries will then cede a part of their territory for the purpose of Transfrontier Conservation.

1. 2. 3. 2. Transfrontier Conservation Areas in Southern Africa

- The establishment of the Peace Parks Foundation

In Southern Africa the establishment of Transfrontier Conservation Areas has been promoted by the Peace Parks Foundation. This foundation came into being after a visit by Dr Anton Rupert, President of the World Wide Fund for Nature, South Africa, to President Joaquim Chissano of Mozambique in May 1990. The aim of the visit was to discuss the permanent linking of protected areas in Southern Mozambique with protected areas in South Africa, and particular attention was paid to the linking of the Kruger National Park with protected areas in Mozambique (Douglas 1997:31). As a result of the meeting, the World Wide Fund for Nature, South Africa, was requested to carry out a feasibility study, which was completed in September 1991. The Mozambique Council of Ministers requested that further studies be carried out to assess fully the political and socio-economic feasibility of Transfrontier Conservation Areas. Assistance was lent by

the Global Environment Facility of the World Bank. In June 1996 the recommendations of the World Bank were released in a document entitled, *Mozambique: Transfrontier Conservation Areas Pilot and Institutional Strengthening Project* (Peace Parks Foundation 1998).

The report promoted the philosophy of a Transfrontier Conservation Area as more than just the linking between designated protected areas. Instead such an area was seen as an area of multiple resource usage, which will also enable local communities to develop (Peace Parks Foundation 1998). The philosophy of using nature conservation as a vehicle for rural socio-economic development was thus incorporated into the planning of Transfrontier Conservation Areas in Southern Africa from the start, linking this philosophy to international thinking on the matter (see 1.2.2). The Peace Parks Foundation also aims to put special emphasis on promoting regional peace and stability and on job creation through the anticipated growth of tourism in Southern Africa (Harvey 2000:67).

At the start of the 1990s South Africa experienced many benefits from nature-based tourism, due to the end of Apartheid and the accompanying influx of international tourists. However, Mozambique and Zimbabwe, the two countries with whom Transfrontier Conservation Areas were planned (see below), did not share in the benefits. This led Dr Rupert to request another meeting with President Chissano, which was held in Maputo on 27 May 1996. Subsequently, a Transfrontier Park Initiative meeting was held in the Kruger National Park on 8 August 1996. At that meeting it was decided that closer co-operation between South Africa, Mozambique, Zimbabwe and Swaziland was necessary in order for the benefits of Transfrontier Conservation Areas to be shared by all participants (Peace Parks Foundation 1998).

After these talks, the Peace Parks Foundation was officially established on 1 February 1997 under the chairmanship of John Hanks. It received an initial grant of R1 200 000 from the Rupert Nature Foundation for the establishment of Transfrontier Conservation

Areas in Southern Africa (Peace Parks Foundation 1998).

- The goals of the Peace Parks Foundation

The overall objective of the Peace Parks Foundation is 'to fund and facilitate the development of Transfrontier Conservation Areas, placing particular emphasis on the promotion of regional peace and stability, the creation of new jobs associated with the anticipated growth of tourism in Southern Africa, and the conservation of biological diversity' (Peace Parks Foundation 1998).

Strong emphasis is placed on the development of the Southern African sub-region, especially by means of the benefits of tourism. The philosophy of integrating the development needs of indigenous people with the need for nature conservation is thus integrated into the ideology of the Peace Parks Foundation. Besides this overall goal, the Peace Parks Foundation (1998) has also identified specific goals. These are (Peace Parks Foundation 1998):

- To **raise and allocate funds** to projects which will further the establishment and management of Transfrontier Conservation Areas

- To **assist with the identification of land** to be acquired for the development of the Transfrontier Conservation Area, taking into account the rights and circumstances of communities living on such land. The Foundation will then:
    - Purchase the land for leasing to the various conservation agencies, or
    - Negotiate with private landowners and residents of communal lands for leasing on a contractual basis.

- To **negotiate loans** to the Transfrontier Conservation Area conservation agencies for approved projects.

- To **negotiate with governments and semi-government bodies** with regards to political and land tenure legal issues associated with Transfrontier Conservation Areas.

- To **promote the development of Transfrontier Conservation Areas on a commercial basis** (including private sector development) as and when appropriate within the parameters imposed by environmental and conservation practices and principles, and whenever possible and practical, involving local communities.

- To **promote the case for Transfrontier Conservation Areas nationally and internationally** in terms of their economic viability, ecologic sustainability, and their contribution to the conservation of global biodiversity. Every effort will be made to promote the recognition of Transfrontier Conservation Areas as World Heritage sites if applicable. Special attention will be given to promoting broad-based education programmes for residents in or adjacent to the Transfrontier Conservation Area.

1. 2. 3. 3. Established and planned Transfrontier Conservation Areas in Southern Africa

At present the only legally established Transfrontier Conservation Area in Southern Africa is the Kgalagadi Transfrontier Park. The Kgalagadi Transfrontier Park was officially opened on 12 May 2000 (Peace Parks Press Release 2000), but it has *de facto* existed for nearly 50 years through various forms of informal co-operation (De Villiers 1999:19). This new park unites the Gemsbok National Park in Botswana with the Kalahari Gemsbok National Park in South Africa (Peace Parks Press Release 2000).

Six other Transfrontier Conservation Areas have been planned for the Southern African sub-region: the Gariep Transfrontier Conservation Area, the Richtersveld-Ai-Ais Transfrontier Conservation Area, the Dongola-Limpopo Valley Transfrontier Conservation Area, the Gaza-Kruger-Gonarezhou Transfrontier Conservation Area, the

Drakensberg-Maloti Transfrontier Conservation Area and the Lubombo Transfrontier Conservation Area (Harvey 2000:68). This study focuses on the Lubombo Transfrontier Conservation Area, as this is the area where research was conducted.

- The Lubombo Transfrontier Conservation Area

The proposed Lubombo Transfrontier Conservation Area will link the Tembe Elephant Park and Ndumo Game Reserve in South Africa with the Maputo Elephant Reserve in Southern Mozambique and with Swaziland's Hlane National Park and Mlawula and Ndzinda Game Reserves (Peace Parks Foundation 2000). The areas included are thus the Matutuine District of Mozambique, northern KwaZulu-Natal and the eastern conservation areas of Swaziland (see Maps 1 and 2).

The proposed park will be 4 200 square kilometres in size, of which 66% will be in Mozambique, 26% in South Africa and 8% in Swaziland (Peace Parks Foundation 2000). The proposed Transfrontier Conservation Area will be of special importance to the conservation of elephants, as it will re-establish the ancient migratory routes of the Tembe-Futi-Maputo coastal plains elephant population (Douglas 1997:33).

The Lubombo Transfrontier Conservation Area will incorporate a large part of the Maputaland Centre of Plant Diversity. The Maputaland Centre of Plant Diversity is one of only eight such centres of biodiversity in Southern Africa and the only one recognised in Mozambique (Cowling, Richardson & Pierce 1997:51). Maputaland encompasses six ecological zones, the Lubombo Mountain zone, the Pongola zone, the sand forest zone, the Muzi Swamp and palm-belt zone, the coastal lake zone and the coastal zone (Mountain 1990:32-78)

Maputaland lies at the southernmost tip of the low-lying coastal plain that flanks Africa's eastern seaboard stretching from Somalia in the north to northern KwaZulu-Natal in the south. The area is bounded in the north by Maputo Bay, in the west by the Lubombo

Mountains and in the east by the Indian Ocean (Bruton & Cooper 1980:xvi- xvii). In South Africa it encompasses the Ingwavuma and Ubombo magisterial districts (Mountain 1990:1-5).

However, besides being an area rich in fauna and a centre of plant species endemism, Maputaland can also be seen as a microcosm of Africa's problems. The human population is rapidly increasing and, in the process, is exerting pressure on the natural environment. There is large-scale rural poverty, with an accompanying destruction of biodiversity (Bruton & Cooper 1980:xvi- xvii).

The Matutuine District of Mozambique has a long history of nature conservation (see Map 2). The Maputo Elephant Reserve, situated 70 kilometres south of Maputo along the southern shore of the Maputo Bay, was established in 1932 and was increased in size in 1969. At present, it is 700 square kilometres in size and includes three lakes, two rivers and about 40 kilometres of beachfront (EWT 1999). The northern boundary of the reserve cuts across the Machangulo peninsula and follows the coastline to the Mozambique Channel. The western boundary runs along the Futi River, at a distance of about 50-100 meters from the river, along the old fence line. The southern boundary of the reserve is not clearly delineated (Osborn 1998:2).

Annual rainfall in the Maputo Elephant Reserve is between 690 and 1000mm. The year is divided into a rainy hot season from March to October, and a colder dry season from September to April (De Boer & Baquete 1998:209). The soils are mostly sandy and generally poor in nutrients (Osborn 1998:2). The vegetation is classified into six vegetation types: mangroves, dune vegetation, grass plains, sublittoral sand forests, savannah and riverine vegetation (De Boer & Baquete 1998:209). Of these, the three main vegetation types are the grasslands, dominated by *Hyperrenia* spp., the woodlands, dominated by Pod Mahoganies (*Afzelia quanzensis*), and the riverine forests, dominated by Acacias (Osborn 1998:2).

There are three saline lakes inside the reserve: Lake Piti (Portuguese: *Lagoa* Piti), Lake Maunde (Portuguese: *Lagoa* Maunde) and Lake Xinguti (Portuguese: *Lagoa* Xinguti) (De Boer & Baquete 1998:209). These lakes support a wide variety of bird and fish life, including flamingos and crocodiles (Osborn 1998:2).

The mammal population of the Maputo Elephant Reserve was severely curtailed during the Civil War in Mozambique in the 1980s. Remnant populations include reedbuck (*Redunca arandinum*), bushbuck (*Tragelaphus scriptus*), common duiker (*Sylvicapra grimmia*), red duiker (*Cephalophus natalensis*), suni (*Neotragus moschatus*), nyala (*Tragelaphus angassi*), bushpig (*Potamchoerus porcus*), scrub hare (*Lephus saxatilis*), vervet monkey (*Cercopithecus aethiops*), samango monkey (*Cercopithecus mitis*), hippo (*Hippopotamus amphibius*), elephant (*Loxodonta africana*) (De Boer & Baquete 1998:209), kudu (*Tragelaphus strepsiceros*), Burchell's zebra (*Equus burchelli*) and baboon (*Papio ursinus*) (Osborn 1998:2). The samango monkey, red duiker and suni are listed as ***Red Data Book*** species (Peace Parks Foundation 2000).

There are also important nesting sites for marine turtles along the east coast of the Maputo Elephant Reserve (Osborn 1998:2). The two species of marine turtles found along the east coast are loggerhead turtle (*Caretta caretta*) and leatherback turtle (*Dermochelys coriacea*) (De Boer & Baquete 1998:209).

The Maputo Elephant Reserve forms the northernmost part of an ancient elephant migration trail (Pickford & Pickford 1998:46). Elephants from the Maputo Elephant Reserve and northern KwaZulu-Natal used to migrate freely across the international borders of Mozambique and South Africa. As political polarisation between the two countries escalated, pressure on the elephant population increased. The Civil War in Mozambique and the ensuing slaughter of elephants by soldiers and rebel forces led to the erection of an electric fence on the South African border that effectively curtailed the migration of the elephant population. On the South African side, efforts to safeguard the last free-ranging elephant population of Natal led, in part, to the establishment of the

Tembe Elephant Park (Pretorius 2001:8-9).

It is estimated that there were more than 350 elephants in the Maputo Elephant Reserve in 1971 (EWT 1999). Current estimates suggest that between100 to 300 elephants are still resident in the Maputo Elephant Reserve (Osborn 1998:2). A main foci of the Lubombo Transfrontier Conservation Area will be to reunite this elephant population by restoring the traditional migration route along the Futi-corridor (see Map 2) (Peace Parks Foundation 2000).

The Maputo Elephant Reserve is administered by the Mozambican National Forestry and Wildlife Department (*Direccao Nacional de Florestas e Fauna Bravia*). The head of the Maputo Elephant Reserve is in charge of management and is assisted by a warden and field staff (De Boer & Baquete 1998:209). Funds provided by the Peace Parks Foundation are used to pay the staff of 32. The staff have wide ranging responsibilities, including providing assistance to local subsistence farmers whose crops have been destroyed by wild animals (Pickford & Pickford 1998:46).

The administration of the Maputo Elephant Reserve has been in transition since the government regained control over the conservation area after the Civil War ended in 1990. In the period between 1972 and 1992, there was no effective administrative control over the Maputo Elephant Reserve (De Boer & Baquete 1998:209).

Other problems with regard to the administration of the Reserve arose when a mammoth concession in Southern Mozambique (including the reserve) was granted to Blanchard Sodeteur, a registered Mozambican company, in November 1996 (Pickford & Pickford 1998:46). Blanchard Mozambique Enterprises, headed by James Ulysses Blanchard III, obtained exclusive rights from the Mozambican government to convert 236 000ha (an area roughly the size of Israel) in Southern Mozambique into a multi-million dollar tourism paradise. Amongst other things, the company planned to develop several hotels, a marina, a golf course and a series of bush and beach lodges. The company also planned

to restock the Maputo Elephant Reserve with game to return it to its former glory (Koch 1997).

It was planned that Blanchard Mozambique Enterprises would co-ordinate its activities with the Lubombo Spatial Development Initiative, set up in 1997 by a Trilateral Ministerial Committee to develop various national and international projects, including Transfrontier Conservation Areas (Peace Parks Foundation 2000). The three countries involved in the Lubombo Spatial Development Initiative are South Africa, Swaziland and Mozambique. The Lubombo Spatial Development Initiative covers the entire coastal strip from Lake St Lucia in the south to Maputo city in the north. The western boundary is the Lubombo Mountains and its eastern boundary the Indian Ocean. The philosophy behind the Lubombo Spatial Development Initiative is that it will be to the advantage of all three countries if the defined area is developed by the three countries working together and if their development activities are co-ordinated. The overall goal of the Lubombo Spatial Development Initiative is to make its area of operations an international tourism destination from which the indigenous people must benefit. In this way, it is believed, that the gap with regard to socio-economic development that exists between this area and richer areas in Southern Africa can be narrowed and eventually eliminated. The Lubombo Spatial Development Initiative was officially launched in May 1998 and its first major project is the construction of a tar road along the coastal strip, which is still under construction. This road will not only provide easy access to nearly 80 existing or planned tourist destinations, but will also enable local people to travel to schools and other destinations in all weather conditions (Jourdan 1998:722-723).

The planned Lubombo Transfrontier Conservation Area and the Lubombo Spatial Development Initiative could have benefited from the efforts of Blanchard Mozambique Enterprises in the development of the area. Unfortunately, James Blanchard passed away in 1999. His untimely death disrupted the planning for the Mozambican side of the target area, leaving it open to new concessionaires. At the time of the current study it was impossible to obtain any concrete information on the size and number of the current

concessions. The World Bank's advisor to the Mozambican government on Transfrontier conservation could not supply the research team with any substantial information on these concessions. This situation will need to be addressed before any further planning for the Lubombo Transfrontier Conservation Area can be done. If the various stakeholders with regard to land rights in the area are not identified and made part of the planning process for the Lubombo Transfrontier Conservation Area, it could lead to future conflicts and even the collapse of the entire process.

Another development planned inside the research area is disconcerting from the point of view of nature conservation. There are plans to develop the harbour at Porta Dobela on the southern boundary of the Maputo Elephant Reserve. Spokespersons in the research area are extremely positive towards this development because, they believe it will bring job opportunities to the area. The effects that the harbour, which potential developers say will replace the present harbour at Maputo, will have on conservation in the area is, however, a cause for concern.

Rural people have always lived inside the boundaries of the Maputo Elephant Reserve. In the 1980s the FRELIMO government forcefully removed these people to the protected village at Zitundo. Although this forced removal had nothing to do with the reserve, the removal worsened the relationship between the people and the Maputo Elephant Reserve authorities. However, people soon moved back again. During the Civil War, many of these people fled to South Africa. At present there are still people living inside the Maputo Elephant Reserve, although most of the local population are concentrated in the villages that surround the reserve (De Boer & Baquete 1998:209). The fact of the matter is that there are many rural people staying on the Mozambican side of the proposed Transfrontier Conservation Area where large parts of the area are used for farming and grazing (De Villiers 1999:24). Although the exploitation of wild animals and plants inside the reserve is technically prohibited by law, the collection of plants for subsistence purposes has always been allowed by the authorities (De Boer & Baquete 1998:209).

In contrast to the situation that exists inside the Maputo Elephant Reserve, there is no permanent settlement of rural people inside the two conservation areas in South Africa designated as potentially part of the Lubombo Transfrontier Conservation Area. These two conservation areas are the Tembe Elephant Park and the Ndumo Game Reserve. The Tembe Elephant Park is situated right against the Mozambican border in northern Kwa-Zulu Natal. The Tembe Elephant Park, proclaimed on 21 October 1983, is 74 000 square kilometres in size and is administrated by Kwa-Zulu Natal Wildlife (Mountain 1990:43 and Russel 1998). Two types of vegetation are found in the Tembe Elephant Park: thornveld and sandforest (Grant & Thomas 1998:386). The Tembe Elephant Park is home to between 120 and 130 elephants (Pers. Com. Wayne Matthews:2001) that form part of the same population of elephants in the Maputo Elephant Reserve discussed above (Peace Parks Foundation 2000).

Besides the elephants, other species of mammal found in the Tembe Elephant Park include hippo, giraffe (*Giraffa camelopardalis*), Burchell's zebra, blue wildebeest (*Connochaetes taurinus*), waterbuck, reedbuck, impala (*Aepyceros melampus*) and both the white rhino (*Ceratotheriu simum*) and the black rhino (*Diceros bicornis*). It is also home to many bird species, including the African broadbill (*Smithornis capensis*), the yellowspotted nicator (*Nicator gularis*), the gorgeous bush shrike (*Telophorus quadricolor*), Neergaard's sunbird (*Nectarinia neergaardi)* and the pinkthroated twinspot (*Hypargos margaritatus*) (Olivier & Olivier 1998:71).

The Ndumo Game Reserve, situated to the west of the Tembe Elephant Park in South Africa, is much older than the Tembe Elephant Park. It was established in 1924 on the southern bank of the Usutu River, which forms the international boundary between South Africa and Mozambique. To the west, the reserve's boundary is the Lubombo foothills, while its southern boundary is a surveyed line (Natal Parks Board 1980:489-490). Four different vegetation types are found in Ndumo: riverine forest, thornveld, woodland and sandforest (Grant & Thomas 1998:386).

The most prominent feature of the reserve is a series of pans fed by the Usutu and Pongola Rivers. These pans provide a habitat for large numbers of fish, crocodiles and birds (Natal Parks Board 1980:489-490). A total of 416 bird species have been recorded inside the reserve (Peace Parks Foundation 2000), and for some of those species Ndumo is the southern limit of distribution (Natal Parks Board 1980:490).

There are no elephants in Ndumo. Large mammals in the Reserve are impala, nyala, reedbuck, buffalo (*Syncerus caffer*), bushbuck, black rhinoceros, white rhinoceros and cheetah (*Acinonyx jubatus*) (Natal Parks Board 1980:490).

Although the immediate plans for the Lubombo Transfrontier Conservation Area only include the amalgamation of the Tembe Elephant Park and the Ndumo Game Reserve in South Africa with conservation areas in Swaziland and Mozambique, it is envisioned that various other conservation areas in South Africa will eventually form part of the Lubombo Transfrontier Conservation Area. Other conservation areas in Maputaland which can later form part of the Lubombo Transfrontier Conservation Area are the Kosi Bay Nature Reserve, the Coastal Forest Reserve, the Mapelane Forest Reserve, the Mkuze Game Reserve, the Pongola Nature Reserve, the whole of the St Lucia Wetlands Park, the Maputaland Marine Reserve, the Sileza Nature Reserve, the Hlatikulu Forest, the Ubombo Mountain Nature Reserve, the Manguzi Forest Reserve, the Inyalazi State Forest and the Makasa Nature Reserve (KZNCS 1999).

In Swaziland, the Lubombo Transfrontier Conservation Area proposes to eventually incorporate the Hlane National Park, the Mlawula Nature Reserve, the Simunye Nature Reserve, the Mbuluzi Nature Reserve and a small section of Sisa Ranch and Malahleni Dispersal Area (Peace Parks Foundation 2000).

1. 2. 3. 4. The neglect of indigenous people in Transfrontier Conservation planning

In the information provided and in the literature consulted (see 1.3.2.1) on all the Transfrontier Conservation Areas planned for Southern Africa, very little was mentioned about the indigenous people who will be affected by the establishment of these areas. Most sources simply refer to 'local communities' without describing who these people are or what their relation to the local natural environment is. This illustrates a lack of insight or comprehension of the importance of the cultural systems of the indigenous peoples who live in areas designated for Transfrontier Conservation and the effect their cultural systems will have on the eventual successful establishment of the Transfrontier Conservation Areas. On the other hand, there is ample information in the literature on the ecological characteristics of the various areas and on the diversity of fauna and flora in every area.

This underlines the fact that Transfrontier Conservation is in essence about nature conservation. Although it is often claimed that Transfrontier Conservation is about people (see 1.2.3.2), it is clear when one looks at the literature and studies done on these areas (see 1.3.2.1) that the main focus is on nature and not on the development of rural communities.

In Chapter 2, the cultural identity of the people in the research area, who will be affected by the establishment of the Lubombo Transfrontier Conservation Area, is addressed. In order to explain the cultural identity of these people comprehensively, there is a brief overview of their history and historical context. The study suggests that the turbulent history of the research area has contributed to the disruption of the cultural system and has created confusion with regards to cultural identity. Historical events have in fact created a breakdown of the traditional cultural system. Furthermore, the history of the area is largely responsible for the extreme poverty and underdevelopment of the area. Due to these poor socio-economic conditions, people are extremely dependent on the

natural environment for survival. What this means in the context of Transfrontier Conservation is that the people who live adjacent to planned Transfrontier Conservation Areas will play a large role in the successful implementation of these areas. In Chapter 2, it will be shown that increases in the human population of the research area, coupled with the poor socio-economic standards, will make the conservation of large areas impossible unless rural socio-economic development does not take precedence, because people will have to use these resources in order to survive.

1. 3. RESEARCH METHODOLOGY

1. 3. 1. Introduction

Fieldwork for this dissertation was conducted under the auspices of the Conservation Ecology Research Unit at the Department of Zoology at the University of Pretoria. The research formed part of a multi-disciplinary research programme entitled the ***Restoration of Tembe-Futi-Maputo Coastal Plains Elephant Population***. The research programme was partly funded by the Peace Parks Foundation.

The aims of the ***Restoration of Tembe-Futi-Maputo Coastal Plains Elephant Population*** programme were the following:

- to quantify demographic variables of the fragments of the original elephant population in an effort to model actions that may be required for demographic viability;
- to quantify landscape use by elephants in each of the fragments so as to assess and model the environmental consequences of restoring the regional population;
- to determine the human demographic and land use patterns of the people of the Tembe-Futi-Maputo coastal plain in order to model actions to facilitate the assessment of the impact of conservation-oriented development on socio-cultural variables to minimize potential conflict between elephants and humans;
- to synchronize cross-border and cross-institutional research efforts to benefit

conservation and scientific education; and

- to synthesize all of the above to the benefit of conservation and sustainable development.

The research conducted for this study focused on the third aim of the larger programme. To accomplish that aim, the following research objectives were put forward. These objectives are also the objectives of this study:

- to determine past, present and future trends in human population demographic variables (population dynamics, settlement and human movement patterns) to facilitate simulation of the effects of conservation development on the people of the research area;
- to determine the structure and function of the socio-economic system and land use patterns of the people in the research area;
- to determine the need for, and extent of, seasonal renewable natural resource utilisation among the people in the research area, and to qualify the annual socio-economic importance thereof;
- to determine the extent and causality of current elephant and human interaction throughout the research area; and

To achieve the set goals (described above), a research approach was used similar to that used by Els (1994:65-68; 1996:42-65) during his research amongst Tsonga people in the Northern Province and in the Mpumalanga Lowveld. This approach entails four recognized and proven anthropological research methodologies, namely the ethnographic method, the quantitative method, an extensive literature study, and observation. Els (1994:65-68; 1996:42-65) proved that combining quantitative and qualitative methodologies creates a valid and reliable tool to establish the realities and value judgments of rural people living in communal areas on their natural environment. Both the importance of the natural environment to their survival and rural people's judgments on issues of the sustainability of current utilisation practices can also be determined when

these research methods are combined.

The basic difference between a qualitative and a quantitative research methodology is that qualitative methods 'are procedures for the analysis of raw data that consist of words or pictures rather than numbers', while quantitative methods are 'procedures applied to numerical data' (Barfield 1997:386-387). Qualitative methods are not as strictly formalised as quantitative methods. The quantitative method is much more limited in range than the qualitative method and is associated more with the natural sciences than the social sciences. The qualitative method, on the other hand, has a much wider range and the methods used are not standardised (Mouton & Marais 1989:157). Instead each qualitative study is unique and tailored for the specific research priority (Barfield 1997:386).

To test both the qualitative and quantitative research results, a list of 10 key questions, developed by Borrini-Feyerabend and Buchan (1997:58-67), were used. These questions were developed to determine what the needs in terms of access to renewable natural resources of people living near or in planned conservation areas are. The questions are as follows (Borrini-Feverabend & Buchan 1997:58-67):

(i). How do the natural resources inside the proposed conservation area contribute to the livelihood of local people?

(ii). How do the natural resources of the conservation initiative help meet people's cultural, religious and identity needs?
(These ten questions were not designed by an anthropologist. In this context, Beals and Hoijer (1971:103) remark that 'the anthropological definition of culture is far more comprehensive than that of the word as it is ordinarily employed.' Ordinarily, a cultivated person is one who has acquired a command of certain specialised fields of knowledge such as art, music and literature. In anthropology, '[c]ulture is not restricted to certain special fields of knowledge; it includes ways

of behaving derived from the whole range of human activity.' (Beals & Hoijer 1971:104). Thus in anthropology religion is normally also included in a definition of culture and is not treated as a separate entity).

(iii). Do local people perceive any need to conserve natural resources, specific species, and habitats?

(iv). Are or were there indigenous customary resource management systems in the area and are they being affected by the conservation initiative?

(v). Does the conservation initiative affect access to land or resources and the control over them for one or more stakeholders?

(vi). Are there major economic activities (e.g. mining, timber extraction) in the area which do or could affect the conservation initiative?

(vii). Are there incentives or disincentives to conservation in the local context?

(viii). What are the actual costs and benefits of the conservation initiative and how are they distributed among the stakeholders?

(ix). What contributions can the stakeholders make to the conservation initiative?

(x). Are there solid social and economic opportunities to link conservation objectives with providing for local needs?

These questions formed the basis of the research and are answered in the conclusion to this study.

1. 3. 2. Qualitative research

1. 3. 2. 1. Literature study

The literature study consists of two parts. The first part is a study of the philosophy and principles of nature conservation in general and Transfrontier Conservation in particular. The second part of the literature study focused exclusively on the research area. The most important issues investigated were the natural and cultural history of the area, agricultural and animal husbandry practices in the area, natural resource utilisation patterns, traditional and contemporary authority structures and the religious beliefs and values systems of people who stay in the research area.

Various books and articles (Anderson & Grove 1987; Borrini- Feyerabend & Buchan 1997; Brandon & Wells 1992a and 1992b; Enghoff 1990; Kiss 1990; Sibanda & Omwega 1996; Yeld 1997) deal with nature conservation and the need to integrate conservation with rural socio-economic development. These books and articles were all consulted. The works of Els (1996), *Die benutting van hernubare natuurlike hulpbronne by die Vanhlanganu-Mnisi van die Mhalasistrik*; and Adams and McShane (1992), *The Myth of Wild Africa: conservation without illusion*, were found to be the most useful.

Els (1996) presents a detailed study of the evolution of conservation philosophies, starting with conservation as an activity separated from human socio-economic development and evolving to the belief that nature conservation and human socio-economic development should be an integrated practice. He also discusses the history of international laws and agreements by means of which the evolving conservation paradigms were implemented. A discussion of 'integrated conservation-development' projects in Africa, their methods, failures and success, is also presented in his study. It brings together the theories and insights of many authors on the subject and was therefore found to be an invaluable starting point.

The origin of Western values on nature conservation and the difference between those values and the African reality is cogently discussed by Adams and McShane (1992). The authors trace the origin of the Western conservation paradigm back to the earliest days of exploration and argue that Westerners came to see Africa as the last paradise on earth. Africa was viewed as an alternative to the environmental destruction that had taken place in the West. Therefore everything possible had to be done to protect this paradise from people. Western arguments failed to take into account the historical connections between man and nature in Africa. This source provides insight into the history of conservation philosophy and makes out a strong argument in favour of the integration of human needs into future conservation practices.

Much of the information in this study on Transfrontier Conservation was obtained from the internet at the website of the Peace Parks Foundation (http://www.peaceparks.org). Two articles on Peace Parks from the popular magazine *Africa, Environment and Wildlife* posted on the website were also used. The Peace Parks Foundation also has a regular review in the magazine, with articles on issues pertaining to Transfrontier Conservation. The only other published information on Transfrontier Conservation that could be found was the Peace Parks Foundation's Annual Reviews and Newsletters and the book by De Villiers (1999), *Peace Parks: The way Ahead.* The work of De Villiers (1999) is, however, primarily a study in international politics and the implications of international law for the establishment of Transfrontier Conservation Areas.

The Peace Parks Foundation website (http://www.peaceparks.org) provides ample information on the history of Transfrontier Conservation in Southern Africa, and also on the aims and objectives of the Foundation. This information was supplemented by an article by Douglas (1997) entitled 'Peace, Parks and Prosperity'. Douglas (1997) traces the history of Transfrontier Conservation in Southern Africa from the first meeting between Dr Anton Rupert and Joaquim Chissano to the inception of the Peace Parks Foundation. In this process, he illustrates the advantages of Transfrontier Conservation for both nature conservation and rural socio-economic development in Southern Africa.

He also discusses the overall aim of the Peace Parks Foundation as stated in the Foundation's charter.

Besides providing information on the establishment of the Peace Parks Foundation, the Foundation's website also gives information on planned Transfrontier Conservation Areas for Southern Africa. It presents detailed information on the various conservation areas that will be affected by the proposed plans. This information includes the sizes of already established conservation areas as well as discussions of the natural environments and fauna and flora found in those areas. This includes a description of the natural environment of the proposed Lubombo Transfrontier Conservation Area, which is the focus of this study.

The main criticism that can be levelled against the information provided on the Peace Parks Foundation website is the fact that very little attention is paid to the rural people, which the Peace Parks Foundation claims will be key beneficiaries of Transfrontier Conservation. In most cases, these people are only referred to as 'local communities'. Information on the ways in which these rural people interact with their natural environments and on the cultural identity of these people is lacking. This demonstrates a deficiency in the initial research done on the preparation of the planning for Transfrontier Conservation Areas in Southern Africa. The fact that most information provided on the website focuses on the natural environment and the benefits of Transfrontier Conservation for the conservation of rare and endangered species also reinforces the argument that Transfrontier Conservation is essentially about the conservation of nature and not, as is claimed, about the socio-economic development of rural people.

Apart from a focus on the theory and principles of nature conservation and in particular Transfrontier Conservation, the study also focused on information about the research area. Only a limited amount of ethnological work was found on the people who stay inside the research area. The two most important sources are the books of Junod (1962a & 1962b), *The life of a South African tribe* and Felgate (1982), *The Tembe Thonga of*

Natal and Mozambique: an ecological approach.

Junod (1962a & 1962b) does not focus exclusively on the Tembe-Thonga, but on the entire Tsonga ethnic group, of which the Tembe-Thonga is a clan. Be that as it may, he covers a wide range of issues important to the present study. On the history of the Tembe-Thonga he gives little information, but his information on traditional agricultural practices, the rearing of domesticated animals and on the utilisation of natural resources is detailed and comprehensive. Furthermore he uses indigenous (Tsonga/ Ronga) terms for plants and wild animals, which was found helpful in the conducting of fieldwork in the current study. Hence, his work serves as a general introduction to the people and the area. Unfortunately, his research was conducted at the turn of the previous century and the area has experienced a rich, although troubled history since then (see 2.2.4 and 2.2.5). Despite the shortcomings of Junod's (1962a & 1962b) books for the present study, the fact that many of the cultural practices described by Junod (1962a & 1962b) were still found to exist a century after he had conducted his research provided some insight into the continuity of cultural practises in the research area.

Felgate (1982) conducted his research in the 1960s. His work was found to be of the utmost importance to the present study, even more so because Felgate's study used an ecological approach that focused on the utilisation of natural resources in the study area. He discusses agricultural practices found in the research area, the domestic animals reared, hunting and fishing and the use of plant materials by the Tembe-Thonga people. His comments are comprehensive. Much of what he found in the 1960s was found to be still true of the present. His work is also a valuable study of the history of the Tembe-Thonga people, not only those residing in the most southern part of Southern Mozambique (the Matutuine District), but also those who stay in northern Kwa-Zulu Natal. The information he presents on the history of the people was supplemented with information presented (most importantly) by Bryant (1964), *A history of the Zulu and neighbouring tribes*; Newitt (1995), *A history of Mozambique*; Omer-Cooper (1975), *The Zulu aftermath. A nineteenth-century revolution in Bantu Africa*; and Van Aswegen and

Verhoef (1982), *Die geskiedenis van Mosambiek.*

Although no comprehensive study had been undertaken in the study area since that of Felgate (1982), recent interest in the area, due to various developments there, has prompted renewed studies on the interaction between local people and the natural environment in the Matutuine District.

Plans by Sappi, the South African paper-manufacturing company, to create large plantations in the area in a project called the ***Mosa Florestal Afforestation*** project has led to an investigation led by the Institute for Natural Resources into the socio-economic and cultural characteristics of the area, which was completed in 1995. The study covered current agricultural practices, the use of natural resources, the social structure of the indigenous people, types of employment available to the local people, the level of education, the health infrastructure, transport infrastructure, energy and telecommunications. The studies done in this regard provide valuable insights, but the information provided is superficial. There is no detailed information on specific plants and wild animals used, or on the extent of people's reliance on these natural resources for their survival. Although the value of these studies should not be completely disregarded, it should be noted that the Institute for Natural Resources's project focused on the area between the Futi River and the Indian Ocean, south of the Maputo Elephant Reserve, to the South African border. Therefore it does include the whole area of interest to the present study (see Map 2).

An article by De Boer and Baquete (1998), 'Natural resource use, crop damage and attitudes of rural people in the vicinity of the Maputo Elephant Reserve, Mozambique' also provides valuable information on the interaction between people and nature in the research area. This article reports on the results of a questionnaire survey (n=50), which analyses the interaction between people and their natural environment in four communities in and adjacent to the Maputo Elephant Reserve. The questionnaires were completed at Salamanga, Bella Vista, Lake Piti and Fábrica de Cal (see Map 2). The

article provides excellent information on wild animal utilisation, but the coverage of plant utilisation is sketchy. Although this article provides valuable information, it leaves unanswered questions about people's values on nature conservation, and on the extent of human and wild animal interaction. Due to the aims of De Boer and Baquete's (1998) study, it covers only areas directly on the borders of the Maputo Elephant Reserve. It does not contain any information on the area to the west of the Maputo River. Nonetheless, this article and the report of the Institute for Natural Resources mentioned in the previous paragraph, served as a starting point from where research could be conducted. In them were found the basic knowledge on the area needed for fieldwork research.

Besides these works that were used as valuable preludes to the actual fieldwork, there were a few other books and articles that were extremely useful during the qualitative fieldwork.

In order to identify various plants found in the area and to correlate their uses with those found among other indigenous peoples of Southern Africa, various books and articles were used. Amongst these, the most important ones proved to be De Koning (1993), *Checklist of vernacular plant names in Mozambique/ Registo de nomes vernáculos de plantas em Moçambique*; Els (1996), *Die benutting van hernubare natuurlike hulpbronne by die Vanhlanganu-Mnisi van die Mhaladitrik*; Hutchings *et al.* (1996), *Zulu medicinal plants*; Liengme (1981), *Plants used by the Tsonga people of Gazankula*; Pooley (1997), *The complete field guide to trees of Natal. Zululand and Transkei*; Van Wyk and Gericke (2000), *People's plants. A guide to useful plants of Southern Africa*; and Van Wyk and Van Wyk (1997), *Field guide to trees of Southern Africa*.

1. 3. 2. 2. Fieldwork

Fieldwork was carried out over a three-month period between 4 April and 18 June 2000. During that time, five visits were paid to the Matutuine District of the Maputo Province in the most southern part of Mozambique (see Map 2).

The first visit was made to the capital city of Maputo. The aim of the visit was to contact a research colleague, Cornelio Ntumi, at the Eduardo Mondlane University. A trip was organised to the Maputo Elephant Reserve where accommodation was granted at the Eduardo Mondlane University's research accommodation facility. To reach the Maputo Elephant Reserve from Maputo, one has to travel on gravel roads to Bela Vista and Salamanga and from there on a sand road that can only be used with a four-wheel drive vehicle. The road crosses the Maputo River (Portuguese: *Rio* Maputo) and the Futi River (Portuguese: *Rio* Futi). The only bridge across the Futi River was completely destroyed by floods. It was thus not possible to reach the Maputo Elephant Reserve from Maputo. It was necessary to enter Mozambique from the south at Kosi Bay to get to the research accommodation facility inside the Maputo Elephant Reserve.

Due to the fact that the bridge over the Futi River had been destroyed during the heavy floods of March 2000, research had to be conducted in two phases. During the first phase, research was conducted south of the Futi River. In the second phase research was conducted north of the Futi River (see Maps 1 and 2). Research north of the Futi River could only commence once the bridge over the river had been restored.

Language is a big problem in the research area if one is not fluent in Portuguese. The people speak a mixture of Ronga, Shangaan, Zulu and Portuguese, which they call *Mandindini*. The only people who can speak some English are those who have learned a few words on the mines in South Africa and people who work, or are trying to find work, at the holiday resorts on the coast. In some instances spokespersons could also speak some Afrikaans.

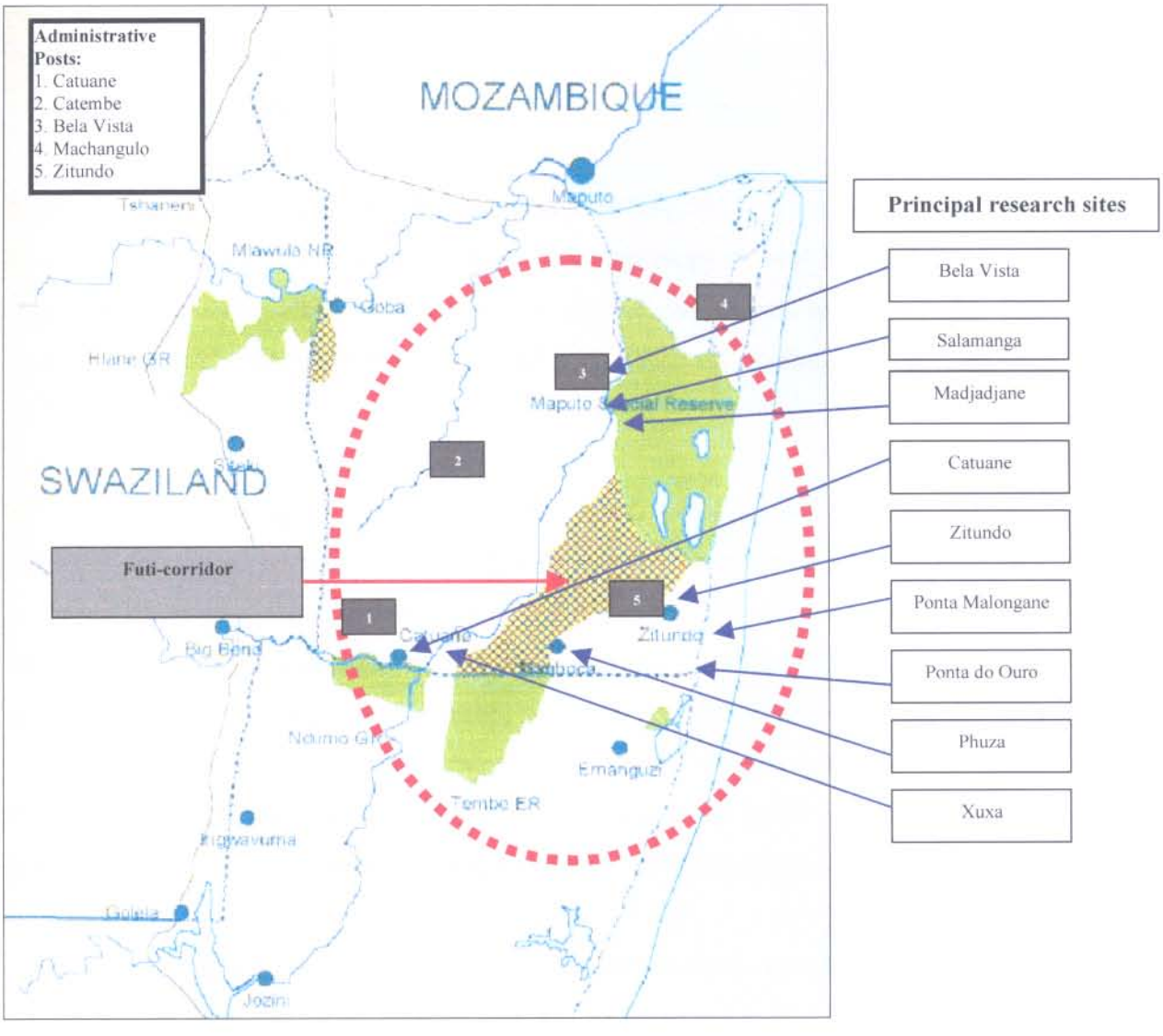
Besides obtaining a field guide, the aim of the first visit was also to gain permission from the traditional leader of the area to conduct research there. Therefore a visit was paid to Mr Sawdust Madjajane, who had been identified as the highest traditional authority in the area (see 2.3.5 where this position is described). It was found that he could not communicate with our guide in Portuguese. It was therefore necessary for the research team to ask a question in English, which was translated by the guide into Portuguese and thereafter translated by another translator into Ronga. The Ronga answers were thereafter translated back into Portuguese and then into English. Needless to say, the interview took an extraordinarily long time. At the end of the discussions Mr Madjajane granted permission to do the research.

On the second visit to the research area, the researchers entered Mozambique through the southern border post at Kosi Bay. At that time, the research team was fortunate enough to have obtained multiple entry visas for Mozambique. It was thus not necessary to apply for new, highly expensive visas every time Mozambique was visited. The road from the south can only be traversed with a four-wheel drive vehicle. The main road goes from the border post directly to a small village called Zitundo, situated some 20 kilometres from the main camp at the Maputo Elephant Reserve. However, border post guards informed the researchers that the floods had devastated that road. The alternative road goes via Ponta do Ouro and Ponta Malongane to Zitundo and from there to the Maputo Elephant Reserve. The road is only a 44 kilometre trip, but due to the bad road conditions, it is nearly a three hours drive.

The original guide/translator whose services had been engaged during the first trip to the research area did not arrive at the Maputo Elephant Reserve on the day arranged nor at any time thereafter. This problem was solved when it was discovered that one of the rangers who works at the Maputo Elephant Reserve could speak English. He was willing to aid the research team. With his aid, the researchers travelled through huge wetland areas to Gala, an area inside the Maputo Elephant Reserve on the southern banks of Lake Piti.

When the researchers arrived at Gala, they paid a visit to the home of the Secretary, who is the government official in charge of the area (see 2.3.4). The Secretary was not at home, but a meeting was organized for two days later. A visit was also paid to the traditional leader of the area. It was arranged that he would also attend the meeting with the Secretary to hear the request to conduct research in the area.

Map 2: The area where research was conducted



Source: Map compiled by James Culverwell: Technical advisor to the Lubombo TFCA of the DNFFB/SPFFB: Mozambique.

Nearly twenty people who stay in the area surrounding Lake Piti attended the meeting. After a short introduction, permission to conduct research in the area was granted by both the government and traditional authorities. Research commenced there and then, with the aid of a semi-structured questionnaire. After a question had been asked, people were allowed to discuss the question with each other. The answer given was thus a consensus answer. The data thus obtained served as an introduction to the area and to the research objective in general, and was used to develop a structured questionnaire (see Annexure 1). This method also introduced the people to the type of research that would be conducted and helped to ensure that the people would henceforth not be suspicious of the researchers in their midst, as they knew why the researchers were there.

Since the road from the Maputo Elephant Reserve to Lake Piti is a long and difficult one to travel, the researchers asked for permission to set up camp somewhere inside the tribal area. This permission was granted wholeheartedly. A cleared area where a teacher had once stayed was chosen. However, it was only on the third visit to the area that camp was set up there.

Although the researchers' new guide was a good translator, he was permanently employed as a ranger and permission for him to assist the research team on the next visit could not be obtained. This created an enormous problem. The problem was eventually solved after contact was established with the World Bank's advisor to the Mozambican government on Transfrontier Conservation. A meeting with him was organised during a week's break in the research between the second and third visits to the research area. At the meeting, which took place on the South-African/Swaziland border, the advisor agreed to find a person who could speak English, Portuguese and Ronga to aid with the research.

Upon their arrival at the Maputo Elephant Reserve on the third visit to the research area, the researchers were met by Mr Geraldo Palelane, an employee of Helvetas Mozambique, a Swiss Non-Governmental Organisation. Helvetas is involved in various community development programmes in the research area. This meant that Mr Palelane knew the

area well and also had previous experience in community research and development work.

Camp was set up at Lake Piti. On the first night, it rained, and the local people said it was a sign that the ancestors of the area were happy that we were there. A meeting was arranged with the traditional leader for the first day. He was asked to take the research team through the research area and to teach them the indigenous names of some of the trees and animals in the area. The traditional leader also happens to be a traditional healer. He took the team to various sacred forests where he harvests his medicines. Not only did he give the names of various trees in the area, but he also indicated the medicinal uses of these plants.

A meeting was also arranged for the second day with the traditional leader and a friend of his who is also a traditional healer. A three hour semi-structured interview with the aid of an open-ended interview schedule was conducted with these two gentlemen. They were asked about the medicinal uses of various plants and wild animals, agricultural practices, crop damage caused by wild animals, their views on developments in the area, their views on nature conservation and the history of the area. The interview was a great success and a lot of information was amassed.

Rain and extremely strong winds forced the research team back to the confines of the research facility at the Maputo Elephant Reserve. It was decided that a trip would be made to Lake Piti every day to conduct further interviews. This meant that more than 4 hours were wasted every day on travelling to and from Lake Piti. Interviews were conducted with the aid of semi-structured interview schedules with fishermen, various farmers and game rangers of the Maputo Elephant Reserve. The aim of these interviews was to understand how people in the area interact with nature, what problems they experience and the nature of the relationship between the officers of the Maputo Elephant Reserve and the local people.

After all this information had been gathered, a structured questionnaire was developed. The structure and contents of the questionnaire are discussed below (1.3.3). After the questionnaire had been drawn up, the qualitative part of the fieldwork was supplemented by quantitative research. Thereafter, open-ended interviews were conducted with more rangers of the Maputo Elephant Reserve, local people, white farmers who had settled in the area and various developers who had been granted concessions in the research area. The aim of all these interviews was to obtain a thorough understanding of the situation inside the research area.

1. 3. 3. Quantitative research

Beals and Hoijer (1971:144) state that a questionnaire survey 'can best be used in the later phases of field work. Considerable time and experience are necessary to frame questions so that they will have the same meaning to the interviewer and the respondent or so they cover the most important problems.' Pratt and Loizos (1992:59) also state that the 'first phase of survey research is normally qualitative interviewing, where one of the team asks a small number of informants to talk at length about the issues the survey will be concerned with. This enables the researchers to understand the issues in the terms in which they are familiar to the informants.' Correspondingly, Weller (1998:365) explains that the 'initial stage of any project should include a descriptive exploration of the topic under study.' According to her, in the first stage the 'goal is to develop a set of items relevant to the area of interest and to the people to be interviewed.' Thereafter, 'the second stage incorporates the results into structured interview materials for systematic examination.' These prescriptions were influential in the decision to do qualitative research prior to conducting quantitative research.

In this regard Els (1994:13) states the following: 'Die betroubaarheid van navorsingsgegewens wat ooreenkomstig die kwalitatiewe metode verkry word, word grootliks bepaal deur die mate van wedersydse vertroue of *rapport* tussen die navorser en sy segspersone (kyk Coertze 1993:70). Dit verseker tegelyk dat gegewens oor waarde-

oordele direk en herhaaldelik gekontroleer kan word. By die kwantitatiewe metode daarenteen is die beginsel van *rapport* selde ter sprake. Met dié metode kan daar gevolglik weinig meer blootgelê word as die insidensie van 'n bepaalde verskynsel, opvatting, gebruik of handelswyse. Dit geld veral by die bestudering van waarde-oordele; die bestaan van 'n waarde-oordeel kan nie deur middel van 'n vraelys ontdek word (van nuuts af waargeneem word) nie. Juis daarom is kwalitatiewe navorsing **voor** die opstel van 'n vraelys wat oor waarde-oordele handel, 'n noodsaaklikheid. In die geval van transkulturele navorsing is 'n kwalitatiewe ondersoek ook die enigste manier waarop sinvolle antwoordmoontlikhede vir die vrae in 'n vraelys blootgelê kan word'.

Although Els (1994) refers to value judgements, the same methodological principles apply to the study of socio-economic organisation. Cultural aspects are interrelated (see Coertze 1980:63) which means that one cannot understand the economic aspect of culture without also trying to understand the cultural values determining economic behaviour. Values as binding element (Boonzaaier 1999: pers. com.), yet separate aspect of culture (Coertze 1980:63), was not the emphasis of the study, but could not be ignored since it was evident that spokespersons interpreted their actions in terms of their own framework of values (an element of the economic aspect of their culture). However, the significance of Els's statements lies in the last sentence, namely that in the case of trans-cultural research, qualitative research is fundamental in designing meaningful questionnaire surveys.

With regard to the present study quantitative research was carried out using 200 structured questionnaires to test the dissemination and validity of information gathered during the qualitative process. The questionnaire was originally drawn up in English, whereafter it was translated into both Portuguese and Ronga by Mr Palelane (see Annexure 1).

With regard to the use of a questionnaire survey as a research methodology Pelto and Pelto (1978: 81) remark that in 'any study involving statistical analysis, questionnaire

responses are open to objection because of the non-random character of the sample.' The objective of the present study was not to do a statistical analysis of typical census information but to quantify qualitative research with the help of questionnaires. As Pelto and Pelto (1978:81) state, '[w]here statistical analysis of materials is secondary to the gathering of general descriptive information, questionnaires can be quite useful, and once the schedules have been prepared, very little time is sacrificed in administration.'

Pelto and Pelto (1978:135) also state that, 'the statistical operations frequently used with quantified social data are based on the assumption that sampling has been random from a designated universe or population.' They further state that the 'realities of field research, however, frequently present us with situations in which deviations must be made from the ideals of randomness. While haphazard selection of informants, test families, or other units of observation is too naïve for most research purposes, the fieldworker must often make compromises in order to produce data without undue expenditures of time, effort and money.' The constraints of time, money and logistical problems were experienced in the conduct of the questionnaire survey for this study. However, it would be false to state that no form of random sampling was employed in the conduct of the questionnaire survey. It can rather be stated that the sampling method used is in accordance with what Pelto and Pelto (1978:134) call 'area-probability sampling.' According to them, area-probability sampling 'is a technique used to simplify problems of enumerating the total population by first breaking up the research unit into equivalent geographical subunits such as counties, neighbourhood, blocks, and so on. This method of sampling is intended to preserve the criteria of randomness without the necessity for enumerating every individual in the population in advance.' The logistical constraints attached to the research as well as the dispersed nature of population settlement in the research area made this a very suitable method of sampling and was therefore utilised as such.

Two factors played a role in the manner in which the research area was divided: the size of the research area and the distribution of the local human population. The area was divided into nine different areas. Although care was taken to try and complete an equal

number of questionnaires per area, it was not always possible. People who joined sessions where questionnaires were completed, were not refused the opportunity to also complete questionnaires when they indicated their willingness or asked to be part of the research.

Questionnaires were completed in the following areas: the village of Ponta do Ouro and the area surrounding it, at Ponta Malongane, where a dramatic rise in the human population recently occurred, at the sparsely populated Ponta Mamoli and the surrounding areas, at the village of Zitundo, where a large percentage of the population of the district is concentrated (mainly due to the fact that people found refuge there during the Civil War), in the tribal ward of Gala, at the village of Salamanga and the area surrounding it, at Catuane, which is situated in the western part of the research area and the areas surrounding Catuane, in the tribal ward of Xuxa, and amongst game rangers of the Maputo Elephant Reserve (Map 2). No questionnaires were completed in the Futi-corridor (the area between the Futi River and the Maputo River), although the area was extensively travelled. The area is sparsely populated, and due to its inaccessibility, it was decided not to conduct research in that area during 2000. Research will be conducted in that area in the latter part of 2001 as part of the larger research programme (see 1.3.1).

To assist in the completion of the questionnaires, four field interpreters were employed and trained at Ponta Malongane. The questionnaires were completed over a four-week period. During their fourth visit, the research team set up camp at Ponta Malongane. From there, it was possible to drive daily to Ponta do Ouro, Ponta Mamoli and Zitundo to conduct the questionnaire survey (see Map 2).

On the fifth visit to Matutuine, camp was set up for one week on an open piece of land at the offices of the Endangered Wildlife Trust in Catuane, a town situated just north of the Ndumo Game Reserve in Kwa-Zulu Natal. Questionnaires were completed in Catuane and surrounding areas, as well as in Xuxa, an area just east of Catuane (see Map 2).

After the questionnaires had been completed at Xuxa and Catuane, the research team moved back to the research facility at the Maputo Elephant Reserve. Since the bridge over the Futi River had by then been reconstructed, it was possible to stay inside the Maputo Elephant Reserve while getting people to complete questionnaires at Salamanga and surveying game rangers who live around the area.

1. 4. 3. 1. The questionnaire

The questionnaire consisted of 181 questions spread over five sections (see Annexure 1). The first section dealt with the demographics of the area. Information was gathered on the age and gender composition of households. Questions were also asked as to where people stayed during the Civil War and what their motives were for moving back to the area. Other important questions in this section dealt with the employment rate and sources of income available to the people in the area. Thus the first goal of the research project, namely to determine past, present and future trends in human population demographic variables, could be reached. Information obtained on human population demographic variables were corroborated by means of comparing the researchers results with information obtained from an Institute of Natural Resources survey on human settlement to the east of the Maputo River, results of the Mozambican census of 1997 and the results of an independent census conducted by Helvetas.

The second section of the questionnaire dealt with agriculture and animal husbandry. The aim was to determine the structure and function of the socio-economic system most prevalent in the area. Concerning agriculture, the goal was to find out not only which crops are planted, but also the extent to which these crops fulfil people's nutritional needs. Thereafter, questions were asked on the types and numbers of domesticated animals reared by people in the research area. There were also questions pertaining to people's value judgments regarding domestic animals.

The interaction between people and wild animals was the subject of the third section of

the questionnaire. This included the hunting of wild animals for food, crop damages caused by wild animals, loss of human life caused by wild animals and value judgments on wild animals and their conservation.

The fourth section of the questionnaire dealt with the utilisation of wild plants for medicinal purposes, construction, firewood, crafts, food, thatching, the brewing of beer and any other utilisation practices identified by the respondents. Thus information gathered not only showed which plants are used by the people in the research area, but also the extent of their reliance on these plants for survival.

The third and fourth sections of the questionnaire were aimed at achieving the third and fourth set aims of the research project. Through an interpretation of the answers obtained, it was possible to determine the extent of and need for seasonal renewable natural resource utilisation as well as the extent and causality of elephant and human interaction.

In the fifth section of the questionnaire, questions addressed people's perceptions on developments in their area, and their willingness to participate in those developments. Respondents were also asked whether they would be willing to lease out their land for future developments. The aim of these questions was to determine possible areas of conflict and co-operation between local inhabitants when future developments in the area take place. This was a specific question that the Mozambican Conservation Authorities wanted to be answered.

1. 5. NOTE ON THE ORTHOGRAPHY

Due to the fact that the people in the research area speak a mixture of Portuguese, Ronga, Shangaan and Zulu, locally referred to as *Mandindini*, it was decided to use the Zulu orthography, as presented by Doke *et al.* (1996), ***English-Zulu dictionary***, in the writing of this dissertation, as it is the predominant language of the area. The local terms as

people presented them are included when a new word or subject is introduced. The following abbreviations will be used to denote the different languages: T for Tsonga, R for Ronga, P for Portuguese and Z for Zulu. Thereafter, to ensure correctness of spelling and consistency throughout the dissertation, the Zulu words for specific indigenous terms are used.