



***Darwin Initiative for the Survival of Species
Annual Report***

Transnational conservation planning in the Maputaland ecoregion
of southern Africa.

Durrell Institute of Conservation & Ecology
University of Kent

April 2004

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1. Darwin Project Information

Project Ref. Number	162/12/006
Project Title	Transnational conservation planning in the Maputaland ecoregion of southern Africa.
Country(ies)	Moçambique, South Africa and Swaziland
UK Contractor	DICE, University of Kent
Partner Organisation(s)	KwaZulu-Natal Wildlife
Darwin Grant Value	£131,185
Start/End dates	1 st June 2003 to 31 st December 2005
Reporting period (1 Apr 200x to 31 Mar 200y) and report number (1,2,3..)	1 st April 2003 to 31 st March 2004 Report number 1
Project website	http://www.mosaic-conservation.org/maputaland/
Author(s), date	Dr Robert Smith Professor Nigel Leader-Williams

2. Project Background

The Maputaland centre of endemism is an area of approximately 20,000 km² that covers part of Moçambique, South Africa and Swaziland. For the purpose of this project its boundaries are set by the Lebombo Mountains in the West, the Indian Ocean in the East, the Mtubatuba-St Lucia in the South and the Komatipoort-Maputo road in the North.

Maputaland is internationally recognised for its conservation value, as it contains large numbers of endemic plant and animal species and one World Heritage Site. It is also home to a great diversity of terrestrial, freshwater and marine habitats, as well as large populations of charismatic species such as the African elephant and black rhino. However, this unique biodiversity is increasingly threatened by the spread of subsistence agriculture and over-harvesting of natural resources. As a result, there is a need for a conservation planning system to underpin the Trilateral Protocol signed in 2000 to create a Transfrontier Conservation Area, which recognises ecotourism and natural resource harvesting as the optimal forms of land use.

Existing planning projects, however, are hampered by a lack of capacity and suitable data and, in some instances, an *ad hoc* approach that does not include all the relevant stakeholders. This project aims to overcome these problems by designing a relevant conservation planning system for Maputaland and working with stakeholders to build capacity and to ensure that future land-use plans in the region are designed to maintain biodiversity, without negatively affecting the livelihoods of local communities.

3. Project Purpose and Outputs

The purpose of this project is "*To produce a conservation planning system for the Maputaland ecoregion, build capacity to ensure its continued utilisation, and encourage the use of this methodology in other developing countries*". This will be achieved through the following outputs:

- A conservation planning system for Maputaland that will aid stakeholders in producing relevant land-use policies.
- Increased tri-national capacity to use the planning system and software.
- A report providing information on future planning scenarios based on stakeholder opinions.
- Strengthened links between the stakeholders involved in conservation planning in Maputaland.
- User-friendly conservation planning software and tutorial.
- Publications and presentations that illustrate the role of conservation planning in maintaining biodiversity in Maputaland and more widely.

The outputs and proposed operational plan have not been modified over the last year.

4. Progress

The project was initiated in June 2003, when the Project Officer undertook a 2 month visit to the three Maputaland range states for discussions with the stakeholders and regional biodiversity experts. These meetings raised awareness of the project and gathered available information. Three workshops were held in Maputo, Pietermaritzburg and Manzini to develop and finalise the project landcover classification scheme and to develop a list of important species that will also be included in the project GIS. The project website was uploaded in August and the first version of the Conservation Land-Use Zoning software (CLUZ) was developed in the subsequent months. This version was first tested by the DICE MSc in Conservation Biology students as part of 2 workshops on conservation planning. The next version of CLUZ was then produced and sent to 9 volunteers in 8 countries for final testing. CLUZ was then used to develop an initial conservation plan for the South African section of Maputaland, based on existing landcover data and targets developed in the Pietermaritzburg workshop. This information has already been used by KZN Wildlife to inform planning decisions and the map was printed out as an A4 poster and sent, together with a newsletter, to stakeholders and other interested groups to raise awareness about the project and value of conservation planning. Finally, the Project Officer visited Maputo for 10 days in March to meet with stakeholders who were unavailable during the first visit and to interview candidates to undertake the MSc in Conservation Biology starting in September 2004.

Progress over the last year has been generally good, with the project website being completed and the landcover classification system being finalised. The production of the second version of the conservation planning software was delayed by a month but it has now been sent to a number of experts for final testing and reviewing. Slippage has occurred with the delay in producing the report that discusses how the focal biodiversity elements should be identified. However, additional outputs have included the production of a newsletter and a poster showing the results of a preliminary conservation planning exercise.

Project achievements

Landcover classification

The landcover classification was developed from a previous system based on work by Tinley and van Riet but was modified after a series of workshops involving experts from KwaZulu-Natal Wildlife and other botanists based in Swaziland and Moçambique. The final system divides the region into five main ecological zones and consists of 29 natural landcover types and 5 transformed types. The modifications incorporated more recent work on the vegetation of the region and also built consensus between researchers based in the three Maputaland range states. The final system is listed in Appendix 2.

Conservation Land-Use Zoning software (CLUZ)

The CLUZ software is an ArcView GIS extension that acts as a user-friendly interface for the MARXAN conservation planning software. It can also be used for on-screen conservation planning and designing conservation landscapes. It consists of a menu bar containing 15 functions, as well 5 buttons and 2 tools that allow the user to input, explore and modify the relevant data. The first version of the extension was developed in January and was tested by the DICE MSc in Conservation Biology students as part of a workshop on conservation planning. The software was then revised and expanded based on the experiences of the students and has now been sent to 9 volunteers in a number of countries for final testing. A tutorial on using CLUZ has also been developed, together with a brief guide that describes each of the functions. Screen shots of the software are provided in Appendix 3 and the CLUZ tutorial and guide in PDF format are also attached to this report.

Conservation planning workshop

Two 3-hour workshops on conservation planning were given to the DICE MSc in Conservation Biology students. The first workshop gave a review of the principles of conservation planning and emphasised the need for these techniques. It also investigated whether key articles in the academic literature could be used to make conservation planning decisions on the ground (the hand out document that summarises discussions in this workshop should be attached). The second workshop involved a discussion of the MARXAN and CLUZ computer programs and a tutorial on using CLUZ.

Preliminary conservation planning exercise for Maputaland, South Africa

The preliminary conservation plan for Maputaland was based on an existing landcover map and targets developed by KZN Wildlife staff during a workshop that brought together people with relevant expertise. These data were then analysed using the CLUZ and MARXAN software and the results were printed as part of an A4 poster that has been distributed to the project stakeholders and other interested groups. The methodology and results of this work are described in more detail in Appendix 4 and will form the basis of an article that we plan to submit to the journal *Oryx* in the next year.

Project website

The project website consists of seven pages that contain sections on objectives, a site description, a list of relevant literature, mapping landcover, species mapping, modelling risk, conservation planning, training, people and partners and sponsors. In addition, there is a CLUZ website that gives a broad overview of the software. The website has been visited 3700 times since it was uploaded in August 2003.

Maputaland website: <http://www.mosaic-conservation.org/maputaland>

CLUZ website: <http://www.mosaic-conservation.org/cluz>

Difficulties encountered

Most of the difficulties encountered result from working on a transnational project based in three range states that involves a large number of stakeholders. This makes communication difficult, especially when dealing with groups that are under-resourced and have other commitments. In particular, it has proved difficult to develop the list of species that are to be included in the planning system by having short meetings with the experts and then following up with e-mail questions. Difficulties are also expected as a result of differences in the capacities of the government conservation bodies in the three range states.

Initially, it was suggested that these communication problems could be reduced by setting up an email-based steering committee. Such an approach may be successful but it was decided to first test the effectiveness of the approach that was listed in the project log frame, namely to organise a steering committee, or three national committees, for the early part of the next year.

More generally, we have improved communication systems by broadening our network of partners, which has increased the number of people with the ability to become more actively involved in our project. We have also produced a newsletter and A4 poster that advertise our work and will help increase contacts with interested groups.

To resolve the problem with producing the species list data, we intend to contract a short-term employee to be responsible for collecting these data by visiting the different experts and museums. The person we have identified has worked for KZN Wildlife in a similar role on their provincial conservation planning exercise and so they already have the relevant skills and some important contacts. The details of this contract will be finalised during the Project Officer's visit to Maputaland in May 2004, so that the species list data can be collected as soon as possible.

Improvements to project design

The design of the project has been improved in the following ways during the last year:

- It was decided to include data on the distributions of large mammals into the conservation planning system so that areas can be identified that could be profitably managed as ecotourism sites or game ranches, so increasing the implementability of the final conservation plans.
- We will be using the conservation planning system to develop a fine-scale land-use plan for a community-based project in South Africa. This will act as a pilot project and will increase our understanding of the data that are needed for such exercises.
- We have been given access to several new biodiversity datasets, including a fine-scale survey of the trees of the Lebombo Mountains in Swaziland, and this will be incorporated into the planning system.
- The weakness of the US dollar has allowed us to buy a series of ASTER satellite images to supplement the Landsat 7 images that we had already planned to purchase. The ASTER images have a resolution of 15 m and will allow us to produce even finer-scale landcover data.

Project implementation timetable 2004/2005

Date	Key milestone
May/June	Project Officer arrives in South Africa to supervise present MSc student projects and train South African and Moçambican MSc candidates to collect spatial data to ground-truth landcover map and map the distribution of over-harvesting of plant resources. Organise community workshop in Mathenjwa Tribal Authority Area and collect data needed to make fine-scale conservation plan for the Usuthu Gorge Area. Give seminars at relevant academic institutions on conservation planning.
July	Steering Committee review. Produce and distribute posters.
August	Completion of data collected in the field.
November	Finalise species list and complete training manual on choosing focal biodiversity elements for conservation planning. Produce maps showing risk of habitat transformation, alien plant distribution and unsustainable harvesting.
January	Production of final landcover map.
March	Production of distribution maps of key species.

5. Actions taken in response to previous reviews (if applicable)

Not applicable

6. Partnerships

From the outset this project had three host country partners, with one in each of the Maputaland range states. All three have been very supportive but some of their roles have changed as other partners have become involved. Details of these changes are below:

KwaZulu-Natal Wildlife, South Africa

KZN Wildlife remains our strongest partner and continues to provide high levels of support and advice. This support includes providing data, expertise, accommodation and links with other stakeholders. This is very important because this organisation is playing an increasingly large role in steering the development of Transfrontier Conservation Area in Maputaland and so our close partnership will increase the likelihood of our system being used to make decisions.

Swaziland National Trust Commission

Our work with the SNTC has involved working with their staff members who developed a Swaziland eco-tourism project proposal for Global Environment Facility (GEF) funding. This project would have involved a major conservation planning component but it now seems unlikely that it will be supported by GEF and our main contact has left SNTC to set up a company that uses paying volunteers to collect conservation data. We expect to continue working with this contact but need to strengthen links with the remaining SNTC staff and this will be done by the Project Officer during his visit in May 2004. We are also fortunate that our contacts at the University of Swaziland, who also maintain the National Biodiversity Database Unit, have continued to provide high levels of support and will help us strengthen links with SNTC.

WWF Moçambique

WWF Moçambique was chosen as an initial partner because of the enthusiasm shown for our work by the Programme Coordinator. We have benefited from this support but their main role has been to provide broad advice and help us establish links with other relevant stakeholders. This has now been achieved and so we are likely to work more closely with these other stakeholders at the Ministry of Tourism and Universidade Eduardo Mondlane. However, we expect that WWF will continue to act as a partner and will provide support and advice.

Other collaborations

This project has been very successful at establishing other partnerships and these have developed in two main ways.

Firstly, we have built on the network of contacts provided by our initial partners and have generated much wider support for our project and the planning system that it will produce. One of the most important results of this is that we are now working with The Wildlands Trust, a South African NGO, to develop a fine-scale conservation plan for the Mathenjwa community who live in the Usuthu Gorge area of Maputaland.

We have also established new links with a number of organisations that will be involved in the later parts of the project. These include Conservation International, IUCN Moçambique, Forum Natureza Em Perigo (a Moçambican NGO), the Peace Parks Foundation, the Greater St Lucia Wetland Park Authority, Universidade Eduardo Mondlane, the University of Pretoria, the University of Swaziland and the University of KwaZulu-Natal.

Secondly, the development of CLUZ has provided the potential to collaborate with a large number of conservation planners in several different countries. We already have good links with The Ecology Centre of the University of Queensland, which has developed the MARXAN conservation planning software that CLUZ uses and we plan to meet with Professor Hugh Possingham at the Society of Conservation Biology meeting in July 2004 to discuss how MARXAN could be modified to increase its relevance for work in Maputaland.

Our strongest additional link has been with The Nature Conservancy Eastern Caribbean program, where a former DICE colleague has used CLUZ to produce relevant biodiversity data and has trained staff in the US Virgin Islands and Puerto Rico to use our software. The Nature Conservancy is the most important international NGO for pioneering the use of conservation planning techniques and so we are very keen to build on this link and to encourage their further use of CLUZ.

In addition, a number of groups have contacted us through the CLUZ website and have volunteered to test the latest version of the software and provide feedback. These groups include the Deh Cho First Nations (Canada), Macquarie University (Australia), IUCN Freshwater Specialist Group (UK), Parco Naturale Alta Valle Pesio e Tanaro (Italy), Universitat Politècnica de Catalunya (Spain) and the University of Victoria (Canada). We have been very pleased with this response, as we have not widely advertised the software while it was in development, and feel that such levels of interest bode well for developing future partnerships.

7. Impact and Sustainability

The profile of the project is high amongst all of the Maputaland stakeholders and we have now had meetings with all of their representatives to explain the work and discuss opportunities for collaboration. Wider awareness has been promoted through the project website and by producing and distributing a newsletter and a conservation planning map. This awareness will be increased further by distributing a press release, which is currently being developed, that will describe our success in working with KZN Wildlife to ensure that current plans to establish new Eucalyptus plantations in Maputaland have a minimal impact on regional biodiversity.

The project has increased levels of interest and capacity in maintaining biodiversity through conservation planning both in Maputaland and more widely, although most of this been through piloting workshops, tutorials and software. These outputs will be more heavily advertised once the feedback from the piloting process has been incorporated into these products during the next year, so we are optimistic about their potential to have a large impact on capacity building.

The project exit strategy involves two key elements. Firstly, we aim to produce a conservation planning system that is user-friendly and contains a range of relevant data, so that it will be an invaluable part of any conservation planning process. Secondly, we aim to train a large number of people from at least 3 of the stakeholder groups, so that its use in the future is not dependent on a few key individuals. We feel that this is a satisfactory exit strategy because southern Africa has pioneered the use of systematic conservation planning and the value of the approach is widely recognised. In addition, several individuals from different groups have already expressed their interest in being trained to use this software, as they recognise the value of these skills and the employment opportunities they would provide.

8. Post-Project Follow up Activities (max 300 words)

Not applicable

9. Outputs, Outcomes and Dissemination

The planning system species list and training manual have not been completed for reasons explained above under *Difficulties encountered* in section 4.

Instead, we have produced some additional outputs, comprising the project newsletter and the project poster showing the preliminary conservation planning exercise for Maputaland, South Africa.

The main dissemination activity in this first year was producing the project website, which contains a range of information and also allows other materials to be downloaded. These materials include a newsletter in both English and Portuguese and a poster showing the results of a preliminary planning exercise. Both have been designed to raise awareness about the project amongst the stakeholders and other interested groups and copies have been posted to organisations in the three Maputaland range states, as well as Austria, Australia, China, Norway, Uganda, the United Kingdom and the United States.

Table 1. Project Outputs (According to Standard Output Measures)

Code No.	Quantity	Description
4C	15	Two 3 hour workshops on conservation planning taught as part of the DICE MSc in Conservation Biology.
7	2	One CLUZ software tutorial document and one CLUZ guide explaining the software's functions.
7	1	One poster showing the results from an initial conservation planning exercise.
8	8 weeks	8 weeks spent by Project Officer in the three Maputaland range countries during two visits.
14A	3	Three workshops held in Pietermaritzburg, Manzini and Maputo to develop landcover classification scheme and produce list of species to be included in the planning system.
16A	2	One newsletter in English and Portuguese to be posted to stakeholders and interested groups and to be made available on website.
16B	60	
17A	1	One project website established.

Table 2: Publications

Type	Detail	Publishers	Available from	Cost £
Software	CLUZ v1.0 R.J. Smith (2004)	N/A	http://www.mosaic-conservation.org/cluz	Free
Software	MARXAN boundary maker v1.0 R.J. Smith (2004)	N/A	http://www.mosaic-conservation.org/gis/boundary.html	Free
Poster*	Initial guide for conservation planning in Maputaland, South Africa. R.J. Smith (2004)	N/A	http://www.kent.ac.uk/anthropology/dice/resources/planning_poster.pdf or Bob Smith, DICE, University of Kent, Canterbury, Kent, CT2 7NS, UK	Free
Manual*	CLUZ tutorial R.J. Smith (2004)	N/A	http://www.mosaic-conservation.org/cluz	Free
Newsletter*	Maputaland Transnational Conservation Planning Project Newsletter No 1	N/A	http://www.kent.ac.uk/anthropology/dice/resources/Map_news1_en.pdf	Free

* Provided as appendixes to report (others require ArcView GIS software)

- There is a great value in understanding the politics of transnational conservation planning in Maputaland, as some stakeholders have much higher levels of capacity and influence. The success of this project will be enhanced greatly by implementing a strategy that provides high levels of support for these key stakeholders but does not neglect the other stakeholders, who will play larger roles in the future and should not feel excluded from the process.
- There is a greater need for this project to quantify the support and involvement of the different stakeholders. The present approach is based on listing the stakeholders and the results of these collaborations but this does not measure the importance of building links that will be relevant in the longer term.

12. OPTIONAL: Outstanding achievements of your project during the reporting period (300-400 words maximum)

Not applicable

Annex 1 Report of progress and achievements against Logical Framework for Financial Year: 2003/2004

Project summary	Measurable Indicators	Progress and Achievements April 2003-Mar 2004	Actions required/planned for next period
<p>Goal: To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but poor in resources to achieve</p> <ul style="list-style-type: none"> • The conservation of biological diversity, • The sustainable use of its components, and • The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources 			
<p>Purpose</p> <p>To produce a conservation planning system for the Maputaland ecoregion, build capacity to ensure its continued utilisation, and encourage the use of this methodology in other developing countries.</p>	<p>Planning system used in Maputaland to make land-use decisions.</p> <p>Data in planning system continue to be updated.</p> <p>Software downloaded from website and used in other countries.</p>	<p>At this early stage the planning system and software have not been finalised. However, initial conservation plan has been used by KZN Wildlife to modify afforestation plans in Maputaland, South Africa. Also, draft version of software has been distributed to users in eight countries.</p>	<p>Key actions in the next year include training stakeholders to use the software, training MSc students from South Africa and Moçambique and completing landcover map.</p>
<p>Outputs</p>			
<p>A conservation planning system for Maputaland that will aid stakeholders in producing relevant land-use policies.</p>	<p>CD with all data needed for land-use planning. Peer reviewed plan proposing future roles of stakeholders after DI project completion.</p>	<p>Developed landcover classification system, purchased and prepared satellite imagery, started to identify key species for mapping.</p>	<p>Identified the need for in-country project member dedicated to developing the species data. This process will be completed in the next period.</p>
<p>Tri-national capacity to use the planning system and software.</p>	<p>Minimum of three individuals trained to use the planning system in all three countries.</p>	<p>Talked with stakeholders to raise awareness of future availability of training. Identified South African to undertake MSc in Conservation Biology at DICE.</p>	<p>Mozambican MSc candidate will be finalised and training will be provided for university lecturers. Training for stakeholder groups will also be undertaken</p>

Report providing information on future planning scenarios based on stakeholder opinions.	Peer review of report. 100+ copies distributed to stakeholders, plus made available on website.	This report will be produced at the end of the project.	The stakeholders will be informed about the future report in the next period.
Strengthened links between the stakeholders involved in conservation planning in Maputaland.	Number of stakeholders involved in planning process and attending transnational workshops.	A large number of stakeholders have been informed about the project but the transnational workshops will take place towards the end of the project.	Data collection in the next period will involve cooperation between the different stakeholders.
User-friendly planning software & tutorial.	Software available on CD-ROM and from website.	The final drafts of the software and tutorial have been completed.	The final version of the software and an expanded tutorial will be produced.
Publications & presentations.	Posters, 4 articles in popular magazines/newspapers, 2-3 papers in scientific journals.	One poster and one newsletter have been produced.	Two manuscripts will be submitted during the next period and a poster will be produced.

Note: Please do NOT expand rows to include activities since their completion and outcomes should be reported under the column on progress and achievements at output and purpose levels.