Percy FitzPatrick Institute of African Ornithology

July 2002 – June 2003

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Prof. L.G. Underhill (UCT)
Mr F. van der Merwe (co-opted)

* *Dr Mokhele has indicated that he will attend meetings of the Advisory Board if his presence is required for a specific purpose*.

Contents

The Annual Report may also be viewed on the Percy FitzPatrick Institute's website: http://www.fitzpatrick.uct.ac.za

Introduction

This report represents a second consecutive year of exceptionally high post-graduate student production. In the previous reporting year, 23 students based at the Percy FitzPatrick Institute graduated with MSc or PhD degrees, followed by a further 19 during the current period (excluding two externally-registered PhD students). The Institute has also sustained its high level of scientific publication, with most papers appearing in highly rated journals.

Since its inception in 1960, the Percy FitzPatrick Institute has produced over 200 MSc and PhD graduates. Since 1990, 152 of these have passed through the Institute, perhaps making it one of the most productive units of its kind on the African continent. To this end, in the Institute's tradition of self evaluation and performance measurement, we undertook two major performance reviews over the reporting period.

The first was a survey of 81 graduates (out of a total of 106 who were contactable) of the Conservation Biology Programme (see Special Report on page 35). Almost all respondents are still active in conservation suggesting that the Programme is certainly nowhere near over-producing MSc-level conservation graduates. Although 94% responded that they would recommend the Programme to future conservation biologists, we were able to gain useful knowledge as to where further improvements can be made. A common theme, particularly from those working in Africa, was that they would benefit greatly from having continuing scientific support from the Institute and we are currently addressing possibilities of achieving this.

Our second survey relates to the patterns of scientific output of Institute staff, associates and students. Although the total number of research publications peaked during the late eighties, the levels have remained steady from 1996 onwards in the band of between 35 and 45 Science Citation Indexed (SCI) publications per year. More pleasing, however, is the fact that the proportion of all Fitztitute research publications published in key international journals increased from 40 to 60%. This suggests a possible qualitative shift in research output of the Institute. During 2002, Fitztitute researchers produced a total of 39 peer-reviewed scientific papers. In addition, several scientific books and chapters in books also saw the light during this period. Institute staff members continue to make a formidable impact in the printed medium, and on radio and television. Staff and students produced almost 80 semi-popular articles and books during the reporting period. Amongst these is the recent publication of the first field guide that covers the avifauna of sub-Saharan Africa, and which involved Peter Ryan and Phil Hockey.

The Conservation Biology Programme continues to be a major drawcard for a large number of prospective students. To this end, by early September 2003, we had received in excess of 70 applications for the limited number of places available. Over the past 11 years the CB programme has graduated 117 MSc students; a further 15 students are currently registered with the programme. Overall, students have hailed from 27 countries, including 14 African countries. Perhaps the most significant aspect of the course is the fact that over the past 5 years, the gender balance has reached parity and the racial balance is steadily moving in the required direction. Whilst the MacArthur Foundation has provided solid support for the Conservation Biology Programme over the past five years, the end of 2003 signals the end of this relationship. This is the result of the Foundation having changed its funding priorities. Although we remain hopeful that we shall soon obtain alternative sources of funding to support the Programme in its current form, we have already received an offer of three full scholarships for African students to enroll on the Programme from the Tropical Biology Association (TBA). This reflects the increasing international reputation and profile of the Programme.

The success of the Conservation Biology course relies heavily on the academic expertise of colleagues from Botany, Chemical Pathology, Economics, Leslie Hill Institute of Plant Conservation, Mathematics, Molecular Biology, Statistical Sciences, and Zoology. In addition, we have over the years contracted in the expertise of a range of experts from across the world including Australia, Germany, the UK, and USA.

The Pola Pasvolsky Chair in Conservation Biology remains inactive, although some progress has been made in this regard. Specifically, a meeting was arranged between the Executor of the Pasvolsky Estate and the UCT Vice-Chancellor, Prof Ndebele. From this meeting it became clear that whilst Ms Pasvolsky's wish was to establish a permanent Chair bearing her name, the bequest could be used in a variety of unconventional ways. Specifically, it can be used to support visiting professors for variable periods provided that expenditure in any given year does not exceed the declared distributable income (i.e. without affecting the inflation-linked growth of the capital). The Visiting Chair option would have the benefit of allowing both the immediate use of the Pasvolsky Bequest, as well as the option of reverting back to a conventional full-time chair should the balance be raised. Currently, the Pasvolsky bequest is approaching R7 million and requires another R3 million before reaching a sustainable level.

The *Roberts VII* bird book project continues to occupy a significant number of Institute staff virtually round the clock. This is partly the result of delays forced upon us by non-compliance to deadlines by some of the over 50 contributing authors, and partly to our editorial staff having to take on roles well beyond the scope of the original contract with the John Voelker Bird Book Fund. However, ultimately this involvement is vital for the success of the project into which the Institute has already invested extremely heavily. The due date of production is still at the end of 2004.

The Niven Library continues to provide a vital service to Institute staff and students, other university researchers and outside users both with affiliations to BirdLife South Africa, and from further afield. Our link to BirdLife SA continues to leverage vitally important journal exchanges with overseas institutions. Further, the relationship with NISC (the electronic bibliographic company) continues productively with one of their full-time bibliographers, Michael Raine, working in the library.

We welcome four new members to the Board, viz. Dr Tony Frost (WWF-SA), Mr Francois van der Merwe (Stellenbosch), Prof Terry Robinson (Univ. Stellenbosch) and Prof Mike Meadows (ENGEO, UCT). Several Board members have provided the Institute with advice and support in a variety of ways. I thank Prof Daya Reddy, Dean of Science, for his support of the Institute and through him for the resources that the Institute receives from the University. Dr Jenny Day, as HOD of Zoology, has also been hugely supportive of the Institute and its activities. I thank each and every one for their valuable support of the Percy FitzPatrick Institute.

I am once again grateful for the contributions of the Institute's academic staff, viz. Tim Crowe (who has recently been promoted to Full Professor), Phil Hockey, Peter Ryan and Jane Turpie, and in particular their dedication to post-graduate student research. A number of Contract Staff and Research Associates have also contributed significantly to postgraduate student education and/or supervision, viz. Prof Sue Dean and Drs Richard Dean, Andrew Jenkins, Penn Lloyd, Rob Simmons and Antoni Milewski. The Fitztitute remains privileged to have dedicated and particularly competent support staff in Chris Tobler, Hilary Buchanan, Margaret Sandwith and Lionel Mansfield (whose post has been upgraded to a Pay Class 6 level). Finally I thank Andrew Jenkins and Melissa Stander (assisted by Hilary Buchanan) for once again putting together this rather good-looking annual report despite having to coax and cajole contributors for their offerings.I trust that the reader will find the detailed material that appears in the rest of this report, both informative and impressive.

Morné A. du Plessis (September 2003)
Director

Personnel

Changes in Personnel

***Drs Pamela Beresford** and **Dean Fairbanks** returned to the United States at the end of their post-doctoral studies.*

***Dr Penn Lloyd** continued his association with the Fitztitute whilst working with Prof. Tom Martin from the Montana Co-operative Wildlife Research Unit.*

***Sharon Bosma**, a graduate of the 1999 MSc Conservation Biology Course, continued to smooth the way for the new Conservation Biology class, while compiling a database of past Fitztitute students and their current whereabouts.*

***Christy Bragg** spent the time between submitting her MSc project and graduation working on an analysis of publications by Fitztitute staff and students.*

***Michael Raine**, who worked for the Roberts Project, is now employed by NISC, working within the Niven Library.*

***Dr Charles (Basher) Attwell** taught a two week module on Ornithology to the Zoology Department 2nd year students.*

Graduates

***PhD: Muchane Muchai, Lorenzo Prendini** (December 2002). **Rauri Bowie** (June 2003). External students **Andy Radford** (Cambridge) and **Elizabeth Scott** (UWC) graduated in December 2002 and June 2003 respectively.*
***MSc: Carlos Bento, Ross Wanless** (December 2002)*
***Conservation Biology MSc**: **Michael Mills** (December 2002); **Christy Bragg, Prince Kaleme, David Knox, Ronald Machange, Godlisten Matilya, Dianah Nalwanga, Arnold Okoni-Williams, Marta de Ponte Machado, Harison Randriansolo, Conrad Savy** (June 2003)*
***Systematics MSc**: **Tshifhiwa Gift Mandiwana, Tshifhiwa Constance Nangammbi** (June 2003)*

New students

PhD: ***Yilma Dellegn Abebe** (supervised by Phil Hockey) (registration in process)*
MSc: ***Odette Curtis** (supervised by Phil Hockey), **Ruth Parker** (supervised by Jane Turpie)*
***Conservation Biology (CB) MSc**: Thirteen students began the CB MSc in January 2003.*

Director

Du Plessis, M.A. PhD (Cape Town) Professor: July - June*

Academic and Research Staff

Crowe, T.M. PhD (Cape Town) Associate Professor: July - June*
Dean, W.R.J. PhD (Cape Town) July - June
Hockey, P.A.R. PhD (Cape Town) Associate Professor: July - June*
Ryan, P.G. PhD (Cape Town) Lecturer: July - June*
Turpie, J.K. PhD (Cape Town) Senior Scientific Officer: July - June

Post-doctoral Fellows

Beresford, P. PhD (New York) July - December
Fairbanks, D.H.K. PhD (Pretoria) July - December
Lloyd, P. PhD (Cape Town) July - December (external: University of Montana)

Research Associates

Attwell, C. PhD (Natal) May
Jenkins, A.R. PhD (Cape Town) July - June
Milewski, A. PhD (Murdoch University, W. Australia) July - June
Simmons, R. PhD (Wits) July - June

Postgraduate students

Doctoral

Barnes, K.N. MSc (Cape Town) July - June
Bowie, R. MSc (Cape Town) July - June
Cohen, C. BSc (Hons) (Cape Town) July - June
Loewenthal, D. MSc (Cape Town) July - June
Louw, KI. BSc (Hons) (Cape Town) January - June
Muchai, S.M. MSc (Nairobi, Kenya) July - December
Nel, D.C. MSc (Cape Town) July - December
Prendini, L. BSc (Hons) (Cape Town) July - December
Seymour, C. MSc (Cape Town) July - June

Masters by Dissertation

Anderson, H. BCom (Hons) (Pretoria) July - June
Bento, C. BSc (Hons) (Maputo, Mocambique) July - December
Boix-Hinzen, C. BSc (Hons) (Pietermaritzburg, Natal) July - June
Curtis, O.E. BTech (Cape Town) January-June
Hamblin, J. BSc (Hons) (Cape Town) July - June
Hawn, A. BAS (Princeton University, USA) July – June
Louw, K. BSc (Hons) (Cape Town) July – December (upgraded to PhD)
Parker, R. BSc (Hons) (Cape Town) January - June
Wanless, R. BSc (Hons) (Cape Town) July - December

Masters in Conservation Biology 2003

Alston, K. BSc (Hons) (Cape Town) January - June
Atukunda, A. MSc (Makerere) January - June
Bidwell, M. BSc (Northern British Colombia) January - June
Bomhard, B. MSc (Marberg) January - June
Eshiamwata, G. BSc (Hons) (Egerton) January - June
Khumalo, C. BSc (Hons) (Durban-Westville) January - June
Kongor, R BSc (Hons) (Bangor) January - June
Jack, K. BSc (Durham) January - June

Muntifering, J. BA (St Johns) January - June
Nansikombi, J.BSc (Hons) (Makerere) January - June
Potter, L. BSc (Hons) (Cape Town) January - June
Ralston, S. BSc (Hons) (Cape Town) January - June
Senyatso, K. BSc (Botswana) January - June

Masters in Conservation Biology 2002
De Ponte, M. BSc (La Laguna, Canary Isles) January - February
Kaleme, P. BSc (Bukavu, DRC) January - February
Knox, D. BSc (U. North Carolina, USA) January - February
Machange, R. BSc Forestry (Sokoine, Tanzania) January - February
Maphisa, D. BSc Hons (Natal) January - June
Matilya, G. BSc Hons (Sokoine, Tanzania) January - February
Nalwanga, D. BSc Hons (Makerere, Uganda) January - February
Okoni-Williams, A. BSc Hons (Sierra Leone) January - February
Peleg, N. MSc (Ben-Gurion, Israel) January - June
Randrianasolo, H. DEA (Antananarivo, Madagascar) January - February
Savy, C. BSc Hons (Natal) January - February

Masters in Conservation Biology 2001
Mills, M. BSc (Hons) (Cape Town) July - December

Zoology (Hons)
Bayern, A. July - December
Little, I. January - June
Napier, V. January - June
Potgieter, K. January - June
Ross-Gillespie, A. July - December
Stoffberg, S. July - December
Taylor, B. January - June
Tuomi, E. July - December
Welz, A. January - June

Externally registered students*

Doctoral
Radford, A. MSc (Oxon) July – Mar (graduated Cambridge, UK)
Wichmann, M. MSc (Marburg) July - June (registered at U. Potsdam, Netherlands)

Masters
Ranger, S. BSc (Hons) (Pretoria) January - June (registered at U. Pretoria)
Grant, T. BSc (Hons) (Pretoria) July - June (registered at U. Pretoria)
Mandiwana, T.G. BSc (Hons) (Venda) January - June (registered at Botany, UCT)
Nangammbi, T.C. BSc (Hons) (Venda) January - June (registered at Botany, UCT)
Seoraj, N. BSc (Hons) (Durban-Westville) January - June (registered at U. Durban-Westville)
Solms, L. BSc (Hons) (Pretoria) January - June (registered at U. Pretoria)
Techow, M. BSc (Hons) (UCT) January - June (registered at Molecular and Cell Biology, UCT)
Tshiguvho, T. MSc (UCT) January – June (registered at U. Stellenbosch)

* External students are postgraduate students not based at the Fitztitute, who normally receive scholarships/salaries from sources outside the Fitztitute.

Roberts VII Project

Hampson, S. Project Manager July - June
Raine, M. Bibliographic/Research Assistant July - December

Research Assistants

Bragg, C. May - June
Herrmann, E. January - June
Curtis, O. July - December
Frauenknecht, B. June
Loewenthal, D. March - May
Martins, Q.E. November - December
Mulaudzi, N.D. April
Pauw, C. January - February
Savy, C. June

Support Staff

Principal Technical Officer
Tobler, C.J. July - June*

Administrative Assistant
Buchanan, H. July - June*

Library Staff
Sandwith, M. July - June* (Librarian)
Loubser, D. July – June (Volunteer)

Departmental/Accounts Assistant
Mansfield, L.F. July - June*

Webmaster
Stander, M. July - June

* Denotes permanent member of the UCT staff establishment. All other personnel are contractual or ad hoc appointees held against posts supported by grants in aid of research, bursary holders or part-time postgraduate students employed outside the Fitztitute.

Mission Statement

To promote and undertake scientific studies involving birds, and contribute to the practice affecting the maintenance of biological diversity and the sustained use of biological resources.

Prof. Morné du Plessis
serves as a member of the International Ornithological Congress Committee, the Advisory Board to the Institute for Plant Conservation, the Council of BirdLife South Africa, the Steering Committee of SAFRING and the Advisory Committee of the Mammal Research Institute at the University of Pretoria. He served as Chairman of both WWF-SA's Conservation Advisory Committee and its Projects Approval Group, and as Vice-President of the Board of Governors of the Africa Section of the Society for Conservation Biology. He is a member of the UCT Environmental Task Team, and served on the panel of Round V of the Innovation Fund. He served on the editorial boards of the Journal of Avian Biology and the Southern African Journal of Wildlife Research.

During the review period, Morné co-convened the Zoology Honours course and co-presented a module of this course and lectured part of a joint third year Behavioural Ecology course. He supervised two Zoology Honours students, two MSc students, two PhD students and worked with one post-doctoral researcher. He also co-supervised three MSc Conservation Biology students, provided project support to two further MSc CB students, and co-supervised four students registered at other universities. He has continued writing monthly columns on bird behaviour and conservation for major Afrikaans newspapers, participated regularly in nature programmes on both radio and television and gave five presentations to membership-based societies. He reviewed numerous NRF proposals, and reviewed 12 applications for research grants and 15 manuscripts submitted to scientific journals.

Prof. Morné du Plessis *together with* ***Assoc. Prof. Phil Hockey*** *leads the* ***Life-history, Rarity & Conservation of Southern African Birds Research Programme.***

Cooperative Breeding & Sociality in Birds

Programme leader
Prof. Morné du Plessis

Research team
Mark Anderson (Northern Cape Nature Conservation)
Prof. Ben Burger (Chemistry Department, University of Stellenbosch)
Dr Rob Simmons (Namibian Ministry of Environment and Tourism)

Extreme sexual dimorphism in bill length in Green Woodhoopoes is apparently maintained by ecological separation to reduce foraging competition. Photo: Morné du Plessis

Overview
Cooperative breeding is a reproductive system in which more than a pair of individuals shows parent-like behaviour towards young of a single nest or brood. Numerous variations have been identified including helping-at-the-nest by non-breeding offspring that have delayed dispersal and remained with their parents on their natal territory, and various forms of cooperative polygamy or plural breeding in which more than a single male or female share breeding status within the same social unit. Aid generally consists of feeding nestlings or fledglings, but can also include incubation and defence of the nest or territory, and the aid-givers or co-breeders are often related to the focal breeding pair. The evolution of cooperative breeding can usually be broken down into two complementary processes: the decision to stay in the natal unit and the decision to help.

The objectives of this programme are broadly (1) to conduct a broad, phylogenetically-controlled analyses of the ecological and life-history strategies of African birds that might predispose them to cooperative breeding; (2) to uncover the factors underlying the divergent evolutionary pathways that may lead to regular versus opportunistic cooperative breeding; (3) to perform a series of controlled experiments that will investigate the effects of factors identified in (2) on the tendency for birds to breed cooperatively (i.e. among opportunistic cooperative breeders); (4) to test develop and test dispersal models in two widely different cooperative breeding systems, viz. singular and colonial breeding systems; and (5) to experimentally investigate the ecological factors underlying reproductive sharing and the degree of help provided by non-breeders in cooperatively-breeding societies

The Sociable Weaver project at Benfontein Game Farm, Kimberley, remains a highly productive research study after Dr Rita Covas-Monteiro's completion of her

doctoral research there. To this end, Eric Herrmann has been appointed as a research manager at this field site and he continues to maintain the general capture and ringing maintenance of the study. Claire Spottiswoode has continued the detailed work on this species (registered at Cambridge with Prof Nick Davies). Further, at the same site Eric Herrmann has been hard at work catching and ringing a pilot group of Ant-eating Chats in order to allow deeper study into their social behaviour. This species is not only facultatively cooperative in their breeding, but the males display white wing patches in what appear to be energetically expensive display flights. The potential exists for productive future research opportunities of this species.

In collaboration with Prof Ben Burger of Stellenbosch University, we are collecting and analysing the chemical composition of the uropygial gland secretions of Scimitarbills. To this end, we have set up a small number of nest boxes suitable for this species to breed and roost in so as to facilitate their study and capture.

Field work continues on the Green Wood-Hoopoe project. Andy Radford has recently completed his fulltime work and graduated with a PhD from Cambridge University, and a number of manuscripts are currently in press. The study now enters its 23rd year and this large dataset has enabled us to analyse data on the life-time reproductive success of 122 woodhoopoes for which we have full breeding histories (Amanda Hawn's MSc study).

Highlights

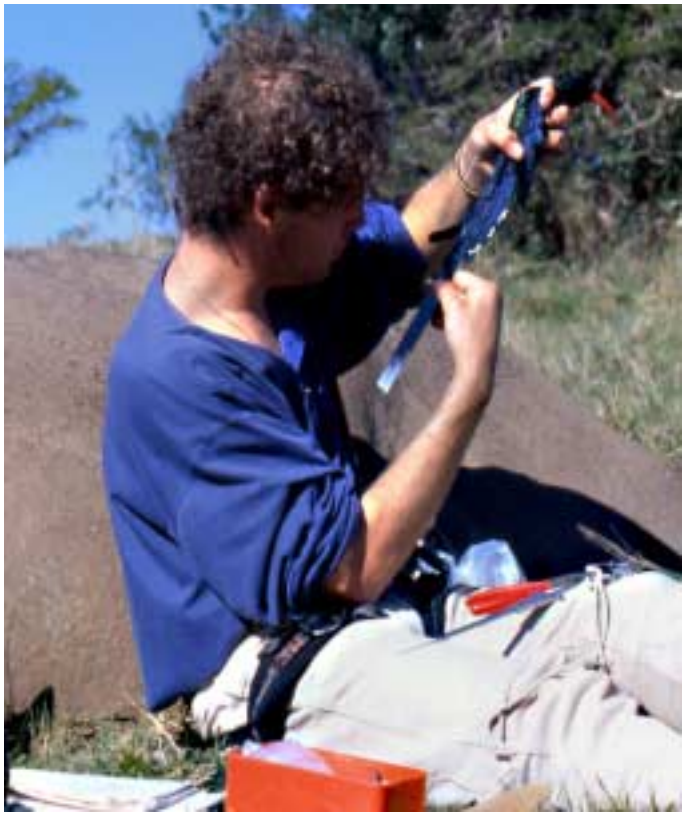
- The publication of a paper concluding that the extreme sexual dimorphism in Green Wood-hoopoe bill length is maintained by ecological separation to reduce foraging competition (Radford & du Plessis 2003).
- The publication of a paper showing that there is strong stabilizing selection on adult Sociable Weaver body mass. This verifies the prediction that body mass is a trade-off between the risks of starvation at low mass and predation at high mass (Covas et al. 2002).
- The publication of a paper that suggests that among Sociable Weavers, adult survival in larger groups may be increased by thermal advantages of a large nest during cold winter weather. The fidelity of weavers to a particular colony-size class between years may reflect phenotypic specialization for certain group sizes (Brown et al 2003).

Students

Andrew Radford (PhD, Cambridge, graduated in June 2003); *Foraging and vocal communication in the sexually dimorphic Red-billed Woodhoopoe*

Claire Spottiswoode (PhD, Cambridge); *Behavioural ecology and tropical life-histories in African birds*

Christian Boix-Hinzen (MSc); *Developing management tools for the Conservation of Hornbills in a developing country*



Collecting data in the field. Photo: Claire Spottiswoode

Amanda Hawn (MSc); *The effect of territory quality on dispersal decisions in a model population of Red-billed Woodhoopoe*

Nimmi Seoraj (MSc, University of Durban-Westville) *Warning vocalisations and predator information transfer in social birds*

Samantha Stoffberg (BSc Hons) worked on the fitness consequences of gender differences in helping behaviour of green wood-hoopoes

Lectures

Prof. du Plessis taught part of a seven-week module to UCT Honours students on 'Birds as models of ecological theory'. He also taught on the 3rd year Behavioural Ecology Field Course at De Hoop, and was responsible for a two-week lecture block on 'Conservation Biology' to 2nd year Zoology students.

Visitors

Prof. Tom Martin (University of Montana, USA), Dr Richard Pettifor (Institute of Zoology, London, UK), Dr Andrew McKechnie (University of Natal, PMB, SA).

Acknowledgements

De Beers Consolidated Mines Limited (particularly Messrs Graham Main and Peter Gibbs), National Research Foundation, European Union, University Research Committee (URC), Sean Cockin, Frank Cockin, Johan Breetzke, Willem Fourie, Trevor Brown, Mike Putzier, Carl Vernon, and Kei Mouth Municipality.

Assoc. Prof. Phil Hockey *is also the leader of the* ***Ecology of Migration Research Programme****.*

Prof. Morné du Plessis *is also the leader of the* ***Cooperative Breeding & Sociality in Birds Research Programme****.*

Dr Peter Ryan *also leads the* ***Seabird Research Programme*** *and the* ***Island Conservation Programme*** *and, together with Prof. Tim Crowe, leads the* ***Systematics & Biogeography Research Programme****.*

Life-history, Rarity & Conservation of Southern African Birds

Programme leaders

Assoc. Prof. Phil Hockey
Prof. Morné du Plessis
Dr Peter Ryan

Research team

Dr Warwick Tarboton (Wakkerstroom Natural Heritage Association)
David Allan (Durban Natural History Museum)
Dr Andrew Jenkins
Dr Penn Lloyd

Overview

Most biological theory is founded upon studies done in the northern hemisphere despite recent evidence strongly suggesting a Gondwanan origin for the majority of birds and the fact that more than 80% of all bird species reside in tropical and south temperate regions. It has also been established that birds inhabiting tropical and southern hemisphere regions have very different life histories (LH), generally laying smaller clutches and having higher survival than their northern counterparts. The implications of this are far-reaching, influencing the way we might assign conservation priority or develop conservation plans for birds in southern Africa.

A number of competing hypotheses have been suggested to account for the north-south differences in life history traits. Research in this programme will (1) consider and compare the relative allocation of effort by southern African birds to reproduction and survival, (2) compare LH traits of southern African birds relative to those of the northern temperate regions, (3) investigate whether different taxa are prone to different mechanisms of extinction, and, (4) assess whether different ecological factors are associated with different mechanisms of threat or extinction.

These comparisons can be used to gain insights into life history evolution in south temperate birds as compared to those living in the north temperate climes as well as an understanding of the mechanisms underlying the persistence of southern African birds. The programme also attempts to exploit unique opportunities offered by environmental gradients within southern Africa to tease apart the various causative factors underpinning regional differences in LH traits.

Ultimately, the programme aims to develop an adequate biological understanding of the life-histories, population dynamics and ecological requirements of rare and threatened African birds to implement effective strategies for their conservation. The following Red Data Book species (Critically Endangered to Vulnerable) have been focal taxa in the past year: African Black Oystercatcher (South Africa and Namibia), Knysna Warbler (Cape Peninsula), Black Harrier (W Cape), Cape Rockjumper (W Cape), Wattled Crane (KZN) and Yellow-breasted Pipit (South African highveld).

Highlights

- Local African Black Oystercatcher populations have increased dramatically in the past 15 years due mainly to improved breeding success attributed at least in part to an invasion by the Mediterranean Mussel *Mytilus galloprovincialis*. In many mainland areas, however, productivity is not sufficient to maintain stable populations. Unexpectedly, there is very little evidence that ailing mainland populations are supplemented by island-bred birds. Rather, the latter wait (sometimes for 10 years) for an opportunity to recruit at an island. Recently constructed population dynamics suggest that this situation will persist even when island populations are at carrying capacity. Thus, whilst the population is under no immediate threat, high natal site fidelity means that ailing populations will

continue to decrease unless local conservation measures are introduced. A doubling in bird density within 10-15 years has been shown in areas where such measures have been taken.

- Preliminary molecular analyses indicate that there is no genetic variation among African Black Oystercatchers across their entire geographical range. This result is so surprising that we will repeat the analyses in a different way. If true, the inference is that at some period in the past, these birds passed through an extreme population bottleneck; identifying the cause will be the next task.
- Knysna Warblers on the Cape Peninsula are "retreating" into strips of riverine green belt, abandoning apparently "natural" riverine forest on higher slopes of Table Mountain. The birds have a diverse diet that includes taxa from several families containing species endemic to Cape Peninsula riverine forests. We suspect that policies to exclude fire from the mountain slopes have resulted in the lateral expansion of forests away from streams. One consequence of this is that forest undergrowth along streams, and subsequently the warblers, disappears, as has happened in Orange Kloof. Range-restricted endemic invertebrates may be experiencing similar impacts: warblers could thus be valuable indicators of a significant impending invertebrate extinction event.
- The Yellow-breasted Pipit, a rare endemic of the montane grassland regions of southern Africa, is highly sensitive to burning and grazing regimes. Our studies show that by reducing the intensity of land-use (lowering grazing pressure and fire frequency) farmers can manage grasslands to favour pipit populations and simultaneously conserve tracts of this poorly protected biome.
- The Cape Rockjumper, one of few fynbos endemics, is sensitive to unseasonal fires. A colour-ringed population in the Hottentot's Holland Mountains disintegrated after a runaway fire in February with few of the previously ringed birds returning to their territories. This may have significant consequences for the social structure of this species.
- David Maphisa conducted the first of two field seasons working on the Critically Endangered Rudd's Lark with the aim of gaining a better understanding of the patchy distribution of the bird within its localised range. David found more nests this season than virtually all previously known nests and will make a more detailed study of the factors resulting in the birds' relatively low breeding success next season.

Students

Doug Loewenthal (PhD); *Population dynamics and conservation of the African Black Oystercatcher* Haematopus moquini

Muchane Muchai (PhD); *The effects of grassland management practices on South African high-altitude grassland birds and their implication for the conservation of Yellow-breasted Pipit*

Dianah Nalwanga (MSc Cons Biol). *Nest-site partitioning in a strandveld bird community and the influence of nest-site selection on nesting success*

Whilst the overall population is under no immediate threat, high natal fidelity means that ailing mainland populations continue to decline where there is insufficient protection. Photo: Andrew Jenkins

Lectures

Prof. Hockey taught the module *'Community Ecology and Bio-indicators'* to the MSc Conservation Biology class. Profs. Hockey and Du Plessis, and Dr Ryan contributed to the teaching of a seven-week module to UCT Honours students on *'Birds as Models of Ecological Theory'*. In addition, many lectures were given to bird clubs, natural history societies and other NGO's throughout the year.

Visitors

Dr Richard Beilfuss, International Crane Foundation, USA; Dr Bob Cheke, University of Greenwich, UK; Dr Ross Coleman, University of Plymouth, UK; Kariuki Ndang'ang'a, National Museums of Kenya; Dr John Hanks, Conservation International Dr Richard Pettifor, Institute of Zoology, London; Kevin McCann, Endangered Wildlife Trust.

Acknowledgements

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Assoc. Prof. Phil Hockey *is a member of the Board of Trustees of the Seychelles Island Foundation. He is also a member of the Bird Taxon Advisory Group to the Pan-African Association of Zoological Gardens, Aquaria and Botanical Gardens, the Editorial Board of the journal Biological Conservation, the BirdLife South Africa Rarities Committee (past Chairman) and the Madagascar Rare Birds Panel.*

Phil co-ordinates the Oystercatcher Conservation Programme, which has proved to be a well-supported and high impact subregional project. He also spearheads an international project on bird migration. He is Editor-in-Chief of the rewrite of Roberts Birds of Southern Africa *and is a co-author of the best-selling* Sasol Birds of Southern Africa, *the third edition of which was published in 2002. In the year under review, he supervised the work of two PhD students, four MSc students and one honours student. He organised and taught a module in Community Ecology to the Fitzitute's Conservation Biology class and helped organise and teach an Ornithology module to the Zoology Honours students. He authored or co-authored five scientific papers, and refereed 14 papers for eight journals.*

Assoc. Prof. Phil Hockey *together with* ***Prof. Morné du Plessis****, also* ***leads Life-history, Conservation & Rarity of Southern African Birds Research Programme.***

Ecology of Migration

Programme leader
Assoc. Prof. Phil Hockey

Research team
Dr Richard Noskie (Northern Territories University, Australia)
Dr David Bishop (Consultant, Sydney, Australia)

Crab Plovers, Frigate Island, Seychelles. Earlier Fitz migration research focussed on the costs and benefits of variable-distance migration by shorebirds; focus has now shifted to the evolution and ecology of landbird migration. Photo: Phil Hockey

During 2001-2002, we directed much effort at understanding ecological correlates of short- to medium-distance migrations among African birds. Migration patterns are, *inter alia*, closely linked with temperature and temperature seasonality, habitat, diet and prey capture mode. These findings are summarised in a book chapter currently in press (Smithsonian Institution Press). This research has clearly indicated that several so-called paradigms, stemming mostly from New World studies, do not apply in Africa. During the past year, we have "stepped back" to revisit the big picture by making inter-flyway comparisons; this has not previously been attempted across all three major flyways (Americas, Africa, Asia). We were interested primarily in how physical geography, patterns of habitat availability, and diet and foraging mode affect dispersion patterns of migrants on their non-breeding grounds.

Locally, we have also continued studies of movement patterns of juvenile African Black Oystercatchers, having found indications of what appears to be a unique, dichotomous movement pattern.

Highlights: inter-flyway comparisons

- Physical geography, especially peninsula bottlenecks and barriers, strongly influences migration patterns. Africa presents the fewest barriers to migration and South-east Asia the most (the sea crossings of Indonesia). This is mirrored in the relative prevalence of leap-frog migration across flyways (whereby those birds breeding the furthest north migrate the furthest south).
- Among land birds, leap-frog migration is most strongly developed in the Palearctic-African system, weakly developed in the New World and absent on the Eastern Palearctic-Asian flyway. A consequence of this is that while a large number of long-distance migrant land birds reach southern Africa, only four reach

equivalent latitudes in Australia.

- On the non-breeding grounds in central and South America, migrants use different habitats in proportion to their availability, and many are nectarivorous. In Africa and Asia, however, migrants strongly avoid forested habitats, and most are insectivorous. Patterns of habitat usage in Africa and Asia are much more similar to one another than either is to the New World, despite that fact that Asia (like the Neptropics) has extensive forests. Indeed, there is some suggestion that the forests of Asia may act as migration barriers in the same way that ocean crossings do. Predictions about migration behaviour based solely on the relative abundance of different habitat types would thus be doomed to failure.
- There is evidence on at least two flyways that habitat occupancy during the non-breeding season influences breeding habitat occupancy, rather than *vice versa*. This provides some support for migration having a tropical origin and a demographic basis (as proposed for the Neotropics).
- Overall, migratory behaviour on the two Old World flyways is remarkably similar, despite differences in geography and habitat; it is the New World flyway that is the "odd man out". This strongly suggests that whatever ecological factors might be maintaining migratory behaviour, these are overlain with a strong evolutionary signal. By tackling a more detailed analysis of African migration patterns (ca 1800 species), and controlling these analyses for phylogeny, we now hope to be able to assess the strength of this "signal from history".

Highlights: African Black Oystercatcher Movements

- Juvenile oystercatchers from the western part of the breeding range either remain within 150 km of their natal site or migrate 1500-2000 km north, to one of five discrete "nursery" areas on the Namib Desert coast of central and northern Namibia and southern Angola. All nurseries lie outside the adults' breeding range. An estimated 36-46% of juveniles are migrants.
- Western birds return from nurseries to their natal sites when they are 2-3 years old, and never migrate again. This strongly suggests the existence of a "migratory gene" which, if expressed, is turned off after 2-3 years and never reactivated. If an analogy to this exists in any other bird anywhere in the world, we have been unable to find it (although, without doubt, it exists).
- By contrast, eastern juveniles undertake "diffusion dispersal" in both westerly and easterly directions, regularly up to 1000 km. These journeys mostly end within the species' breeding range; very few reach nurseries.
- A genetic basis to these movement patterns could explain not only the migratory behaviour of western birds, but also the intermediate behaviour of eastern birds. Western birds account for ca 75% of the total population, and eastward genetic diffusion is thus more likely than western diffusion.
- There is no evidence that movement patterns of western birds are linked to hatching date (we predicted that later-fledging birds might be "forced" to migrate by virtue of local space being preoccupied). However, migrants are significantly heavier than short-distance dispersers, and we suspect that body condition may be the trigger for expression of a migratory gene. Interestingly, in all instances where we have been able to follow the movement patterns of siblings, they have always behaved in the same way – either migrating or dispersing.

Ringing juvenile oystercatchers. Photo: Doug Loewenthal's collection

Students

Jane Hamblin (MSc); *Dispersion patterns of Holarctic-breeding migrant landbirds: global paradigms or regional patterns?* (Degree to be awarded with distinction, Dec 2003)

Kirsten Louw (PhD); *Patterns and ecological correlates of migratory behaviour in African birds*

Douglas Loewenthal (PhD); *Population dynamics and conservation of the African Black Oystercatcher* Haematopus moquini

Acknowledgements

International migration studies are funded through a grant to Phil Hockey from the National Research Foundation. Oystercatcher migration research is funded by the National Research Foundation, Conservation International and Namakwa Sands (through WWF).

Prof. Tim Crowe
*also leads the **Gamebird Research Programme.***

Dr Peter Ryan
*also leads the **Seabird Research Programme** and the **Island Conservation Programme.***

Systematics & Biogeography

Programme leaders
Prof. Tim Crowe
Dr Peter Ryan

Research team
Dr Nigel Barker (Rhodes University)
Dr Keith Barker (University of Minnesota, USA)
Drs George Barrowclough and Jeff Groth (American Museum of Natural History, New York, USA))
Dr Pamela Beresford (Percy FitzPatrick Institute – until December)
Dr Paulette Bloomer (Department of Genetics, University of Pretoria)
Dr Rauri Bowie (Field Museum of Natural History, Chicago, USA)
Dr Gareth Dyke (University College, Dublin, Ireland)
Assoc. Prof. Terry Hedderson (UCT, Department of Botany)
Drs Mari Källersjö and Steve Farris (Swedish Museum of Natural History, Stockholm)
Dr Helen de Klerk (Western Cape Nature Conservation Board)
Dr Shannon Hackett (Field Museum of Natural History)
Prof. Mike Sorenson (Boston University)

A Lesser Doublecollared Sunbird. Rauri Bowie completed his PhD on the taxonomy, phylogenetics and biogeography of sunbirds and graduated in June 2002. Photo: Onno Huyser

Overview
Members of this heterogeneous programme tackle a range of projects aimed at discovering and determining the taxonomic validity of species inferring their phylogenetic (evolutionary genealogical) relationships and identifying and explaining patterns of species distribution and diversity. The research approach in virtually all projects is multi-faceted, using a range of organismal and molecular data and analytical approaches. The programme received several major boosts in the year under review. The most significant development was a much-increased, four-year grant to Tim Crowe from the National Research Foundation initiating in 2003. The programme has overlaps with other research programmes, e.g. the characterisation of inter-colony genetic differences in several seabird species in the seabird research programme.

Postdoctoral student Dr Pamela Beresford has been working together with Dr Keith Barker on the phylogenetic relationships of African endemic passerines of uncertain

affinities. They have been using a suite of conserved nuclear genes to infer the relationships among passerine groups. This research is now being written up, and has turned up some surprising results. It confirms that rockjumpers *Chaetops* are linked to rockfowl *Picathartes* of West Africa, and together are basal to the rest of the 'Old World' passerine radiation. By comparison, the Rockrunner *Achaetops pycnopygius* of Namibia and SW Angola is closely linked to the Grassbird *Sphenoeacus* afer, and forms part of an African warbler clade including crombecs *Sylvietta* and longbills *Macrosphenus*. The Fairy Flycatcher *Stenostira scita* is linked to the Elminias, a group of small African flycatchers formerly placed with the crested flycatchers but that are in fact distantly related to tits at the edge of the Sylvoidea. Nicators are neither bulbuls nor bush-shrikes, but also fall outside the core Sylvoidea. Perhaps the most bizarre finding was that sugarbirds *Promerops* are most closely related to the modulatrixes, a pair of enigmatic forest understorey skulkers confined to the Eastern Arc Mountains of Tanzania, Malawi and northern Mozambique. Whether this entirely unexpected result is supported by further evidence remains to be seen.

Highlights

- Dr Rauri Bowie's PhD dissertation was described by one examiner as worthy of two PhDs. He is presently a postdoctoral student in the Department of Ornithology at the Field Museum of Natural History (Chicago, USA) and will take up a lectureship in the Department of Zoology and Entomology at the University of Stellenbosch in January 2004.
- Ms Mandiwana was appointed as a lecturer in Nature Conservation at Technikon Pretoria. From September 2003, she will be appointed as a researcher in the Department of Ornithology at the Transvaal Museum.
- Ms Nangammbi was appointed as assistant curator (for molluscs) at the Natal Museum (Pietermaritzburg).
- Dr Scott is currently an assistant curator in the Department of Herpetology at the Transvaal Museum.
- Tim Crowe finally published both organismal (with Dr Gareth Dyke) and "total evidence" (with a range of co-authors) phylogenetic analyses of galliform birds.

Students

Rauri Bowie (PhD, graduated June 2003); *Birds, molecules and evolutionary patterns among Africa's islands in the sky*

Tshifhiwa Mandiwana (MSc, graduated June 2003, co-supervisors Drs Rauri Bowie, Pamela Beresford and Terry Hedderson (Department of Botany, UCT) *The systematics of 'red-winged' francolins* Scleroptila spp.

Tshifhiwa Nangammbi (MSc, graduated June 2003, co-supervisors Drs Rauri Bowie, Pamela Beresford and Terry Hedderson (Department of Botany, UCT) *The systematics of 'red-tailed' francolins* Peliperdix spp.

Tyron Grant's work on Neospiza *buntings at Tristan da Cunha suggests that the two species have evolved in parallel at both Inaccessible and Nightingale Islands. Photo: Peter Ryan*

Elizabeth Scott (PhD, University of Western Cape, graduated June 2003, co-supervisor Prof. Alan Channing*); The systematics of frogs of the Subfamily* Petropedetinae

Keith Barnes (PhD, co-supervisor Dr Paulette Bloomer); *The evolution of Africa´s larks* Alaudidae

Callan Cohen (PhD); *The evolution of the bustards: implications for African biogeography, evolution of display and conservation*

Jonathan van Alphen-Stahl (MSc, co-supervisor Dr Paulette Bloomer); *The phylogeography and speciation of Helmeted Guineafowl*

Tyron Grant (MSc, University of Pretoria, co-supervisor Dr Paulette Bloomer); *The genetics of the rapidly evolving* Nesospiza *buntings of Tristan da Cunha.*

Liesl Solms (MSc, University of Pretoria, co-supervisor Dr Paulette Bloomer); *The systematics of African* Bradypterus *warblers and the phylogeography of the* Apalis thoracica *complex*

Visitors

Prof. Diana Lipscomb (George Washington University, Washington D.C., USA) and Dr Mari Källersjö and Steve Farris (Swedish Museum of Natural History) (along with Tim Crowe, Terry Hedderson and Rauri Bowie) helped to teach a Workshop on Advanced Cladistics. The workshop was held in the Department of Botany at UCT in January 2003 and was attended by 42 students/staff from five universities and four museums/ herbaria and other para-statal organizations.

Acknowledgements

The National Research Foundation, South Africa/ Sweden Bilateral Programme and the Willi Hennig Society for financial support. The American Museum of Natural History (New York), Field Museum (Chicago), University College (Dublin), University of Pretoria and Boston University for access to facilities, specimens and logistical support.

Prof. Tim Crowe *is the current president of the Southern African Society for Systematic Biology, an Elected Fellow and member of the council of the Willi Hennig Society of Systematic Biology, a member of the International Ornithological Congress Committee, the editorial board of the journal* Systematic Biology, *the Council of the Iziko Museums of Cape Town (until December) and a research associate at the American Museum of Natural History in New York. He serves on, and is interim chairperson of, the Steering Committee of the South African Bio-systematics Initiative and acts as external examiner for the MSc Programme in Mammalogy at the University of Pretoria.*

Tim co-ordinates the MSc Programme in Conservation Biology and runs the module Characterizing Biodiversity. In the year under review he supervised or co-supervised one honours student, one M.Tech student, two MSc students, three PhD students and one post-doctoral student. He taught modules to two undergraduate classes and three additional MSc classes in the Zoology and Botany Departments. He was author or co-author of six scientific papers. He attended and presented papers at two international meetings or conferences and gave talks to two membership-based societies. He refereed seven scientific papers for four different journals and reviewed two applications for research grants and four assessments for personal scientific evaluation for the National Research Foundation.

Prof. Tim Crowe*, together with* ***Dr Peter Ryan****, also leads the* ***Systematics & Biogeography Research Programme.***

Gamebird Research

Programme leader
Prof. Tim Crowe

Research team
Dr Brian Reilly (Department of Nature Conservation, Pretoria Technikon)

Flock of Helmeted Guineafowl in rehabilitated agricultural land, KwaZulu-Natal. Photo: Tim Crowe

Overview

This programme was initiated in 1990 and aims to identify the key factors that sustain or otherwise affect populations of gamebirds (e.g. guineafowl, francolins, spurfowl, sandgrouse and ducks/geese), develop area-specific management strategies for the species concerned, and to determine the extent to which they can act as indicators of the status of overall avian diversity. Publications produced by programme researchers have tended to focus on ecology, demography, ecotoxicology and parasitology of the species studied. The key practical products of this programme's research have been the development of biologically sustainable and economically viable wingshooting industries and area-specific management strategies for key gamebird species.

In terms of more academic research, key findings have emphasised the importance of maintaining gamebird meta-populations. These are structured populations the components of which (demes) provide immigrants for those that may be declining. For example, demographic and genetic research by Dr Rob Little demonstrated that the meta-populations of Greywing Francolins *Francolinus africanus* in the Eastern Cape are healthy and there is regular movement between demes. On the downside, Charles Ratcliffe (MSc December 2000) and a team of researchers showed that meta-populations of Helmeted Guineafowl in the Midlands of KwaZulu-Natal have collapsed over the last two decades and provided remedial measures that can reverse this demographic disaster.

The new project, the Riemland Gamebird Project, launched in May 2002, is scheduled to finish in October 2003. This project is a joint endeavour with the Pretoria Technikon and involves Dr Brian Reilly as co-leader (with Tim Crowe) and M.Tech. student, Ms Helen Prinsloo. The aims of this project are to identify the key factors that sustain massive populations of Helmeted Guineafowl *Numida meleagris* in the vicinity of Petrus Steyn, a small town in the Riemland Region of the northeastern Free State.

Gallinuloides wyomingensis – oldest fossil gamebird? Collaborative research with Dr Gareth Dyke, University College Dublin, suggests that this fossil is perhaps the most ancient pheasant-like bird (see ***Systematics & Biogeography*** *p. 13). Photo: Tim Crowe*

Key findings

- Riemland guineafowl do not have home ranges in the traditional sense of the word. Rather than use the landscape relatively uniformly, they frequent focal areas that provide critical resources (roosts, food, cover and water) and merely pass through intervening areas.
- Shooting pressure seems to have no negative effects on annual reproduction.
- The sex ratio of adult (but not first-year) birds favours males by 2 to 1, presumably due to higher mortality of females.
- Reproduction during the 2002-2003 season was less than half of that for the previous season, probably because of the relatively poor and late rains.
- Agricultural products make up nearly 40% of the diet of during winter months.

Students

M.Tech. student Helen Prinsloo was the only student working within this programme.

The Riemland Gamebird Project is a joint endeavour between the Percy FitzPatrick Institute and the Pretoria Technikon. Photo: Tim Crowe.

Lectures

Tim Crowe gave two talks to various gamebird hunting organizations outlining past and current research results. These was also a report-back to investors in the Riemland Gamebird Project during June and prospects for further financial support for new projects appear good.

Acknowledgements

In addition to funding to Tim Crowe from the National Research Foundation, The Honourable Charles Harris, Mr Peter Wales and a range of wingshooters provided the balance of funds necessary to launch the Riemland Gamebird Project. Tim would like to thank the host of colleagues (in particular Dr Rob Little), students, wingshooters (in particular Messrs Roger Johnson and Peter Wales) and farmers for making this Programme possible and the Pretoria Technikon for input to keep it going.

Dr Peter Ryan *is on the Editorial Board of* Ostrich *and is a member of the IMAF Working Group of CCAMLR, the IUCN World Commission on Protected Areas and BirdLife South Africa's Rarities Committee. He is Secretary of the Gough Island Wildlife Reserve Advisory Committee as well as a Tristan da Cunha Conservation Officer.*

Peter continues to act as academic co-ordinator of the Conservation Biology MSc course and teaches three modules on this course. He contributed to the ornithology module of the Zoology Honours course, supervised one honours project, led the ornithology section of the Zoology third year field camp and teaches on the Applied Marine Science MSc programme. During the review period he supervised three CB MSc projects and one PhD and two MSc students. He authored or co-authored 14 scientific papers, completed work on the field guide to the Birds of Africa, *wrote species accounts for the African larks for the* Handbook of the Birds of the World *and continued to work on the revision of* Roberts Birds of Southern Africa. *He gave several talks to bird clubs and other special interest groups. In addition to his editorial role for* Ostrich, *Peter reviewed seven manuscripts submitted to four scientific journals.*

Dr Peter Ryan *also leads a programme on* ***Island Conservation*** *and, together with* ***Prof. Tim Crowe****, leads the* ***Systematics & Biogeography Research Programme****.*

Seabird Research

Programme leader
Dr Peter Ryan

Research team
Dr Rob Crawford (Marine and Coastal Management)
Dr John Croxall (British Antarctic Survey, Cambridge, UK)
John Cooper (Avian Demography Unit, UCT)
Dr David Grémillet (CNRS, Strasbourg, France)
Dr Geoff Hilton (Royal Society for the Protection of Birds, UK)
Dr Deon Nel (BirdLife International Seabird Conservation Programme)
Dr Colleen O'Ryan (Molecular and Cell Biology Department, UCT)
Dr Yan Ropert-Coudert (National Institute of Polar Research, Japan)
Prof. Les Underhill (Avian Demography Unit, UCT)
Barry Watkins (Marine and Coastal Management)

Overview

The project to assess and mitigate the impacts of longline fishing continues, with ongoing monitoring of longline by-catch and of demographic performance of breeding populations of affected species at Marion and Gough Islands. We also continue to support education and outreach programmes directed at fishers and the longline industry. Although this work is primarily conducted by BirdLife, we provide lectures and other educational material. Hopefully this initiative will see the significant decreases in seabird by-catch rates in several South African fisheries maintained, and continue in the future. The current year also saw the release of South Africa's draft National Plan of Action to reduce the incidental mortality of seabirds on longlines, as called for by the UN's Food and Agriculture Organisation. The draft was written by John Cooper and Peter Ryan, under contract to Marine and Coastal Management, and was released for comment in Nov 2002. A successful workshop was held in January 2003 to bring together fishers and industry personnel to discuss the implications of the NPOA.

A useful development during the past year has been the identification of the origin of Shy Albatrosses *Thalassarche cauta* in southern African waters using genetic tools through a collaboration with Cath Abbott and Mike Double at the Australian National University in Canberra. This confirmed that by far the majority of birds in South African waters are the New Zealand *T. [c.] steadi*, and not the Tasmanian *T. [c.] cauta*. MSc student Mareila Techow also has made good progress with identifying microsatellite primers to categorise White-chinned Petrels to breeding islands, demonstrating marked differences among populations from South Georgia, the Prince Edwards and New Zealand. She will now be typing birds killed on longlines to ascertain their region of origin.

Good news for the coming year is that Namibia is finally addressing its international commitments to assess and mitigate longline impacts on seabirds. This is being spear-headed by Benedict Dundee, the seabird biologist for Namibia's Department of Fisheries. Benedict is currently completing his MSc in Applied Marine Science at UCT and will be conducting his research project as part of the Cape Gannet foraging ecology programme (see below).

We continue to monitor the long-term performance of longline-affected seabird populations at the Prince Edward Islands and Gough Island. The inaugural issue of the African Journal of Marine Science (formerly South African Journal of Marine Science), due out in late 2003, has a special section devoted to papers summarising the results of much of the monitoring work conducted at Marion and Prince Edward Islands in the last two decades. Other data-sets continue to be written up, with Samantha Petersen (a former field worker on Marion Island) analysing the results

The GPS logger attached to the back of this penguin will provide valuable information on its foraging activity. Photo: Peter Ryan.

from the study colonies of giant petrels.

Papers on seabird conservation and status arising from post-doctoral fellow Richard Cuthbert's year on Gough Island are now starting to appear in the literature. Many of his findings suggest that populations at Gough Island are under considerable threat, prompting the Royal Society for the Protection of Birds to invest in a three-year research programme on the conservation of Gough's seabirds. Ross Wanless and Andrea Angel, both past MSc graduates from the Fitztitute, head off to Gough Island for a year in September 2003 to assess the direct impacts of introduced mice on the breeding success of key species of conservation concern, and to determine the possible role of disease in depressing the breeding performance of seabirds on the island. During this project we shall also deploy GLS loggers on all three albatross species breeding on Gough Island to track their movements over a 1-2 year period, including the critical non-breeding ranges.

In terms of more academic research, the work on the foraging ecology of Cape Gannets initiated by David Grémillet in 2001/02 gathered momentum in 2002/03. David returned with GPS-logger fundi Giacomo Dell'omo and obtained more than 100 foraging tracks for gannets from Malgas Island and Lambert's Bay. These confirmed the very limited spatial overlap between birds from these colonies, and laid the foundation for an even more ambitious field season in 2003/04.

David also arranged for prototype GPS loggers for penguins, developed by Dr Gerrit Peters in Germany, to be made available for initial testing on African Penguins. Samantha Petersen, assisted by recently-graduated CB student Marta de Ponte, obtained foraging tracks for 35 penguins from Boulders, Robben and Dassen Island.

Highlights

- First use of GPS loggers to measure foraging activity in any penguin.
- A special issue of African Journal of Marine Science summarising seabird research at the Prince Edward Islands.
- Release of the National Plan of Action to reduce longline fishing impacts on seabirds.

Students

Michael Mills (MSc Conservation Biology); *Pair-bond disruptions and demographic bias associated with long-line fishing mortality: an individual-based model for assessing consequences for Wandering Albatross populations*

Samantha Petersen (UCT Zoology Honours); *Comparative foraging ecology of African Penguins from three colonies inferred using GPS data loggers*; and *Demography and fidelity among giant petrels* Macronectes giganteus *and* M. halli *at Marion Island*

Mareile Techow (MSc, co-supervisor Dr Colleen O'Ryan, Molecular and Cell Biology, UCT); *Using molecular tools to identify population-specific markers for White-chinned Petrels*

Lectures

An overview of longline fishing impacts off South Africa was presented at the IOC in Beijing, in August 2002. Results of the gannet foraging study were presented by David Grémillet at conferences on remote sensing in Tokyo, Japan in November 2002 and the International Symposium on Bio-Logging Science, in Tokyo in March 2003.

Visitors

Drs David Gremillet and Giacomo Dell'omo visited Cape Town in Dec-Jan 2002/03 to continue to study the fine-scale foraging behaviour of Cape Gannets using the latest in miniaturised data-loggers. Dr Geoff Hilton visited Cape Town in May 2003 to plan the three-year study on seabirds at Gough Island.

Acknowledgements

Seabird research in the Southern Ocean is supported logistically by the Directorate: Antarctica and Islands, Department of Environmental Affairs and Tourism. The NPOA was written with the support of a grant to John Cooper from Marine and Coastal Management. Ongoing seabird monitoring at Marion Island is supported by grants to Dr Rob Crawford from the Department of Environmental Affairs and Tourism. Bird research on Gough Island is funded by the Royal Society for the Protection of Birds, together with a grant by the British Ecological Society to Richard Cuthbert. Studies on the foraging ecology of Cape Gannets were initiated as part of a collaborative NRF-French programme but are now supported by the CNRS and a grant from the British Ecological Society to Sue Lewis. Colleagues both at the university and in the field are thanked for their assistance, especially Erica Sommer for struggling so hard to obtain blood samples from White-chinned Petrels at the Antipodes Islands. This programme is a truly collaborative effort.

Dr Andrew Jenkins *supervised three honours projects, one CB MSc and one MSc student during the period under review. He authored or co-authored one scientific paper and three semi-popular articles, wrote the species accounts for the Falconidae in* Roberts VII, *and reviewed five manuscripts submitted to four different scientific journals.*

Raptor Research Programme

Programme leader
Dr Andrew Jenkins

Research team
Dr Rob Simmons (Fitz research associate)
Odette Curtis (Fitz research assistant/student)
Anthony van Zyl (ex-Fitz PhD student)
Koos de Goede (Raptor Conservation Group, Endangered Wildlife Trust)
Dr Bettine Jansen van Vuuren (Department of Zoology, University of Stellenbosch)
Assoc. Prof. Phil Hockey

A Peregrine Falcon in flight. Photo: Andrew Jenkins

Overview
The Western Cape Raptor Research Programme (WCRRP) serves as the administrative umbrella for an increasing number of research projects, focusing on the biology and ecology of raptors in the Western Cape, with emphasis on parallels, overlaps and synergies between the welfare of the region's birds of prey and broader, ecosystem-based conservation priorities.

After a third year of fieldwork on the Black Harrier Project, a preliminary paper on the distribution and status of this species in the Fynbos Biome is now in press, which proposes that the harrier may have lost over 50% of its former range in the Cape Lowlands to habitat transformation. This work forms the foundation for an expanded research effort on the Black Harrier, examining its utility as both a legitimate indicator of the ecological integrity of lowland habitat fragments, and as a flagship species for Fynbos conservation. The project is now part of the C.A.P.E. initiative and receives funding from the Critical Ecosystem Partnership Fund.

The Eskom Electric Eagle Project has made good progress in meeting its two basic objectives – namely (i) to reduce the incidence of costly electricity line faults on Eskom transmission lines in the Karoo caused by Martial and other large eagles nesting in pylon structures, and (ii) to determine habitat and land management correlates of the distribution and success of large eagles breeding in the Karoo. Aerial and ground surveys of 1400 km of pylon lines in the central and southwestern Karoo have mapped and monitored the performance of over 80 pairs of eagles at nests on pylon structures. An analysis of the relationship between line fault and eagle nest distributions suggests that large eagles account for 5-10 line faults within the study area annually, or about 32% of the total incidence. A small number of offending nests have been removed and reconstituted on platforms positioned below the line

conductors, where they are unlikely to cause problems. One of these platforms has already been used by a pair of Martial Eagles, confirming this as a tenable management and mitigation option. An initial study of nest distributions suggests that large eagles in the Karoo are insensitive to many micro- and macro-scale measures of habitat quality, but may somehow benefit from the influences of game farming.

Low-key, long-term demographic studies of raptor populations – Peregrines, Rock Kestrels, Black Sparrowhawks - on the Cape Peninsula have continued, with an emphasis on colour-ringing adults and young in each population, and monitoring the occupancy of territories and the performance of individuals in relation to habitat quality. As by-products of these projects, a study of genetic structure in southern African Peregrine populations is underway, in collaboration with Bettine Jansen van Vuuren at Stellenbosch University, and a study combining the results of some recent genetics work with a comprehensive set of morphometric and plumage data has shown that southern Africa's Rock Kestrel *Falco tinnunculus rupicolus* is almost certainly a distinct, regionally endemic species and not a subspecies of the Common Kestrel F. t*innunculus*.

Two entirely new projects were started during the review period. The first looks at Barn Owls as bio-control agents of rodents in cereal croplands, and is based on farms in local wheat-growing areas where some landowners are using custom-built nest boxes to attract owls onto their properties. Evidently, the owls curb the populations and activities of gerbils and other rodent pests. The study will examine exactly how, and how efficiently, the owls control rodent outbreaks, and limit crop losses and the need for farmers to resort to expensive and environmentally harmful rodenticides. A second new study – the Goudini Fish Eagle Project - investigates pesticide contamination in raptor populations along the upper and central reaches of the Breede River, as a measure of the extent to which environments in this heavily cultivated valley are permeated and compromised by agrochemicals. The study focuses on the Fish Eagle and Black Sparrowhawk populations in the valley, as representatives of piscivorous and bird-eating consumers respectively.

Highlights

- Integration of the Black Harrier Project into C.A.P.E., and securing three years of funding for the project from the CEPF.
- Location and monitoring of over 80 large eagle nests on Eskom transmission lines in the Karoo.
- Use of morphometric and plumage data to confirm the Rock Kestrel as a distinct species – *Falco rupicolus*?

Students

Odette Curtis (MSc); *Land transformation and the conservation status of the Black Harrier: does habitat fragmentation influence the distribution and performance of breeding pairs?*

Leigh Potter (MSc Conservation Biology); *Birds as both academic and agricultural tools: investigating the Barn Owl as a model of life history theory and an agent of bio-control*

Adam Welz (BSc Hons); *Raptors as indicators of agrochemical contamination of the Breede River Basin, South Africa*

Kath Potgieter (BSc Hons); *Small mammal abundance and diversity in pristine, modified and transformed habitats in the Fynbos Biome, South Africa: implications for floral conservation?*

Electric Eagles – finding solutions to the problem of eagles on pylons. Photo: Andrew Jenkins

Lectures

Members of the WCRRP team gave at least 10 talks to membership-based societies during the review period.

Acknowledgements

The Cape Bird Club has provided generous financial support for the WCRRP over the last three years. The Black Harrier Project is funded by the CEPF, the Electric Eagle Project is conducted on contract to Eskom TSI Division, the Goudini Fish Eagle Project is funded by Goudini Wine Cellar, and raptor research on the Cape Peninsula is sponsored by Peregrine Properties and Mvelaphanda Properties. We would like to thanks Chris van Rooyen (of the Eskom/EWT Strategic Partnership) for facilitating the Electric Eagle Project so effectively, Nico Dippenaar of Goudini Wine Cellar for his support of our work on the Breede River, and Ann Koeslag and Geoff Seekings of the Cape Bird Club for their help with monitoring sparrowhawk nests on the Cape Peninsula.

Dr Peter Ryan *also leads the* ***Seabird Research Programme*** *and, together with* ***Prof. Tim Crowe****, the* ***Systematics & Biogeography Research Programme.***

Island Conservation

Programme leader
Dr Peter Ryan

Research team
Prof. Steven Chown (Department of Zoology, University of Stellenbosch)
John Cooper (Avian Demography Unit)
Dr Rob Crawford (Marine and Coastal Management)
Dr Geoff Hilton (Royal Society for the Protection of Birds, UK)
Dr Deon Nel (BirdLife International (based in South Africa))

Niek Gremmen treating the invasion of Sagina procumbens *on Gough Island. This highly invasive weed was probably introduced to Gough on equipment used previously at Marion Island during the 1990s. Photo: Peter Ryan.*

Overview

This programme dovetails with the Seabird Research Programme, but covers the broader issues of island conservation, including the control of alien organisms and conservation of land birds on islands. Oceanic islands – those that have never been connected to a continental landmass - are among the most sensitive of terrestrial ecosystems. They have a large number of endemic species, many of which lack appropriate defences against introduced predators. Surrounding, large stretches of open sea prevent many elements typical of continental biota from colonising oceanic islands. Invasion of these environments by man and his commensals has had catastrophic results. Even where species persist, they are often at greatly reduced population sizes, and are thus prone to extinction from chance events such as environmental variability and catastrophes (e.g. cyclones).

Despite the sad history of human associations with islands – more than 90% of avian extinctions since 1600 have been of island forms – some relatively untouched islands remain. These are exciting laboratories for research in ecology and evolution, and are worthy targets for conservation action. Most new developments during the year under review have been at the Tristan Islands, where funding has been obtained for several initiatives. The most exciting of these is a three-year project to conduct biodiversity audits and promote local capacity to implement the requirements of the Convention on Biological Diversity. Dr Alison Rothwell has been appointed to lead this project, and leaves for Tristan in September 2003.

Other projects that have been funded include the revision of the Gough Island

Nature Reserve management plan and a programme to remove the invasive New Zealand flax *Phormium tenax* from Inaccessible Island (although the latter project has had to be postponed from 2003 to 2004 due to lack of space on the SA Agulhas in 2003). The project to assess the impacts of climate change on Lesser Sheathbills at Marion Island planned for 2004 has been postponed to 2005, in part due to the lack of suitable students. The funds are ear-marked for historically disadvantaged South Africans.

Highlights

- Inaccessible Island nominated for World Heritage Site status.
- Darwin Award obtained to conduct biodiversity audits and promote local conservation capacity at Tristan da Cunha.
- Foreign and Commonwealth Office grants obtained to revise the management plan for the Gough Island Nature Reserve and to remove introduced flax from Inaccessible Island.

Lectures

Peter Ryan gave a talk, co-authored with James Glass, on conservation management at Tristan da Cunha at a conference on conservation in UK Overseas Territories and other small island communities in Bermuda, March 2003. He regularly gives popular talks on island conservation.

Yellownosed Albatross. Photo: Peter Ryan

Visitors

Bill Dickson, Tristan's Administrator, was in Cape Town for three weeks in May-June 2003. During this time he visited the Fitztitute and was advised on numerous matters of conservation concern at Tristan and Gough islands.

Flax Phormium tenax *on Inaccessible Island. A clearance programme for this invasive plant has been identified as a priority in the island's management plan. Photo: Peter Ryan*

Acknowledgements

I thank the Darwin Initiative and UK Foreign and Commonwealth Office for their support of conservation work at Tristan da Cunha. Monitoring and research activities at the Prince Edward Islands were supported by the Department of Environmental Affairs and Tourism, through grants to Dr Rob Crawford. Funds for work on the impacts of climate change on Lesser Sheathbills at Marion Island have been obtained from USAID through a collaborative project headed by Prof. Steven Chown.

I am grateful to the numerous people who together help conserve our fragile islands. The ongoing support of the Tristan community is especially important.

Dr Richard Dean *served as the Scientific Editor of Ostrich during 2001-2003 and as Editor and major contributing author of the Roberts VII Project.*

During the review period he co-supervised one PhD student and one MSc student. He authored or co-authored four scientific publications and attended two scientific meetings. He also wrote many semi-popular articles in Karoo newspapers and hosted numerous talks and outings with Karoo residents and landowners to raise awareness of local environmental issues. He reviewed five scientific papers submitted to two different international journals. Dr Dean also spent three months at the British Museum at Tring, Herts, UK, extracting details of southern African bird specimens from the collection.

Land-use & Biodiversity

Programme leaders

Dr Richard Dean
Prof Sue Milton (Conservation Ecology Department, University of Stellenbosch)

Research Team

Dr Nicki Allsopp (Agricultural Research Council, W Cape)
Mark Anderson (Northern Cape Nature Conservation Services, Kimberley)
Dr J. Aronson (CNRS, Montpellier, France)
Dr Charles Boucher (Botany Department, University of Stellenbosch)
Dr John Donaldson (National Botanical Institute, Kirstenbosch, Cape Town)
Dr Karen Esler (Botany Department, University of Stellenbosch)
Dr Florian Jeltsch (Department of Ecology, University of Potsdam, Germany)
Dr Richard Knight (Botany Department, University of the Western Cape)
Annalise le Roux (Western Cape Nature Conservation Board)
Dr Melodie McGeoch (Conservation Ecology Department, University of Stellenbosch)
Dr Guy Midgley (National Botanical Institute)
Dr Peter Ryan (Percy FitzPatrick Institute, University of Cape Town)
Dr Michael Schwartz (University of California at Davis, California, USA)
Dr Jane Turpie (Percy FitzPatrick Institute, University of Cape Town)
N Visser (Western Cape Department of Agriculture)
Dr Thorsten Wiegand (Department of Ecological Modelling, UFZ, Leipzig, Germany)
Prof. Christian Wissel (Department of Ecological Modelling, UFZ, Leipzig, Germany)

At present, two related ecological research initiatives fall loosely within this programme:

Functions, value, management and rehabilitation of biodiversity capital in the Northern and Western Cape Provinces

Overview

Cape biodiversity is rapidly being diminished by land transformation, alien plant invasion and climate change. Ecologists often find it difficult to argue that biodiversity should be conserved and rehabilitated to a near natural state following damage, largely because of the meagre scientific evidence to support the notion that diverse plant and animal communities are more valuable to South Africa than impoverished ones. A second difficulty is the need to advise on management to retain or restore biodiversity in species-rich natural habitats or habitat fragments.

The Western and Northern Cape Provinces house the species-rich endemic floras of the Cape Floral kingdom, namely the Fynbos, Renosterveld and Succulent Karoo. The amphibian, reptile and invertebrate faunas of these regions also include many endemic genera and species. Little is known of the functional significance of Cape biodiversity in terms of maintaining soil fertility, stabilising biomass production under fluctuating weather conditions, or providing resistance to invasions of alien weeds. Recent research elsewhere indicates that diverse rangelands are more productive and more resistant to weed invasion than species-poor communities. The services that untransformed landscapes offer to rural and urban people include water and air purification, flood control, pollination, recreation, utility products (wood, flowers, medicines) and a reserve of genetic material for future development.

The climate of these areas ranges from Mediterranean to arid, and climate change predictions indicate further aridification within the next 50 years. The lowland areas are arable, and large areas of natural vegetation have been transformed for dryland agriculture. Recent development of irrigation infrastructure, of new agricultural markets for grain, oil, wine and vegetables, and of open-cast mining enterprises may

PhD student Colleen Seymour is working on the role of Acacia erioloba *in preserving biodiversity in the Kalahari. Photo: Onno Huyser*

threaten remaining fragments of natural lowland vegetation in the southwestern parts of the Western Cape. Arid savanna and Karoid areas within these provinces, that have no access to irrigation, are threatened by management designed to increase stocking densities for domestic livestock, and by an urban market for firewood from indigenous hardwood Acacias.

In general, this project aims to quantify rates and biodiversity costs of natural habitat transformation, understand the functions and value of biodiversity in the region, and provide guidelines for sustaining and restoring biodiversity in utilized and conserved rural and peri-urban Cape landscapes. Ultimately, the key outcomes of the project will be the development of (i) a theoretical framework for incentives and policy for biodiversity restoration based on an understanding of the influence of vegetation diversity on secondary production, faunal diversity and resistance to alien plant invasions, and (ii) recommendations for conservation management and rehabilitation of selected Cape vegetation types (particularly Renosterveld, Strandveld and Succulent Karoo) based on theoretical modelling, observation and experimentation.

Karoo ecosystem responses to land-use: changes in biodiversity, plant demography and soil processes

Overview

The key objectives of this project are (i) to investigate the effects of land-use in the Karoo on the distribution of nutrients, water and energy in rangelands, plant population processes invertebrate assemblages and invasive alien plant distribution and abundance, (ii) to model the probability, direction and rate of change in Karoo ecosystems following resource use or rehabilitation management, (iii) to build capacity in sustainable resource use through field training of postgraduate students, and (iv) to enhance public awareness of the role of ecological research in facilitating sustainable use of Karoo ecosystems.

Highlights

- Nearly 7000 km of roadside surveys of alien plants in the Karoo and Karoo-Kalahari, and Karoo-Fynbos ecotones indicate that the Australian saltbushes dominate disturbed vegetation on saline soils.
- A new model of plant growth and longevity based on two measurements of plant size makes it possible to estimate the age and growth rate of poorly known plant species.
- A project on the impacts on the avifauna of the replacement of native trees by non-indigenous trees has been completed.
- School pupils from a formerly disadvantaged rural community have been involved in SET-awareness activities including excursions to nature reserves where aspects of the science syllabus are demonstrated in the field.

Students

Colleen Seymour (PhD, co-supervised by Dr Jeremy Midgely); *The role of Acacia erioloba in preserving biodiversity in the Kalahari, Southern Africa*

Thidi Tshiguvho (MSc, University of Stellenbosch, co-supervised with Dr Isla Grundy); *The role of the sacred tradition in species and land conservation: The case of the Vhavenda of Northern Province, South Africa*

Visitors

Dr Scott Turner, Department of Environmental and Forest Biology, SUNY College of Environmental Science & Forestry, Syracuse, New York 13210 USA, together with colleagues and 15 students, spent 3 days at Prince Albert in December-January on a desert ecology course, taught jointly by Dr Turner, Prof Milton and Dr Dean.

Dr Thomas Leuteritz, from Conservation International in Washington DC, USA, and currently doing a post-doctoral project through the University of the Western Cape, is carrying out a study of movements of radio-tracked Tent Tortoises at the Tierberg study site. He has been a regular visitor to the site from July 2002 to June 2003.

Corinna Riginos, a Fulbright funded student from Brown University, Rhode Island, USA, and affiliated to the Department of Conservation Ecology at Stellenbosch University, carried out a study on the recruitment of plants on the Tierberg study site during 2002.

Acknowledgements

Work on woodland structure in Kalahari arid savanna was partly funded by the Deutsche Ministerium für Bildung und Wissenschaft (BMBF) (BIOTA - southern Africa project). Sponsors for the Karoo project are: National Research Foundation, Stellenbosch University, Potchefstroom University, National Department of Agriculture, Jan Kitshoff and the BMDF.

Dr Jane Turpie
is on the editorial board of the African Journal of Marine Science, is a member of the Working for Water Programme's Resource and Development Economics Research Review Panel, and sits on the steering committee of three Water Research Commission projects concerning estuarine ecology, management and economic evaluation. Jane's research and consulting interests incorporate resource economics, conservation planning and estuarine ecology. She teaches the month-long Conservation Biology MSc module in Environmental and Resource Economics, teaches applied ecology at second-year level, and is external examiner for the third year Resource Economics course in UCT's School of Economics. During the review period Jane supervised one Conservation Biology minithesis and one MSc by dissertation in environmental economics.

Environmental & Resource Economics and Water Resources & Estuarine Conservation

Project leader
Dr Jane Turpie

Research team
Dr Beatrice Conradie (School of Economics, University of Cape Town)
Anthony Leiman (School of Economics, University of Cape Town)
Dr Barry Clark (University of Cape Town)
Dr Janine Adams (University of Port Elizabeth)
Dr Tris Wooldridge (University of Port Elizabeth)

Environmental & Resource Economics

Overview

This programme concentrates on research which aids policy and decision making relating to the conservation of biodiversity. Projects initiated, ongoing or completed during the review period included a study of the use and value of natural resources around Lake Liambezi, Caprivi, an assessment of the economic impact of changed flows of the Thukela river on inshore marine resources, and the Conservation Farming project - a study of the economic implications of conversion to more biodiversity-friendly farming methods in four areas of South Africa.

One of the problems investigated was whether ecotourism can protect the unique flora of the Bokkeveld Plateau. Photo: Jane Turpie

Highlights

- In Namibia, rural households living in the vicinity of the Lake Liambezi - Chobe River system, Caprivi, are highly dependent on natural resources. Households were shown to be adaptive to the relative availability of different types of resources in terms of the materials used and the marketing of resources.
- Prawn and linefish fisheries will be impacted by reductions in freshwater flows from the Thukela River. However, while linefisheries stand to lose out considerably under a maximal development scenario, the value of the prawn fishery is not expected to be significantly impacted, partly for biological reasons, and also due to the availability of offshore fishing areas (different species).
- Four ecological-economic modelling workshops were held to model the impacts

of different farming methods in the sourveld grasslands of KwaZulu-Natal, the valley thicket of the Eastern Cape, the Nama Karoo and the Bokkeveld Plateau around Nieuwoudtville in the Northern Cape. The week-long workshops were attended by a wide range of ecologists and resource economists that had been working in these areas.

- We found that the notion of "conservation farming" differs considerably from area to area, depending on the ecosystem characteristics and types of threats to biodiversity. This also meant that different analytical approaches were required for different areas.
- In some areas, such as Eastern Cape Thicket, conservation friendly farming is also more lucrative, and the conversion to conservation farming is self-perpetuating. In other areas, such as in KZN grasslands, conversion to other land uses is far more lucrative, and only tight regulation will prevent unacceptably high losses of biodiversity. Protected areas are optimal in areas where endemism is extremely localised, such as on the Bokkeveld Plateau. In areas where the ecological implications of alternative farming methods cannot easily be discerned (e.g. the Nama Karoo), economic analysis is more difficult. This research is still ongoing.

Students

Hilary Anderson (MSc, co-supervised by Theunis de Wet and Paul Fatti, University of Pretoria, graduated June 2003); *An econometric analysis of the wildlife market in South Africa*

Ruth Parker (MSc, co-supervised by Mark Botha, Botanical Society of South Africa); *Incentives for conservation of Renosterveld on private farmland*

Water Resources and Estuarine Conservation

A strategy was developed for conserving South Africa's estuaries. Photo: Barry Clark

Overview

This programme aims to improve decision making regarding the allocation of water resources and the management and conservation of estuarine and other aquatic habitats. Research projects initiated, ongoing or completed during the review period included the development of a strategy for the conservation of estuarine biodiversity, and a set of research projects designed to improve our understanding of estuarine biodiversity with a view to improving existing importance rankings.

David Knox had apparently sieved one too many samples of sticky mud in the Keiskamma estuary. Photo: Barry Clark

Highlights

- A report of a complete count of the birds of the former Transkei Coast (counted Feb 2002) was compiled.
- Existing data on invertebrates and birds of Cape estuaries were collated in a database.
- A comprehensive study of intertidal invertebrate fauna was carried out on 16 warm temperate estuaries.
- A review of current estuarine protection mechanisms and on-the-ground effort, as well as a review of the present health of South African estuaries suggested that our estuaries are not well protected but have been fairly resilient to past disturbances.
- An analysis of threats to South African estuaries highlighted the proximate and ultimate causes of estuarine biodiversity loss, and suggests that threats are increasing to unprecedented levels.
- In light of the above, a strategy was developed for estuarine biodiversity protection, the main components of which include research and knowledge management, regulation and enforcement, the creation of conditions and incentives that support estuary protection, monitoring and adaptive management and rehabilitation.

Students

David Knox (MSc, graduated June 2003, co-supervised by Barry Clark); *Assessing the conservation importance of estuarine intertidal invertebrate communities: a pilot study of warm temperate estuaries in South Africa.*

Research Associates

Dr Andrew Jenkins
*See **Raptor Research Programme** p. 19*

Bird ringing at Koeberg. Photo: Rita Covas

Dr Penn Lloyd
Penn continues to work in a post-doctoral position with Thomas Martin at the University of Montana, with two research foci. The first involves using a large database on bird nesting success from a network of sites across the United States to investigate the effects of forest fragmentation on nest predation, brood parasitism by the Brown-headed Cowbird, and population growth potential of forest-nesting passerines. Secondly, he coordinates the annual field-research effort at Koeberg Nature Reserve for a collaborative project between the University of Montana and the Percy FitzPatrick Institute. Now in its fourth year, this project, as one of a network of replicate sites around the world, investigates the environmental factors responsible for geographical variation in avian life-history traits. This field research involves intensive annual monitoring of around 1,500 nests and the reproductive effort and survival of over 1,000 colour-ringed individuals of 20 species. Individual components investigate the influence of annual adult survival probability, food availability and nest predation risk on reproductive effort, a potential trade-off between neonatal growth rate and investment in immunocompetence, the incidence of extra-pair paternity in relation to male reproductive investment and the degree of relatedness among neighbours, background matching in nestling appearance, and the nature of co-operative breeding in Karoo Robin, Cape Penduline Tit and White-backed Mousebird. During the 2002 field season, Dianah Nalwanga (MSc Conservation Biology) completed her mini-thesis on nest-site partitioning in the scrub-nesting bird community at Koeberg Nature Reserve, and the nest-site characteristics associated with successful nesting in the Karoo Prinia.

Dr Antoni Milewski
Antoni continued his half-yearly association with the Fitztitute while based in Perth in Western Australia. During his time in South Africa, he presented a seminar on *'The Ostrich and the Emu: Chalk and Cheese?'* at the Fitztitute in September 2002 and for

the Cederberg Conservation Group at Kirstenbosch in October 2002. He also facilitated several postgraduate discussion groups at the Institute during the review period, including a fundamental reassessment of evolutionary theory.

Rob Simmons with a Black Harrier Circus maurus. *Only 500 breeding pairs remain making this the second most endangered harrier species in the world. Photo: Andrew Jenkins*

Dr Rob Simmons

Rob is a forty-three year old British-born, ecologist, conservation biologist and ornithologist, specialising in population ecology, behavioural ecology and life history theory. He has enjoyed a varied research background in the UK, Canada, Sweden and Africa, with interests in evolution of mating systems, sibling aggression, reproductive constraints, latitudinal effects on breeding output and conservation of endemic and wetland birds in Namibia. He is currently employed as an ornithologist in Namibia's National Biodiversity Programme. His academic research interests have focused on the ecology and evolution of raptorial birds culminating in recently published a book in the Oxford Ornithology series *'Harriers of the World: their behaviour and ecology'*. He is continuing that work with a new study of the endemic Black Harrier in the southwestern Cape in collaboration with Fitz staff and students. His conservation interests are very diverse and have covered the full gamut from albatrosses to cranes and terns to woodhoopoes. His main interests are endemic Namibian species and long term studies of Namibian wetlands and more recently its rivers. Rob lives in Windhoek with his wife and two daughters and is currently writing Namibia's first Red Data book on birds.

Post-doctoral Fellows

Dr Pamela Beresford

From July to September, Pamela began training three students in molecular techniques, including the extraction of DNA, PCR amplification of desired genomic markers, and preparation for automated sequencing. The students were given several fundamental texts with regard to these and associated techniques as well as forms with which to record data collection and analysis, and a summary guide to all protocols were put online for easy access.

*The phylogenetic status of the enigmatic rockjumpers (*Chaetops*) came under the spotlight in one of Pamela Beresford's collaborative studies at the Fitz. Photo: Fitz collection*

During the latter half of 2002, Pamela began a collaborating with Peter Ryan, Tim Crowe and Keith Barker (University of Minnesota) to explore the phylogenetic relationships of a handful of "enigmatic" southern African endemic birds; that is, birds whose generic and/or family affiliation has traditionally been subject to much conflict of opinion. The molecular sample of this project was designed to draw from a larger passeriform dataset prepared by F.K. Barker and others. The PFIAO project results were available in August 2003 and the manuscript is expected to be submitted in late 2003.

Also toward the end of 2002, Pamela attended a workshop at the Zoology Museum at the University of Copenhagen, the purpose of which was to identify needs in molecular systematics of African birds for an EU grant proposal; by the end of the 3-day workshop, the new grant category had already been changed, and the EU partners agreed to write a series of small grants instead. While in Copenhagen, Pamela had informal discussions with Jon Fjeldsa about various biodiversity metrics, following her explorations in pursuit of a specific project being considered between Dean Fairbanks and Dr Fjeldsa. All three parties have suspended work on this effort for the time being, but Pamela expects to resume work on integrated spatial dynamics and evolutionary topologies in the near future. Pamela's project on montane francolins was cancelled due to her premature return to North America.

Pamela presented a seminar to the Zoology Department on August 1, 2002 entitled '*Vicariance biogeography of select birds, endemic to the central African forest block*', and submitted three first-authored manuscripts and one multi-authored book chapter.

Dr Dean Fairbanks

Dean obtained a post-doctoral fellowship to examine the destruction and fragmentation of habitats and what these processes may lead to in re-assembling

biotic communities across South Africa. A framework aimed at understanding and predicting community responses to these destructive processes is still lacking within southern Africa. He proposed to analyse the landscape ecological dynamics of a region both spatially and temporally to facilitate integrated biodiversity management. Land-use will be a pivotal conservation issue in southern Africa in the coming decades as we tackle the management of land that has not been set aside in parks and reserves but adds to the regional conservation goals and protected area networks. During his tenure, Dean has been involved projects on the following topics:

- Spatial dynamics of Karoo endemic and nomadic birds.
- Ecological correlates of cooperative breeding in South African birds under anthropogenic landscape pressures (in collaboration with Prof. Morné du Plessis).
- The effects of space, climate and landscape attributes on the abundance and distribution of range-restricted and endemic birds of arid western South Africa.
- Regional land-use impacts affecting avian diversity patterns in southern Africa.
- Relationships of four endemic fynbos nectar feeding birds to the phenology of proteoid plant species and anthropogenic land-use structure.
- Wine and conservation: the impact of viticulture expansion in the Cape Floristic region (in collaboration with staff at the Cape Conservation Unit, Botanical Society of SA).
- Examination of the ecosystem processes for the protection of Cape lowland vegetation (in collaboration with staff at the Cape Conservation Unit, Botanical Society of SA).
- Patterns of distribution of Zimbabwean birds - implications for a land-reform process.
- Vegetation ecosystem processes: modelling the vegetation characteristics of South Africa for input into faunal distribution and abundance studies (in collaboration with workers at the University of Idaho, USA).
- Savanna rangeland spatial-temporal fire dynamics in relationship to management and biodiversity maintenance (in collaboration with workers at the University of Idaho and Madikwe Game Reserve).
- Measurement and monitoring potential of coarse scale mult-temporal NDVI for species richness patterns in plants (with a collaborator at the Desert Research Institute, Nevada, USA).

During the review period, Dean lectured and held discussions on landscape ecology and conservation planning, geographic information systems, and remote sensing for the Conservation Biology MSc course, co-supervised four MSc thesis projects, helped to source data and information for research projects to be conducted at the Institute by incoming CB MSc students in 2002, and authored or co-authored five scientific papers and a book chapter.

External/Contractual lecturers

Prof. Sue Galatowitsch *(University of Minnesota)*
Prof. Eric Harley *(Chemical Pathology Department, UCT)*
Dr John Hoffman *(Zoology Department, UCT)*
Prof. Timm Hoffman *(Institute for Plant Conservation, UCT)*
Andrew Knight *(TERU, University of Port Elizabeth)*
Rainer Krug *(University of Stellenbosch)*
Prof. Sue Milton *(University of Stellenbosch)*
Prof. Norman Myers *(Oxford University)*
Dr Colleen O'Ryan *(Molecular and Cell Biology Department, UCT)*
Dr Dave Richardson *(Institute for Plant Conservation, UCT)*
Dr Tony Starfield *(University of Minnesota)*
Prof. Christian *Wissel (University of Leipzig)*
Prof. Nik van der Merwe *(Archaeology Department, UCT)*

Conservation Biology Masters Overview

Course co-ordinators
Dr Peter Ryan
Prof. Tim Crowe

Assistant to the course co-ordinators
Sharon Bosma

Conservation Biology MSc class and staff of 2003. Photo: Chris Tobler

The 11th cohort of Conservation Biology students graduated in June 2003, with 9 of the 11 students in the 2002/2003 class graduating. One of the two remaining students, David Maphisa, is working on a project on Rudd's Lark for BirdLife South Africa, and should submit his project shortly before embarking on a second field season working on this enigmatic and highly threatened bird. Sadly, the other remaining student, Nir Peleg, has been dogged by ill-health, but still plans to complete his project as soon as possible. Conrad Savy was the top student and recipient of the Dr H.E. Joosub Award. The individual research projects spanned a wide range of topics, from community management of buchu resources in the Western Cape fynbos to the impacts of human activities on the diversity of forest trees and birds in Sierra Leone.

The current covey of 13 CB students continues the tradition of strength through diversity, with no fewer than 10 countries represented. They have had an exceptionally long course work component due to the inclusion of an additional module in restoration ecology to take advantage of the visit of Prof. Sue Galatowitsch to the Institute for Plant Conservation. Sue was a Fullbright Fellow at the Lesley Hill Institute for Plant Conservation during her sabbatical from Minneosta, and made a great impact on the CB students during her two-week module.

This year (2003) sees the end of our five-year grant from the MacArthur Foundation to fund the participation of students from specific countries in Africa on the CB Programme. Because of changes in MacArthur funding policy, it is unlikely that the grant will be renewed. It will have a significant impact on our ability to build capacity among students from African countries. However, the slack has been taken up to some extent by the news that the Tropical Biology Association (TBA) will fund three students from their cadre of graduands to attend the CB programme in 2004.

We are extremely grateful to the many people who contribute to the ongoing success of the programme. Foremost among these are the module leaders, many of whom are based outside the Fitztitute: Eric Harley, John Hoffman, Timm Hoffman, Andrew Knight, Rainer Krug, Sue Milton, Norman Myers, Colleen O'Ryan, Dave Richardson, Tony Starfield, Nik van der Merwe and Christian Wissel. Many other people contribute through guest lectures or practicals. The programme also couldn't run without the sterling support of the Fitz and Zoology support staff, especially Meg Ledeboer who handles umpteen queries from potential students.

Conservation Biology Projects: 2002

Bragg, Christy (commenced 2000): *Porcupine-geophyte interactions in a hotspot of geophyte diversity*
Supervisor: P. Ryan

De Ponte, Marta: *Is buchu harvesting sustainable? Effects of current harvesting practices on biomass, reproduction and mortality*
Supervisor: M.T. Hoffman

Kaleme, Prince: *Regional differences in the long-term population dynamics of a succulent tree,* Aloe dichotoma *in the semi-arid Karoo, South Africa as revealed by repeat photography*
Supervisor: M.T. Hoffman

Knox, David: *Requirements for assessing the conservation importance of estuarine intertidal invertebrate communities: A case study of warm temperate estuaries in South Africa*
Supervisors: J. Turpie & B. Clark

Machange, Ronald: *Eagles as indicators of ecosystem health: correlating the distribution of Martial Eagle nests in the Karoo with simple indices of rangeland quality*
Supervisors: A. Jenkins & M. du Plessis

Matilya, Godlisten: *Does the African Ant* Lepisiota incisa *displace the introduced invasive Argentine Ant* Linepithema humile *(Mayr) in the urban environment of Cape Town, South Africa?*
Supervisors: M. Picker & H. Robertson

Mills, Michael: *The impact of sex- and age-biased longline fishing mortality on procellariiforms: An individual-based model approach*
Supervisors: P.G. Ryan & C.L. Moloney

Nalwanga, Dianah: *Nest site selection and partitioning in the breeding bird community at Koeberg Nature Reserve*
Supervisors: M. du Plessis & P. Lloyd

Okoni-Williams, Arnold: *Anthropogenic effects on the diversity and spatial patterns of birds, trees and shrubs of the peninsula forest, Sierra Leone*
Supervisors: P. Ryan & A.B. Karim

Randrianasolo, Harison: *Birds in West Coast Renosterveld fragments: Implications for a threatened habitat.*
Supervisor: P. Ryan

Savy, Conrad: *Conserving Wattled Crane* (Grus Carunculatus) *on private land in KwaZulu-Natal, South Africa: attitudes, economics and potential incentives*
Supervisors: M. du Plessis, J. Turpie & M. Botha

The Journal Club - CB 2003 Class Representative, Mark Bidwell

As has been the case for the last several years, this year's CB class organised a weekly journal club to review the recent conservation biology literature. Many of the articles we discussed were chosen from the journals *Conservation Biology*, *Biological Conservation* and *Biodiversity and Conservation* but this year we also chose conservation-related papers from *Ecology, Ecological Applications, Journal of Wildlife Management, Nature, Science, Oryx*, and other journals.

Each week two CB students were responsible for choosing one or two articles, introducing them to the class and guiding a one-hour discussion. Topics discussed ranged from the international trade in wildlife species, to the design and implementation of marine reserves, to ethical issues involved in the study of wild animal populations. Many of the articles highlighted the links between the various disciplines associated with conservation biology and with other areas of study.

On several occasions we chose articles to complement the module we were engaged in at the time and invited the module instructor to attend these special journal clubs. Christian Wissel suggested papers for and attended a journal club on ecological modelling and Sue Galatowitsch did the same for a discussion on ecological restoration. In both cases the discussion allowed us to go beyond what we learned in class and question some of the ideas and assumptions we'd picked up along the way.

One of our later journal clubs focused on the training of conservation biologists and was based on letters to *Conservation Biology* by Morné du Plessis and Tim Crowe, and an editorial on the subject by Reed Noss. We engaged in a thought-provoking discussion on the postgraduate education of conservation biologists in general and the FitzPatrick Institute's program in specific. With encouragement from Morné we may turn some of these ideas into a short piece for publication in *Conservation Biology*.

Special Report

Where are they now? A survey of CB graduates

Thirteen students began the MSc in Conservation Biology in January 2003; four from South Africa, two from Uganda and one from each of Cameroon, Kenya, Botswana, the UK, Germany, Canada and the USA. What will become of them? Photo: Jane Turpie

The 10-year anniversary of the Conservation Biology programme saw a review process which included a survey of past graduates. Of the 109 graduands, 103 were sent a questionnaire by email to establish where they were working, what work they were doing, how many had remained in conservation, whether they felt that the degree prepared them adequately for their field of work, as well as to obtain feedback on the course content and administration.

Before presenting the results of the survey, it is worth highlighting the diversity of CB graduands. Just over half the students have come from South Africa, with the balance split equally between the rest of Africa and elsewhere in the world. In terms of demography, they have been 58% male and 72% white.

Of the 103 students canvassed, 81 responded to the survey (79% response rate), all but two of whom have jobs or are studying further.

A gratifying 87% are involved in conservation activities. Most (70%) work in Africa, chiefly South Africa (54%), with 16% working elsewhere on the continent and 30% elsewhere in the world. Excluding students returning to existing jobs, 52% of students found jobs immediately after graduating, and 42% found a job within 6 months of graduating. Only 14% of respondents did not consider that their CB degree had made them more marketable.

Graduates are fairly evenly spread across four main sectors of work: government and parastatals (26%), business and consultancies (22%), educational institutions (20%) and NGOs (19%). Most respondents (69%) are in jobs which require multi-tasking. The main areas of work are research, management, lecturing or teaching and consulting. 27% of graduates deal with policy and legislation; only 2% are involved with tourism.

A high 94% of respondents said that they would recommend the degree to future conservation biologists. However of these, only 68% agreed that the degree prepared them adequately for their intended career, with 12% giving a qualified 'yes'. 16% felt that the degree did not prepare them adequately for their intended field of work. Advantages of the course that were recognised included the wide range of conservation topics covered on the course, personal skills development, as well as interacting with a diverse range of people. Many respondents commented favourably

on the interaction with a wide range of people, fellow students as well as staff and visiting lecturers, and the opportunities for networking, collaborating and job placements which this provided. Criticism centred around the difficulty in adapting 'ideal world' academic training to a 'real world' situation. Suggestions were made to include components on project management, legislation and conventions and a greater focus on the issues of people and conservation.

Roberts VII *team*

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(14 are staff or students at the Percy FitzPatrick Institute)

7 artists

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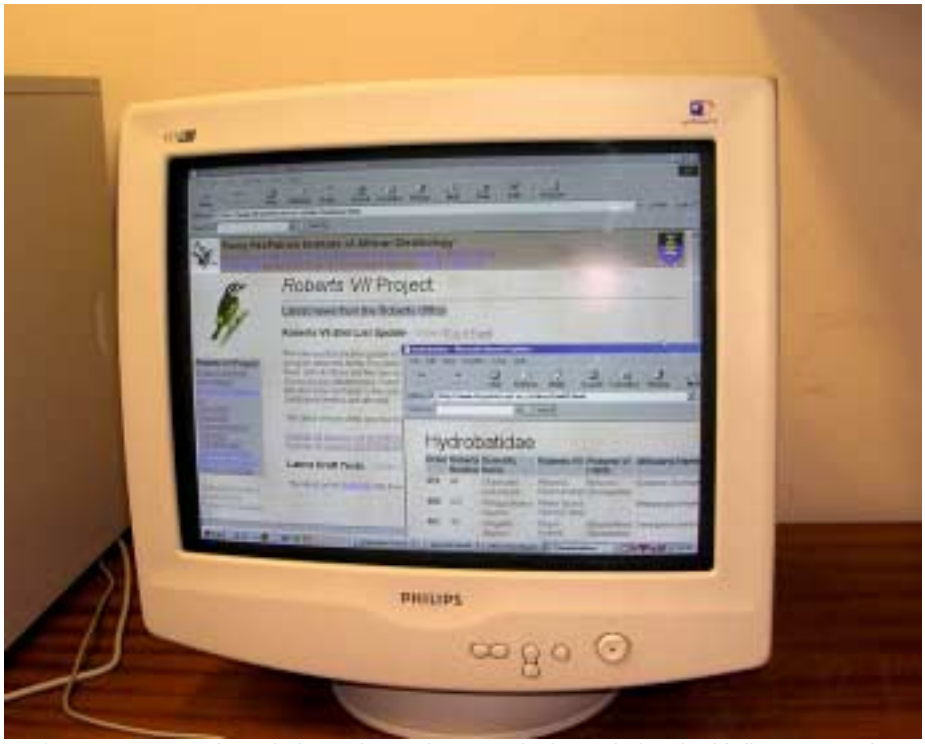

Draft texts are posted regularly on the Institute's web-site and give the birding community an ideal opportunity for comment and input. Photo: Melissa Stander

ORNITHOLOGY FOR THE NEW MILLENIUM

To create an invaluable research tool in handbook format, summarising what is known about the biology and habits of southern African birds

The *Roberts VII* project was originally assigned as a four-year contract to the Percy FitzPatrick Institute to produce a rewritten edition of *Roberts Birds of Southern Africa*. The project has since been extended by 12 months to allow for the completion of the artwork and species accounts. An additional 10-12 months is allowed for publication and printing and a provisional shelf date for the final product is set for November 2004.

Work on the project was started in early 1998, with preliminary research on format and style, editorial and co-authorship proposals and budget layout. Our proposals were approved in June 1998, and the project was officially announced to the birding community at the International Ornithological Congress in Durban in August 1998. During the course of the first year, potential contributing specialists were approached and subcontracted to produce the text accounts for the 951 southern African bird species. Thirty-four of the 51 contributing authors have contributed 10 or more species accounts and will be acknowledged as authors on the title page.

Bibliographic database

One of the first projects initiated was the development of an electronic bibliography of Afrotropical bird literature (Bird Information Retrieval Database - BIRD). The database was designed to aid authors in their literature search for writing species accounts.

BIRD has since been handed to National Inquiry Services Centre (NISC), who has

taken over the production and maintenance of BIRD; and has ensured its existence (and financing) into perpetuity. The contributing authors of *Roberts* have, and will always have, full access (through the Percy FitzPatrick Institute) to this database for purposes of *Roberts*' text and revision.

NEWS FROM THE PERCY FITZPATRICK INSTITUTE

Roberts' VII – a unique opportunity for birders' input

'News from the Percy FitzPatrick Institute' – articles in birding magazinse like Africa - Birds and Birding *keep birders up to date with the progress of* Roberts.

Artwork

Seven local artists were commissioned to produce a total of 80 colour plates for the new edition of *Roberts*. The standard of the artwork has been over and above our highest expectations! The editors, together with some local birding experts, have reviewed all the illustrations and have instructed the artists to make the necessary changes. Only the colour and electronic corrections are now outstanding and these will be completed at the printing house before publication.

Internet and media

The FitzPatrick Institute's web-site has provided an ideal opportunity to make draft texts available to birders for comment and input. This idea has been warmly received, and has created the opportunity for enthusiastic birders to have a sneak preview of the contents of the new *Roberts*. It also played a valuable role in enabling the birding community to become actively involved in data gathering and helping to fill some of the gaps that exist in our knowledge of southern African birds. In many instances, the unpublished data received from the birding public are the only source of reference available to us. Continued web-postings will be made until final proofs are ready for printing. This will serve well to keep the birding community enthused about the final product.

The editors of *Roberts* have been invited to interviews and several broadcasts have been aired on local radio stations across South Africa. These, together with continued publications in birding magazines and bird club newsletters have contributed to keeping the birding community up to date with the progress of the new *Roberts*.

Publication

Black Eagle Publishing has been contracted to publish *Roberts VII*. We have been in constant contact with the publishing team and have been submitting final species texts for layout and proof printing. This has been an extremely demanding time for the *Roberts* team; with deadlines to adhere to on an almost daily basis, scrutinising page proofs, design and layout, and tracking down the final bits and pieces to complete species accounts.

Acknowledgements

John Voelcker Bird Book Fund and the Tony and Lisette Lewis Foundation for funding the project.

Niven Library

Librarian
Margaret Sandwith

Overview
Over the past year two critical issues emerged in the effective management of the Niven Library with regard to equitable use for users. The most important issue was the status of the Niven Library database and the need to migrate this to a more suitable platform. The other critical issue was the security of the collection. These two issues are discussed in more detail below under Library Development.

Staff and staff development
Volunteer staff
Des Loubser has continued his invaluable voluntary work in processing reprint requests as well as taking on the responsibility of refiling and weeding the reprint collection of selected duplicates. In some cases reprints are requested as pdf (portable document format) files and where these are not currently available electronically Des has taken on the task of scanning articles in order to create electronic copies of the papers in question.

Some of the new books that have been purchased for the Niven Library.

Library development
Collection management
Reprints: With the advent of electronic journals more and more reprints are being requested or delivered as pdf files. Where these are ornithological papers a printed copy is made for the reprint collection. The pdf files are captured to CD-ROM housed in the library. The long-term viability of such electronic copies remains an issue of concern. Where PFIAO reprints are supplied as pdf files there is a saving in postage and photocopying.

New Books: A policy of purchasing one ornithological book each month over and above other book purchases was instituted during the year under review. A wish list of ornithological books has been compiled by the librarian and Fitzstitute staff. This is continually updated as books are purchased and new items are added to the list. To date the following ornithological titles have been purchased:

- Handbook of Australian, New Zealand and Antarctic Birds, vol. 4: Parrots to Dollarbirds
- Handbook of Australian, New Zealand and Antarctic Birds, vol. 5: Tyrant-flycatchers to Chats
- Birds of Nelspruit
- Shrikes and Bushshrikes

Promotion of the Niven Library Collection

During the year under review the implementation of the Afrotropical Bird Database as a subset of the NISC Wildlife World Wide Database was launched. Although at present holdings details have not been linked to the Niven Library collection, once this project has been completed the collection will receive international exposure.

Dr Linda Birch, Librarian of the Alexander Library, Edward Grey Institute of Field Ornithology at Oxford University visited the Niven Library in 2002 whilst in Cape Town. This visit was most fortuitous as the personal communication has opened the doors to closer communication between the two libraries. Dr Birch has been very generous in supplying photocopies of material unobtainable in South Africa to *Roberts VII* authors.

Upgrading the Niven Library System

For some while the DOS based InMagic database, which has effectively managed the Niven Library collection, has become more and more difficult to manage in relation to the upgraded software of the UCT server. During the year under review access to the database has had to be restricted to 2 workstations in the library at the inconvenience of the remote users of the library. The InMagic upgrade project was put on hold whilst an investigation was made of the feasibility of migrating the database to the same platform as that used by UCT Library. The proposal put to the University Librarian was for the Niven Library to become a Calico library member rather than the collection become incorporated into the UCT Library database. This would maintain the independent status of the library whilst allowing users to search for material simultaneously across databases. Data conversion was considered the most problematic and expensive aspect of the project. This option appears to be a better long-term prospect for the Niven Library database as any future software upgrades would be seamlessly handled by UCT Library. In addition users would be able to search the database using the familiar interface of the UCT library catalogue instead of having to learn a new search technique.

Security

The loss/theft of material from the Niven Library is statistically low (approximately 1.68% using the statistics from the 2002 shelf check) in comparison to a 1992 survey conducted on special libraries in the U.K. where the average loss ranged from 1.8% to 2.2%.

There is a perception however that material is being taken from the library without the completion of a loan application slip. A number of high demand articles have been removed in this way and not all have been returned.

Since April 2003 access to the UCT library was restricted to holders of a staff, student or 3rd party card. This effectively made the Niven Library vulnerable to users not associated with either the Institute or the Zoology department. In May 2003 the decision was taken to permanently lock the library so that users would either have to be let in/out by the librarian or use their cards to gain access/egress. It was hoped that this would both remind authorised users to borrow material responsibly and reduce the opportunity for theft from the library by monitoring all other users of the library.

This security initiative puts the Niven Library on par with the UCT library during opening hours.

Use of the Library

On average, 47 items per month are recorded as having been borrowed during this period.

Table 1. Niven Library stock circulation over the past four years

	2002/03	2001/02	2000/01	1999/00
Monographs	409	537	658	565
Reprints	155	153	133	220
Total	564	690	791	785

Document Delivery

A document delivery service is provided to users from other institutions such as national and international universities and technikons, governmental institutions, NGO's, ornithological societies and for private research.

Table 2. Niven Library inter-library loans over the past four years

	2002/03	2001/02	2000/01	1999/00
Photocopies requested (by staff/students)	154			
Photocopies supplied	365	130	208	189
Requests not satisfied	13	33	69	76

Approximately 80% of the photocopies supplied were free of charge to other tertiary institutions. This is within the IULC agreement between librarians of tertiary institutions. Photocopies requested by the Niven Library for staff and students were also supplied free of charge under this agreement. It can be seen that the Niven Library is a net supplier of articles through the national interlending system. Cash redeemed from coupons received in payment for inter-library loans totalled R1525.00.

Reprint requests

During the period 1 June 2002 to 31 May 2003 178 [485] [554] requests for reprints of the Percy FitzPatrick Institute's publications were received by the Niven Library, in addition to those submitted directly to authors in personal letters.

Table 3. Requests for PFIAO Reprints

	2002/03	2001/02	2000/01	1999/00
Monographs	409	537	658	565
Reprints	155	153	133	220
Total	564	690	791	785

These figures show a dramatic drop-off in reliance on the system of reprint requests in comparison to previous years. This drop off is attributed to the growing availability of electronic journals, particularly in the western world and is not expected to diminish the influence of PFIAO research on international ornithology. This is attributed to the accessibility of electronic journals which readily supply pdf copies of articles. Requests from within South Africa have also dropped off, but interlibrary loan requests have increased and a proportion of these requests are for PFIAO articles. In addition to the Inter-library loans and reprint requests, the Niven Library has also processed 930 requests for information, amounting to the provision of 569 articles. 28 requests for information were supplied by e-mail as pdf files, a figure which is expected to increase in the future.

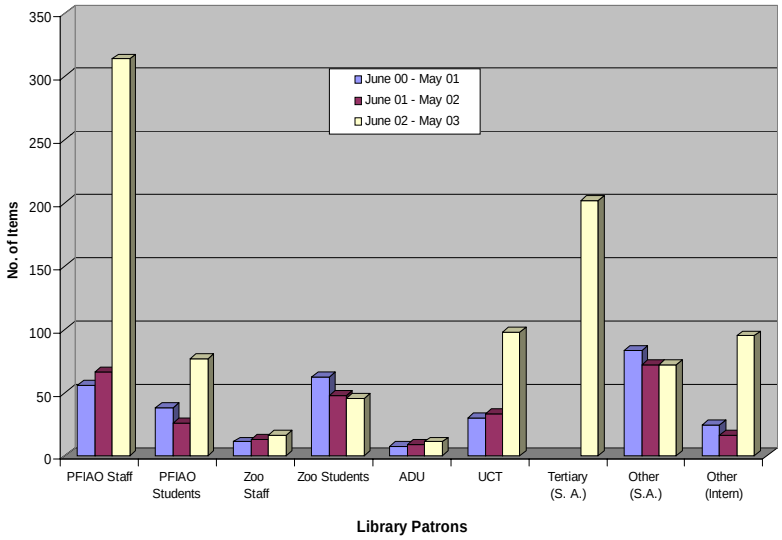

Fig. 1. Research requests

The breakdown by countries is: Argentina 6(27), Australia 6(16), Bangladesh 1(0), Belgium 2(2), Brazil 2(5), Canada 3(24), Chile 2(6), Columbia 1(0), Czech Republic 3(9), Denmark 1(0), Ecuador 1(1), Finland 2(0), France 20(25), Germany 7(3), Greece 1(0), Hungary 2(0), Iran 5(24), Iraq 1(2), Italy 1(14), Kenya 1(10), Malaysia 1(0),

Mexico 1 (0), Morocco 1(0), Namibia 2(2), New Zealand 2(1), Poland 2(8), Portugal 1(4), Serbia/Montenegro 1(0), South Africa 39(98), Spain 20(15), Sweden 10(1), Swaziland 1(9), Tanzania 1(0), Tenerife 1(0), United Kingdom 6(11), United States of America 19(104), Uruguay 1(0).

Members of the Percy FitzPatrick Institute continue to send reprints of their papers to workers around the world known to be interested in the topics concerned. Reprints are also given out directly to visitors to the Niven Library on request.

Cash photocopying

The cash photocopy facility in the library was used by persons without a photocopy code, many of these were undergraduate students or library visitors from other parts of campus or beyond. Approximately 8688 [10017] [13700] copies with a cash value of R2607.19 [R2659.10] [R3425.00] were made. As from 12 March 2003 the cost increased from 30c to 35c per page. The drop off in photocopying is also attributed to the availability of electronic journals which enable the printing rather than photocopying of articles.

A further R391.20 was received for the supply of material requested from the Niven Library from users outside South Africa.

Research requests

The Library received approximately 400 [285] research requests from the staff and students of the PFIAO, the Zoology Department and users from other institutions and individuals, both local and international (see figure 1) amounting to the supply of over 900 items of information. The 2002/2003 period saw a spate of requests for biographical information on ornithologists, past and present. The high demand for items from both PFIAO staff and other tertiary institutions can be largely attributed to the *Roberts VII* project which has used the Niven Library heavily during the period under review.

Requests for information

Other South African Institutions include Black Eagle Publishers, Brenthurst Library, Cape Bird Club, Cape Technikon, Commercial Farmers' Union, CSIR at Stellenbosch, Dyer Island Cruises, Edith Stevens Nature Reserve, Glenrand M.I.B., Habitat Council, Marine and Coastal Management, National Botanical Institute(Pretoria), National Museum (Bloemfontein), NISC, Oceanographic Research Institute, Potchefstroom University, SA Technikon, Southern Waters, Stellenbosch University, University of Durban-Westville, University of Pretoria, University of the Witwatersrand, University of Natal, Western Cape Nature Conservation Board.

Requests for information (over and above reprint requests) were received from individuals and international institutions in Austria, Australia, Canada, Ethiopia, Mozambique, Namibia, Portugal, Uganda, Zimbabwe and India.

Acquisitions and collection building

At the end of May 2002 the bibliographic records on the OPAC system totalled 41834 [40906] [40147]. The numbers of individual items received in the Niven Library are shown below:

Table 4. Niven Library acquisitions over the last four years

	2002/03	2001/02	2000/01	1999/00
Monographs	145	200	277	133
Journals	629	952	909	754
Newsletters	465	359	475	423
Reprints	754	514	681	242

Added to the collection were books ordered by members of the Percy FitzPatrick Institute, donated books and 1 review book for BirdLife South Africa. The drop off in review books is due to Fitzstitute staff no longer performing the review editor function for Ostrich.

Anthony Maddock, consultant with Common Ground donated back issues of *Journal of Mammalogy* and *African Zoology*. The Zoology Department, SAFRING and the African Seabird Group continued to donate their exchange journals.

The PFIAO made the decision to bind selected heavily used volumes of BirdLife South Africa journals. The Zoology Department has allocated funds towards the binding of periodicals in the Niven Library.

Future Development

It is hoped that by early 2004 the migration of the Niven Library InMagic Database to Aleph on the CALICO platform will be well underway enabling both on campus and remote users to browse the collection.

Access to lapsed and additional ornithological journal titles, a part of the contract with NISC in the development of the Afrotropical Bird Database, has not yet materialised but it is hoped that this will happen in the coming year. Access to the Afrotropical Bird Database within the Institute has been a reality since November 2002 and has been a most valuable resource in the completion of the *Roberts VII* project.

Donations

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Scientific Publications

Peer-reviewed scientific publications in 2002

AWAD, A. A., GRIFFITHS, C.L. & TURPIE, J.K. 2002. Distribution of South African marine benthic invertebrates applied to the selection of priority conservation areas. *Diversity and Distributions* 8:129-145.

BRABY, R.J., SHAPIRA, A. & SIMMONS, R.E. 2001. Successful conservation measures and new breeding records for Damara Terns *Sterna balae* in Namibia. *Marine Ornithology* 28:81-84. (journal only published in November 2002).

CLIFF, G., DUDLEY, S.F.J., RYAN, P.G. & SINGLETON, N. 2002. Large sharks and plastic debris in KwaZulu-Natal, South Africa. *Marine and Freshwater Research* 53:575-581.

COVAS, R., BROWN, C.R., ANDERSON, M.D. & BROWN, M.B. 2002. Stabilizing selection on body mass in the sociable weaver *Philetairus socius*. *Proceedings of the Royal Society of London*, B. 269:1905-1909.

CURTIS, O.E. & JENKINS, A.R. 2002. Shell thickness and size of Peregrine Falcon, *Falco peregrinus minor*, eggs from two areas in South Africa. *Ostrich* 73:64-66.

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stressed? *Journal of Thermal Biology* 27: 325-332.

HOLMES, R.T., FRAUENKNECHT, B.D. & DU PLESSIS, M.A. 2002. Breeding system of the Cape Rockjumper, a South African Fynbos endemic. *The Condor* 104:188-192.

HUTCHINGS, K., LAMBERTH, S.J. & TURPIE, J.K. 2002. Socio-economic characteristics of gillnet and beach-seine fishers in the Western Cape, South Africa. *South African Journal of Marine Science* 24: 243-262.

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Conferences & Workshops

23rd International Ornithological Congress, Beijing, China, 11-17 August 2002

Report: Tim Crowe

Tim Crowe co-chaired (with Dr Ettore Randi - Italian National Wildlife Institute) and presented the closing paper at a symposium on the Evolutionary Genetics of the Phasianidae (pheasant-like birds). He also attended two meetings of the International Orinithological Congress Committee and a round table discussion on the role of bird collections.

Workshop on South Africa's draft National Plan of Action to reduce the incidental mortality of seabirds on longlines, 16 January 2003

Report: Peter Ryan

A public participation meeting to discuss the implications of the National Plan of Action (NPOA) was held at the Waterfront under the auspices of Marine and Coastal Management. Peter gave a talk on the current status of by-catch by South African fisheries, and then industry and fishers were afforded the opportunity to provide feedback on the document and discuss ways of effective implementation. These suggestions, together with written submissions, were then incorporated into the NPOA document before its formal publication.

A Sense of Direction: a conference on conservation in UK Overseas Territories and other small island communities, Bermuda, March 2003

Report: Peter Ryan

I was invited to attend this meeting as the Tristan da Cunha representative, and presented a paper co-authored by James Glass, head of Tristan's Natural Resources Department, entitled '*Conservation challenges in small communities: conservation management in the Tristan Islands*'. It was an opportunity to meet people from the UK Foreign and Commonwealth Office and various UK NGOs that have funded work on Tristan, as well as researchers working on conservation-related matters at UK Overseas Territories and other small island nations. Bermuda itself was an interesting experience - approximately the same size as Tristan but with 200 times the population. During the conference, delegates conducted field assessment exercises designed to identify conservation priorities and actions for selected sites on Bermuda, as well as familiarise delegates with these techniques. It was an interesting experience, capped by a visit to the islets where Cahows are being brought back from the brink of extinction. It was sobering to see the level of management input required to rescue this species, with virtually every pair nesting in artificial burrows, with special baffles in the entrances to exclude tropicbirds.

Student Conference on Conservation Science, University of Cambridge, England, March 2003

Report: Doug Loewenthal

The Student Conference on Conservation Science is aimed specifically at building

links among young conservation scientists and practitioners. To this effect, the conference, hosted by the Department of Zoology, University of Cambridge, is aimed at people actively engaged in research in conservation science in biological, environmental and geography departments of universities as well as in conservation and resource management agencies. Although the conference is aimed at young people, conservation practitioners from leading international and national conservation bodies attend and contribute to discussions. This is the fourth time the conference has been held and participation has grown considerably over the years, with students and practitioners from more than 40 countries attending this year's event.

The conference itself consists of both oral and poster presentations by students, as well as keynote addresses by leading conservation practitioners. (This year, keynote addresses included presentations by Dr Bob Pressey, a world leader in the field of conservation planning and reserve design, as well as by Achim Steiner, the director-general of IUCN). In addition to this, a series of workshops are held, which affords students/young practitioners the opportunity to acquire a diverse array of new skills in the field conservation biology.

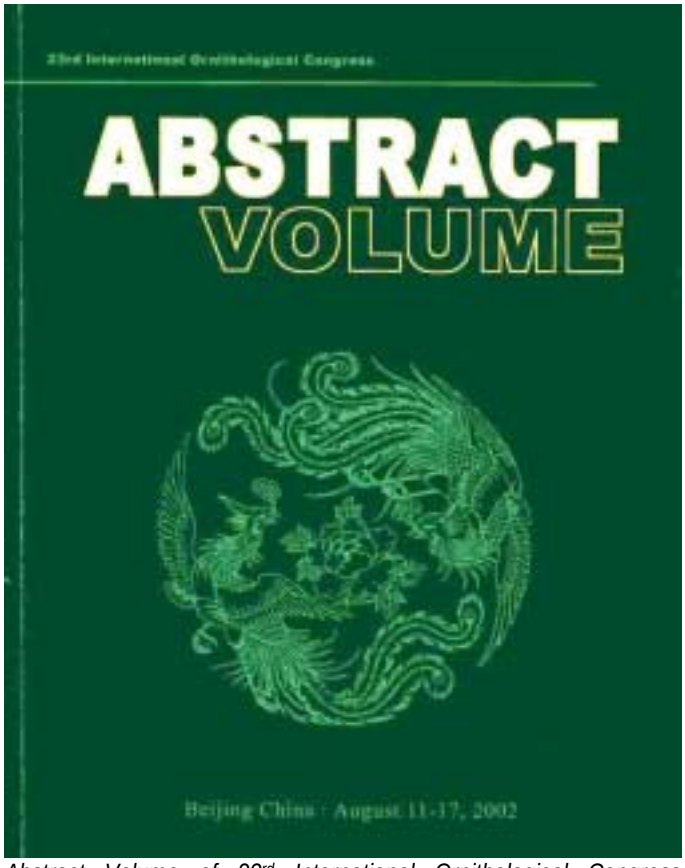
I am currently a PhD student involved in a research project on the African Black Oystercatcher, a threatened shorebird species. A large portion of my research has therefore been conservation orientated. At the same time, I have also been actively involved in helping co-ordinate a conservation programme on oystercatchers, which has engaged the efforts of governmental organisations, conservancies, bird clubs and individual members of the general public. Given that my work has involved both academic research and the more practical aspects of running a conservation project, I considered the conference to be an ideal forum for both contributing to and learning from an audience involved in research and management aspects in the field of conservation biology.

I delivered a paper at the conference, titled `*In the red or black? Assessing the current and future status of the African Black Oystercatcher,* Haematopus moquini', and attended four of the six workshops held covering the following topics: *Working with the Press*, *How science can make a difference – the Millenium Assessment*, *How NOT to write a scientific paper*, *Designing surveys for biodiversity conservation*, *How good graphics can help you tell your story*, *Writing grant proposals and raising funds*.

Edward Gray Institute Student Ornithology Conference, Zoology Department, Oxford, UK 12-17 April 2003

Callan presented a talk with the title: '*The evolution and biogeography of the bustards (Otididae) in Africa*'.

He found the conference a most useful opportunity to meet an international group of researchers in a similar field which highlighted the uniqueness of the work being carried out at the Fitz.



Abstract Volume of 23rd International Ornithological Congress attended by Tim Crowe.

Society of Conservation Biology Annual Meeting, Conservation of Land and Water Interactions, Duluth, Minnesota, U.S.A, 29 June – 2 July 2003

Report: Jeff Muntifering

I presented the preliminary results from my field work in Namibia, entitled '*Cheetah habitat characteristics on commercial farms in north-central Namibia*' in the endangered species forum. The 15 minute talk was attended by approximately 150 – 200 individuals with some insightful post-presentation feedback. It was also an opportunity to meet with colleagues from China and U.S. to discuss potential avenues to explore regarding the South China Tiger Recovery Program. We have recently joined forces with the IUCN Cat, Reintroduction, and Conservation Breeding Specialist groups to further this initiative. I was also able to make connections with various parties in Namibia to broaden our research scope for future field programs. It was a very intense four days but an excellent experience. It was also nice meeting and networking with other students from around the globe doing interesting conservation work.

Financial Report

The Financial Report is available on request from the Percy FitzPatrick Institute