Conservation of the African Penguin (*Spheniscus demersus*) South Africa

ANNUAL REPORT
(01.04.02 – 31.03.03)

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Contents:

Darwin Initiative for the Survival of Species

Annual Report

1. Darwin Project Information

Project Title:	Conservation of the African Penguin (*Spheniscus demersus*)
Country:	South Africa
Contractor:	Earthwatch Institute
Project Reference No:	162/10/005
Grant Value:	£152,945
Start/Finishing dates:	April 2001 – March 2004
Reporting Period:	01.04.2002 – 31.03.2003

2. Project Background

Briefly describe the location and circumstances of the project and the problem that the project aims to tackle.

The project represents a collaboration between Earthwatch Institute, University of Cape Town and University of Bristol to enhance the knowledge base of the African Penguin, in order to aid its conservation, and develop new technology for penguin monitoring with potentially global implications.

The African Penguin *Spheniscus demersus* is classified as 'Vulnerable' and the overall trend in recent decades is decreasing at a rate of 2% per year. The species decreased by 90% in the 20th century. At present, the main factors influencing the adverse conservation status of the species are: competition with industrial fisheries for food (purse-seine nets extract large quantities of sardine and anchovy), oil spills, and displacement from breeding sites by burgeoning Cape Fur seal populations. Acute oiling events such as the *Treasure* spill of June 2000 made international headlines.

The project will collect baseline data to inform and establish a monitoring programme which can be continued beyond the life of the Darwin Grant. In order to monitor the effects of oil pollution, a resighting programme, of birds banded following the *Treasure* oil spill in June 2000, will be established. The project will field test a new plastic flipper band which, if successful, could be used for penguin studies worldwide, and will also develop materials which will assist local authorities exploit the penguin colonies for tourism.

3. Project Objectives (Logical Framework attached as Appendix 1)

- *State the purpose and objectives (or purpose and outputs) of the project. Please include the Logical Framework for this project (as an appendix) if this formed part of the original proposal or has been developed since, and report against this.*
- *Have the objectives or proposed operational plan been modified over the last year and have these changes been approved by the Darwin Secretariat?*

Purpose:
To enhance the knowledge base of the African Penguin, in order to aid its conservation, and develop new technology for penguin monitoring with potentially global implications.

Objectives:

- The project will undertake penguin counts at offshore islands of the Western Cape in order to show trends from the earliest available count data. This will allow a long-term monitoring programme to be set up, based mainly on Robben island, which will ultimately be self-sustaining.
- The project will monitor the progress of penguins oiled by the sinking of the *Treasure* in June 2000 and establish a resighting programme of birds banded during the clean-up operation.
- The project will field test a new plastic flipper band which has the potential to replace the current bands used worldwide, which are thought may affect penguin survival rates.
- The project will develop tourism materials to assist the exploitation of the penguin colonies as tourist attractions.

The objectives have not been modified over the last year.

4. Progress

- *Please provide a brief history of the project to the beginning of this reporting period. (1 para.)*

Brief history of the project – The Avian Demography Unit (ADU) of the University of Cape Town is the South African partner organisation in this project. As such, the ADU, through its Director, Professor Les Underhill, achieved the majority of outputs identified for the first and second year.

Earthwatch Institute's responsibilities included submitting one national press release in year one, visiting the project in November 2001 and May 2002, submitting half yearly and annual reports report to DEFRA, and recruiting and fielding teams of Earthwatch volunteers to undertake penguin counts and assist with monitoring work at offshore islands of the Western Cape.

- *Summarise progress over the last year against the agreed baseline timetable for the period. Explain differences including any slippage or additional outputs and activities.*

Summary of progress against baseline timetable - Activities detailed in the agreed timetable have been successfully completed. These are:

- April 2002 – Penguin counts at offshore islands of the Western Cape were completed in May and June 2002. In order to be as accurate as possible, the count is timed to

coincide with the peak of the breeding season. As in 2001, the peak was later than the traditional April peak, and the counts were made in subsequent months.

- April 2002 – Monitoring of banded penguins started as an ongoing activity until March 2004, with the intention of continuing beyond the life of the Darwin Project. Monitoring was conducted by Earthwatch teams on Robben Island, by staff of the Western Cape Nature Conservation Board at several offshore islands, and by members of the Avian Demography Unit and Marine and Coastal Management on visits to all colonies in the Western Cape. All resightings are ultimately collated by SAFRING, the South African Bird Ringing Unit, which is a component of the Avian Demography Unit.

- June 2002 – One national press release and one national and two local radio interviews in South Africa. Two press reports appeared in Cape Town newspapers in January 2003. In January, Jenny Griffin, penguin MSc student in the Avian Demography Unit undertook a radio interview for Cape Talk Radio, which has a footprint which includes not only the Western Cape but also Gauteng, the major centre of South Africa's population. During March, Dr Phil Whittington, who had graduated a few months earlier, was interviewed by John Richards, presenter of the national environmental radio programme on SAFM; this interview focused on the booklet *Rehabilitation of oiled African Penguins: a conservation success story* of which he was a co-editor. This story told in this booklet depends crucially on the results of the flipper band resighting programme. The interview was broadcast twice.

- July 2002 – Report on the penguin counts at offshore islands of Western Cape, finalised in March 2003 and submitted as a scientific paper entitled "Trends in African Penguin *Sphensiscus demersus* populations in the Western Cape, South Africa, 1992-2002".

- June 2002 – UK press release not prepared as analysis of penguin count data and resighting data was still ongoing.

- July 2002 – conservation poster on penguins produced with final print run in November 2002 of 750. The poster was designed by an MSc student, Genevieve Jones. We distributed 250 to the Southern African Foundation for the Conservation of Coastal Birds (SANCCOB), Western Cape Nature Conservation Board, and our own network of contacts to schools, conservation NGOs, etc. 500 were distributed by one of our partner organisations, the Two Oceans Aquarium, at the Cape Town Waterfront. The Two Oceans Aquarium contains a large Environmental Education Centre, and 48 000 schoolchildren and 2 300 teachers attended courses at the centre in 2002. The posters were distributed, one per school, to groups of teachers attending week-long courses at the centre. Each course contains 270 teachers, and the overwhelming majority are drawn from schools classified as "previously disadvantaged". The teachers are delighted by the poster, and praise it because it contains lots of solid information (unlike many posters!).

- November 2002 – Resighting data gathered but analysis and final report delayed. The delay is due to late submission of resighting data to SAFRING from several of the offshore islands. The observers on these islands do not work for the Avian Demography Unit, and we are not in a position to enforce submission of data by a specified date. We are assured that intensive resighting observations were made, and that data capture into spreadsheets that can be transformed into the correct format is underway.

- By March 2003 – work experience for South African postgraduate students.

- By March 2003 – 11 reports and papers submitted to peer reviewed journals, detailed in Section 7, Table 2 of this report.

- By March 2003 – the following conferences attended and presentations given:
  - July 2002 – Jessica Kemper. Presentation at the Southern African Marine Science Symposium in Swakopmund, Namibia. The presentation was entitled "The phenology of the moult cycle of the African Penguin *Spheniscus demersus* in Namibia." Jessica is a PhD student in the Avian Demography Unit, based in Luderitz, Namibia. Her presentation included a comparison with South African moult data.
  - August 2002 – Rob Crawford. Presentation at the 23rd International Ornithological Congress in Beijing, China. The full set of co-authors was RJM Crawford, AC Wolfaardt, J Kemper, M Hemming, PA Whittington, LG Underhill & VL Ward. The presentation was entitled "Variation in the timing of moult of African Penguins." All co-authors, with the exception of Jessica Kemper (see below), are involved with the Earthwatch penguin project on Robben Island.
  - September 2002 – Phil Whittington. Talk at Plettenberg Bay Bird Club entitled "Seabirds of the South African Islands".
  - October 2002 – Les Underhill. Presentation on the *Treasure* oil spill in Department of Ecology at University of Jena, Germany.
  - October 2002 – Les Underhill. Conference on Oil Pollution and Conservation of Biodiversity: the Role of NGOs and Local Authorities, in Porto Torres, Sardinia, Italy. This was an invited paper at a conference called to enhance awareness of the need for an emergency response plan for the impact of oil spills in the Mediterranean Sea. The presentation was entitled "Recommendations in relation to seabird monitoring after oil spills" and drew on the South African experience in monitoring the penguins involved in oil spills.
  - November 2002 – Bruce Dyer. Poster at Earthwatch Institute Annual Conference in Boston, USA.

Several other presentations on Avian Demography Unit (University of Cape Town) penguin work were made by members of the team of researchers at a variety of meetings, including bird clubs and service organisations.

Provide an account of the project's research, training, and/or technical work during the last year. This should include discussion on selection criteria for participants, research and training methodologies as well as results. Please ***summarise*** *techniques and results and, if necessary, provide more detailed information in appendices (this may include cross-references to attached publications*

Account of project's research, training and technical work

2002 Penguin Census. These census are conducted annually at as many breeding colonies as it is feasible to visit, and takes place in April when nest counts are generally at a maximum. The field work consists of dividing a colony into manageable units, and counting the number of active penguin nests within each unit.

During 2002, the penguins at all colonies except the tiny colony at Stony Point, Bettys Bay, were censused. Analysis of results of the 2002 census together with an analysis of trends for the period 1992-2002 has yielded information of conservation importance. Figures show that 87% of the penguin breeding population of the Western Cape is at Dassen Island and Robben Island.

In 1956, 79% of the breeding population was at Dassen Island; this had dropped to 66% in 2002. The Robben Island colony, which did not exist in 1956, held 21% of the 2002 breeding population.

Given the vulnerability of these two islands, which both lie along the shipping routes into Table Bay and Saldanha Bay, to oiling incidents, one of the objectives of the conservation management of this species should be to encourage growth of the smaller colonies and to prevent them from going extinct. However, it is precisely the small colonies which are in decline.

Work experience – The project is not providing training but is providing work experience to masters and doctoral students at the University of Cape Town through their participation in the monitoring projects. The project involves two forms of work experience: participation in the leadership of the project in the field; and participation in the collation and analysis of the resulting data. The following Avian Demography Unit students received field leadership experience through being involved as co-leaders for periods from four days to two weeks during the Earthwatch teams: Samantha Petersen (BSc(Hons) student), Dr Marienne de Villiers (postdoctoral researcher), Linda Staverees (MSc student), Kathy Calf (PhD student), Jenny Griffin (MSc student), Dieter Oschadleus (PhD student and Coordinator of SAFRING) and Anton Wolfaardt. In addition, Anje Greyling, an BSc(Hons) student from the University of South Africa, did one of her honours projects under our supervision. One of the specific benefits for the students is the challenge to their communication skills generated by the opportunity to interact and discuss their own research projects with interested non-specialists. The following Avian Demography Unit students had part-time employment stretching into the current financial year, involved with the collation and analysis of the data collected by this project:

> Ms Kathleen M Calf. PhD student. 2/3rds time post as Penguin Database Manager
>
> Ms Janine le Roux. MSc student. 2/3rd time post working on Penguin Database
>
> Ms Jenny Griffin. MSc student working on penguins, with 1/3rd time post funded by Darwin Initiative helping to sponsor her studies.
>
> Ms Samantha Petersen. BSc(Hons) student. 5 hours per week post managing data collection by Earthwatch teams in 2003 (January 2003 to March 2003)

Resighting work – Resightings of flipper-banded penguins made since the *Treasure* oil spill are being entered into a Penguin Database. Each flipper band has a unique number, which can be read from a distance of over 50m with a telescope. When each banded penguin is resighted, its activity (breeding, moulting or 'loafing in colony') is noted and entered into the database.

The data for Robben Island generated by Earthwatch teams and members of the Avian Demography Unit can be summarised as 4027 flipper band resightings made, of which 2817 were penguins oiled in the *Treasure* oil spill. As time passes, the natural progression of births and deaths continues, so that the proportion of penguins with flipper bands from the *Treasure* oil spill diminishes, and it requires increasingly more commitment and dedication to make resightings. Until such time as the new rubber flipper bands being field tested by this project come into use, SAFRING policy is to use steel flipper bands only where essential to specific research projects.

Dieter Oschadleus, Coordinator of SAFRING, has during the year under review continued the development of a separate African Penguin database at SAFRING. This includes all available data on the dates and places when penguin flipper bands were deployed, and all resightings of these bands on live birds, and all recoveries of these bands (a band is said to be "recovered" when the bird is found dead with a band and is reported to SAFRING). The database includes all available data since 1972, when flipper banding was initiated. The development of the database enables important analyses to be performed, such as looking for evidence of changes in penguin survival rates through time and comparison of survival rates between colonies. In particular it has been used by three PhD students in the Avian Demography Unit: Phil Whittington, who graduated in December 2002 (to compute survival rates), Anton Wolfaardt (to determine whether penguins resighted on Dassen Island could be classified as "visitors" because they had been recorded breeding at other colonies), and Jessica Kemper (to determine whether penguins resighted on the Namibian offshore islands had bred at South African colonies). Both Anton Wolfaardt and Jessica Kemper plan to submit their PhD theses for examination in 2003.

Moult counts – Penguins come ashore to moult, replacing old feathers with new. The process takes approximately two weeks, during which most birds stand on the shoreline and do not go to sea. Weekly moult counts were undertaken in summer 2000-2001 by an MSc student (Matthew Hemming), supervised by Professor Les Underhill (ADU) and Dr Rob Crawford (Marine and Coastal Management). Results showed that penguins that had been oiled came ashore to moult two weeks earlier than average. This displacement is consistent with that observed following the *Apollo Sea* oil spill in 1994. Matthew Hemming was co-author of a paper presented by Dr Crawford at the International Ornithological Congress in Beijing in August 2002.

New penguin bands

Penguin studies have traditionally relied on steel flipper bands fixed around the top of the flipper. However, evidence is pointing to risks associated with these bands, notably hydrodynamic drag which can lead to an increase in energy use while swimming. Observations of Adelie Penguins on the Antarctic Peninsula indicate that banded birds have a significantly reduced breeding success. They arrive at the breeding site later than non-banded birds, their weight on arrival is lower than non-banded birds, and they are more likely to abandon eggs and chicks than non-banded birds.

Field studies on Robben Island of the new flipper bands have been conducted by the Avian Demography Unit, Dr Peter Barham, Earthwatch volunteers and researchers from Marine and Coastal Management) during the 2001 and 2002 breeding seasons are proving that the new plastic flipper bands are a success and that a change to the new bands is needed. Some minor modifications were tested in 2002. The most important decision was that bands should be made in two sizes. However, we still did not get the design perfect, and made the small bands

too small. A series of further refinements are being tested in the upcoming 2003 breeding season. We anticipate that mass production will start in time for the 2004 breeding season, and have developed a contact with a manufacturer of injected moulded plastics. The most important forum at which the results will be presented will be to the Fifth International Penguin Conference, to be held in Argentina in November 2004. These meetings are held once in four years and are attended by most penguin researchers. The Avian Demography Unit will be well-represented at this meeting, and the results of all aspects of this project, including the plastic flipper bands, will be presented there.

- *Discuss any significant difficulties encountered during the year.*

Significant difficulties – None

- *Has the design of the project been enhanced over the last year, e.g. refining methods, indicators for measuring achievements, exit strategies?*

Changes to project design – No

- *Present a timetable (workplan) for the next reporting period.*

The timing of peak breeding in penguin colonies in the Western Cape appears to have shifted later by about two months. The annual census of numbers of pairs of breeding penguins likewise has shifted into the period May-June.

Timetable for next reporting period -the next report required by DEFRA is a half yearly report to cover the period 01.04.2003 to 30.09.2003 and will report on the following outputs:

- March -April 2003 – Penguin counts at offshore islands of Western Cape
- March – July 2003 - Intensive monitoring of banded penguins with modifications to bands if necessary
- June 2003 – one national press release, one national radio interview, two local radio interviews in South Africa
- July 2003 - Report written on penguin counts
- July 2003 – Booklet popularising penguin counts produced.

5. Partnerships

- *Describe collaboration between UK and host country partner(s) over the last year. Are there difficulties or unforeseen problems or advantages of these relationships?*
- *Has the project been able to collaborate with similar projects in the host country or establish new links with / between local or international organisations involved in biodiversity conservation?*

Earthwatch Institute (Europe) collaborates with the Avian Demography Unit (ADU) of the University of Cape Town. This relationship has worked very well, strengthened by

Earthwatch's African Programme Manager visiting the ADU in November 2001 and May 2002. A follow up visit is planned for July 2003. The other UK partner collaborating closely with Earthwatch and ADU is the University of Bristol, in the form of Dr Peter Barham who is designing a new generation of plastic flipper bands.

There are no similar projects in the host country. The ADU works in close partnership with all other institutions involved with penguin research: Marine and Coastal Management (central government), Western Cape Nature Conservation Board (provincial government), Southern African Foundation for the Conservation of Coastal Birds (NGO), Ministry of Fisheries and Marine Resources (Namibian government). The ADU takes the lead on matters relating to flipper banding because it administers SAFRING (South African Bird Ringing Unit). However, penguin researchers worldwide are awaiting the results with a great deal of interest. In particular, Dr John Croxall, of the British Antarctic Survey, is taking a keen interest in the project. Dr Peter Barham (University of Bristol), developer of the new bands, has been asked by the ADU's Australian counterparts to produce a band for their Little Penguin.

6. Impact and Sustainability

- *Discuss the profile of the project within the country and what efforts have been made during the year to promote the work. What evidence is there for increasing interest and capacity for biodiversity resulting from the project? Are satisfactory exit strategies for the project in place?*

Public interest and concern at the plight of the African penguin is high due to the devastating oil spills that occurred in the last few years.

The work has been promoted so far by:

- illustrated talks to local clubs
- papers published through BirdLife South Africa
- 750 conservation penguin posters produced by ADU

The project received a setback in that the local news media published an ill-informed and grossly exaggerated report on the impact of stainless steel flipper bands on penguins. The message was that the 18 000 penguins which had been cleaned by members of the Cape Town public after the oil spill a year previously were now suffering as a result of the flipper bands put on the birds by scientists. (The twin realities are that scientists know that most of these birds are still alive and are breeding because of the flipper bands, and that stainless steel flipper bands work satisfactorily on African Penguins [and the three closely-related South American species of the genus *Spheniscus*], but have been demonstrated to be unsatisfactory on most of the sub-Antarctic and Antarctic penguin species.) Although this project relates to new bands to address the issues, the likelihood of the media misunderstanding was too great a risk to proceed with extensive media coverage. The risk was that the media would turn public opinion against scientists, and therefore all forms of penguin marking. It was therefore decided to maintain a low profile. This was disappointing.

We undertook to address this issue in 2002/03. The problem has not resolved itself, although the issues have not been played out in the full glare of the media, fortunately. We have

committed ourselves, together with Marine and Coastal Management (MCM), to hosting a workshop at which the issue of flipper bands on African Penguins will be closely examined. The workshop will also consider the effectiveness of the new plastic flipper bands, designed by Dr Barham at the University of Bristol. Although the outcome of the workshop cannot be certain, our expectation is that we will be able to convince the participants in the workshop to endorse the new design. This workshop will take place towards the end of 2003.

Components of the project are planned to continue beyond the life of the project, and new funding will be sought.

7. Outputs, Outcomes and Dissemination

- *Please expand and complete Table 1. **Quantify** project outputs over the last year using the coding and format from the Darwin Initiative Standard Output Measures (see website for details) and give a brief description. Please list and report on appropriate Code Nos. only. The level of detail required is specified in the Guidance notes on Output Definitions which accompanies the List of Standard Output Measures.*

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

Code No.	Quantity	Description
15A	1	one national press release
19A	1	one UK press release - not completed
19A	1	one national radio interview in South Africa
19C	1	local radio interview in Western Cape
10	1	750 copies of penguin conservation poster
12A	1	database on penguin resighting enhanced
4C/D	1	more than 12 weeks work experience for 3 South Africa postgraduate students
8	1	one week spent by Earthwatch African Programme Manager on project work in SA
11B	1	5 papers in peer-reviewed journals
14B	1	6 conferences attended

- *Explain differences in actual outputs against those agreed in the initial 'Project Implementation Timetable' and the 'Project Outputs Schedule', i.e. what outputs were not achieved or only partly achieved? Were additional outputs achieved?*

<u>Differences in actual outputs against agreed outputs</u>:

- Earthwatch African Programme Manager spent one week in South Africa as opposed to 5 weeks in the agreed outputs. It was not necessary for a visit of 5 weeks duration.
- An extra postgraduate student is receiving work experience (now 3 as opposed to the original 2)
- 4 conferences were attended by ADU staff/students as opposed to 3 agreed in the initial timetable

- In Table 2, provide full details of all publications and material produced over the last year that can be publicly accessed, e.g. title, name of publisher, contact details, cost. Details will be recorded on the Darwin Monitoring Website Publications Database. Mark (*) all publications and other material that you have included with this report

Table 2: Publications

Type	Detail	Publishers	Available from	Cost £
Report	Luna, G., Hennicke, J., Wallace, R., Simeone, A., Wolfaardt, A., Whittington, P.A., Ellis, S. & McGovern, M. (eds). 2002. Spheniscus Penguin Conservation Workshop: Final Report.	IUCN/SSC Conservation Breeding Specialist Group: Apple Valley, USA.		
Journal	Whittington, P.A. 2002. Dyer - island of surprises.	Promerops 250:19-21.		
Thesis	Whittington, P.A. 2002. Survival and movements of African Penguins, especially after oil spills. PhD Thesis, University of Cape Town. 286 pp.	Avian Demography Unit, UCT		
Booklet	Nel, D.C. & Whittington, P.A. (eds) 2002. Rehabilitation of oiled African Penguins: a conservation success story.	BirdLife South Africa and Avian Demography Unit, Cape Town		
Paper	Whittington, P.A. 2002. Post-release survival of rehabilitated African Penguins. In: Nel, DC & Whittington, P.A. (eds) Rehabilitation of oiled African Penguins: a conservation success story, pp 8-18.	BirdLife South Africa and Avian Demography Unit, Cape Town		
Paper	Underhill, L.G.. 2002. Are African Penguins tough enough? A perspective on the rehabilitation of oiled birds. In: Nel, DC & Whittington, P.A. (eds) Rehabilitation of oiled African Penguins: a conservation success story, pp 30-31.	BirdLife South Africa and Avian Demography Unit, Cape Town		
Paper	Wolfaardt A.C., Underhill L.G., Crawford R.J.M., Klages N.T.W. 2001. Results of the 2001 census of African Penguins *Spheniscus demersus* in South Africa: first measures of the impact of the *Treasure* oil spill on the breeding population. (published in 2002)	Transactions of the Royal Society of South Africa. 56: 45-49		
Paper	Calf K.M. & Underhill L.G. 2002. Productivity of African Black Oystercatchers *Haematopus moquini* on Robben Island in the 2001/02 breeding season.	Wader Study Group Bulletin 99: 45-49		
Paper	Underhill L.G., Crawford R.J.M., Camphuysen C.J. 2002. Leach's Storm Petrels *Oceanodroma leucorhoa* off southern Africa: breeding and migratory status, and measurements and mass of the breeding population.	Transactions of the Royal Society of South Africa 57: 43-46.		
Paper	Venter A, Underhill L.G., Whittington P..A., Dyer B.M. 2002. Waders (Charadrii) and other shorebirds of Dyer Island, Western Cape, South Africa.	Wader Study Group Bulletin 98: 20-24.		

8. Project Expenditure

- *Please expand and complete Table 3.*

Table 3: Project expenditure during the reporting period

Item	Budget	Expenditure

9. Monitoring, Evaluation and Lessons

- *Discuss methods employed to monitor and evaluate the project this year. How can you demonstrate that the outputs and outcomes of the project actually contribute to the project purpose? i.e. what are the indicators of achievements (both qualitative and quantitative) and how are you measuring these?*
- *Are there lessons that you learned from this years work and can you build this learning into future plans?*

Measurable indicators and means of verification against outputs (see Logical framework, Appendix 1) have been met for this second year of the project, demonstrating that the project purpose is being met.

The resighting database is continuously updated, and is seldom more than a month behind data collection in the field.

Based on experiences in the 2002 field season we have further streamlined the data-collection process. For the 2003 Earthwatch field season, Samantha Petersen, a part-time employee on the programme, has assembled the full set of Access database software, and written an instruction manual for the software. This means that no transformation of data is required to incorporate information captured by the Earthwatch volunteers into the SAFRING database in the Avian Demography Unit.

10. Authors

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29th April 2003

Annex 1 - Logical framework.

Project summary	Measurable indicators	Means of verification	Important assumptions
Goal To assist countries rich in biodiversity but poor in resources with the conservation of biological diversity and implementation of the Biodiversity Convention			
Purpose The project will enhance the knowledge base of the African Penguin and establish a monitoring programme, in order to aid its conservation, and will develop new technology for penguin monitoring with potential global implications, as well as materials to help exploit the tourism potential of the bird.	Reports published from the field work and data available on African penguin numbers and trends. Success of new flipper bands.	Project reports. Project reports.	Political situation does not change unfavourably. Colonies under study are extant for duration of study. Political will exists to implement conservation recommendations.
Outputs Information from counts used to show trends from earliest available count data. Resighting programme in place. Results of resighting work analysed. Results of flipper band field tests analysed. Ecotourism materials produced and used.	Information from counts processed. Database is fully updated. Report written on resightings. Report written on flipper band testing. Ecotourism materials in place.	Reports from penguin counts. Project reports. Project reports. Project reports. Ecotourism materials available. Project reports.	Further catastrophic events (oil spills, fire) do not hamper field work. Earthwatch volunteers able to work in South Africa. Penguins remain attractive to tourists.
Activities Penguin counts undertaken at offshore islands of the Western Cape. Resighting work of *Treasure* (oiled) penguins. New flipper bands field tested. Ecotourism materials developed.	Results from counts available for processing. Results from resighting work available for databasing and analysing. Results from field tests available. Draft materials developed and approved by ADU.	Project reports. Project reports. Project reports. Ecotourism materials available. Project reports.	Earthwatch volunteers able to work in South Africa. Further catastrophic events do not hamper field work.