

## NEWS FROM:

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Communication and Marketing Department  
Isebe loThungelwano neNtengiso  
Kommunikasie en Bemakingsdepartement

Private Bag X3, Rondebosch 7701, South Africa  
La Grotto House, Glendarrach Rd, Rondebosch, Cape Town  
Tel: +27 (0) 21 650-3733/2, Fax: +27 (0) 21 650-5682  
Internet: [www.uct.ac.za](http://www.uct.ac.za)

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### **UCT research looks at the mate-swapping albatross, the non-conforming penguin and other fowl topics**

Six doctoral students at the University of Cape Town have completed studies on southern African birdlife: five of them focusing on specific species, while the sixth travelled 160km on foot, collecting almost 1 million vegetation data points and more than 32,000 insects, and monitoring more than 400 birds' nests to calculate the diversity of grassland.

#### **Good albatross parents tend to be older but not necessarily monogamous**

Genevieve Jones, a PhD student in Zoology, spent two years overwintering on sub-Antarctic Marion Island to collect data that continued 25 years of unbroken breeding histories on individual Wandering Albatross. Her thesis, *Individual variation in reproductive success in the Wandering Albatross*, sought to investigate why some of these faithfully monogamous birds are so good at producing chicks while others seldom rear offspring. While differences between good and poor parents remain elusive, cross-fostering eggs between good and poor parents showed that both phenotypic (breeding behaviour) and genotypic factors influence their reproductive success.

Among these apparently faithful birds, Jones recorded males forcing copulations and females consenting to infidelity. Extra-pair paternity occurred in 18 percent of the pairs and Jones speculated that this behavior might be less costly to females than divorce and mate swapping. Although there were more males in the adult population, Jones found that more female chicks were produced. Mothers with good body condition were more likely to produce males, probably because it requires more energy to raise the larger male chicks. Jones also confirmed that older, more experienced adults are better parents: they protect their chicks longer and apparently deliver more food, because their chicks grow more quickly than those of parents with limited breeding experience. These birds can live for 60 years.

After completing her BSc in 1996 and BSc (Hons) in 1997 at the University of the Witwatersrand, Jones spent a year as an ornithological field assistant at the South African research station Marion Island. She then completed an MSc in freshwater ecology at UCT, but returned to avian research, working in the highlands and islands of Scotland and the

seas off the Falkland Islands before returning to South Africa. Her supervisor is Associate Professor Peter Ryan.

### **Different behavior patterns make penguins a conservation challenge**

Lauren Waller's PhD thesis, *The African penguin *Spheniscus demersus*: Conservation and Management Issues*, examines the broader conservation issues facing the African penguin. During the time that this study was undertaken, the conservation status of the African penguin changed from "Vulnerable" to "Endangered" according to the World Conservation Union (IUCN). The final chapter in the thesis examines the legislative context that provides for the protection of the African penguin in South Africa. It discusses the potential that the Biodiversity Management Plan for the African Penguin, drafted under the National Environmental: Biodiversity Act (No. 10 of 2004) will have in uniting stakeholders and focusing conservation efforts according to priorities.

Through an analysis of aspects of population demographics, biology and behaviour, including adult moult phenology and breeding trends, chick condition, adult foraging behaviour and their relationship to pelagic fish stocks, the way the African penguin interacts with the marine environment is examined. Comparisons are made between colonies throughout their distribution, and it is shown that African penguins at different colonies do not respond to pressures or changes in their environments in a uniform manner, a factor that will have an impact on conservation management decisions.

Waller graduated with a BSc in Environmental Biology and Environmental Science in 1997, and a BSc Honours degree in Biology in 1998, both from the University of Natal in Durban. In 2000, she graduated with an MSc in Conservation Biology from UCT. She is currently an Ecological Co-ordinator for CapeNature, where she is responsible for co-ordinating and facilitating ecological management within the Overberg area. Her supervisor is Professor Les Underhill.

### **Marathon birds' nest study gives insight into grassland biodiversity**

Ian Little's PhD thesis, *Bird reproductive success as a tool for understanding the impacts of land-use management on moist highland grassland biodiversity in South Africa*, encompasses the effects of both fire and grazing on a broad range of taxonomic groups within South Africa's grassland biome. This study highlights not only the threats that South Africa's grasslands face from intensive management, but also the sensitivity of the few areas that are currently under conservation management. The work developed indices for assessing the ecological integrity of grasslands and proposed a new method for measuring pastoral carrying capacity which, at the same time, would ensure biodiversity sustainability.

Little collected almost 1 million vegetation data points; collected and identified more than 32,000 insects, walked more than 160KM of bird-count transects and found and monitored more than 400 birds' nests – all to gain a greater understanding of the impacts of land management on species diversity. This in-depth study considers the community responses of vegetation, insects and birds to fire and grazing, as well as the ability of grassland birds to breed successfully in the face of these disturbance agents. The importance of vegetation structure, specifically standing stock, for both insect diversity and bird reproductive success illustrates the need for flexible, mosaic-type habitat management.

Little has been interested in ecology and biology from a young age and his love for grasslands has culminated in his PhD study on the impacts of human management on these sensitive systems. He spent his formative years in the grasslands of the Drakensburg and Eastern Cape. He subsequently moved to Cape Town, where his father was studying for his PhD at the Percy FitzPatrick Institute of African Ornithology at UCT. Little studied for a BSc degree in Zoology and Ecology and, in 2002, received an honours degree in Zoology, both at UCT. He then went on to study for an MSc in Conservation Biology, which he received in 2005. Little's supervisor is Profess Phil Hockey.

### **In this species, breast is best on the males**

Adams Chaskda's PhD thesis, *Determinants and consequences of territory quality in the Bar-throated Apalis Apalis thoracica*, explores ecological factors influencing territory size and quality in a resident African songbird, the Bar-throated Apalis *Apalis thoracica*. Chaskda, a doctoral student in Conservation Biology, investigates the consequences of these differences for reproductive effort and reward, pair stability and survival.

Chaskda also investigates the signalling properties of the species' black breast band (a prominent "badge" emblazoned across the white underparts) in relation to both male and territory quality. Territory quality varies greatly between pairs, with the smallest, most food-rich territories owned by high-quality males with large breast bands. These males attract the highest quality females, forming the pairs that collectively have the highest reproductive success. The breast band is thus an honest signal of male status. The thesis contributes significantly towards both our understanding of the principles of avian territoriality and of the messages carried in variable phenotypic traits.

Adams Chaskda was born in Adamawa State in north-east Nigeria and subsequently spent much of his life in the Plateau State of north-central Nigeria. In 2002 he received a BSc degree in Zoology from the University of Jos, Nigeria, after which he undertook an MSc in Conservation Biology at the AP Leventis Ornithological Research Institute at Jos, graduating with distinction in 2005. He was then appointed as a Research Associate at the same institute. In 2007 he was awarded a scholarship by the AP Leventis Foundation to undertake a PhD in Ornithology at UCT. His supervisor is Professor Phil Hockey.

### **Climate change puts Curlew Sandpiper onto new migration schedule**

Zoology doctoral student Yahkat Barshep examines the migration and moult strategy of the Curlew Sandpiper, a migratory shorebird that breeds in a small area of the High Arctic tundra of northern Siberia, Russia, and then migrates to Africa, India, and Australasia during the non-breeding season. One of the key activities in the annual cycle of this species during the non-breeding season is a moult of its flight feathers.

Barshep's PhD thesis, *Migration and moult strategy of the Curlew Sandpiper*, indicates that climate change has modified the timing of migration of the Curlew Sandpiper, and, consequently, has modified the timing and extent of moult of the species on its non-breeding areas. Barshep's thesis demonstrates a measurable effect of climate change on the life-history stages of the Curlew Sandpiper, quantifying the magnitude to which this species

responds to changing environment. The results can be applied to models that are used for assessing the ability of migratory shorebirds to adapt to global change.

This study is a demonstration of the power of statistical ecology, the interface between the disciplines of statistics and ecology. The study uses a combination of the unique statistical methods for the analysis of moult developed within the Animal Demography Unit and field data collected in Sweden, Poland, Kenya, South Africa, India and Australia. The statistical analyses demonstrate the ecological responses of this migratory shorebird to environmental conditions on both the breeding and non-breeding areas.

Barshep is a research associate at the AP Leventis Ornithological Research Institute (APLORI), Jos, Nigeria. She graduated with a BSc degree majoring in zoology from the University of Jos in 2002, followed by a MSc degree in Conservation Biology from the APLORI, University of Jos, in 2005. Her supervisor is Professor Les Underhill.

### **New evidence explains White-eyes diversity**

Graeme Oatley's PhD thesis, *Taxonomy, phylogeny and eco-biogeography of Southern African white-eyes (Zosterops spp.)* Aves: Order Passeriformes Family: Zosteropidae, explores the evolution of White-eyes, a group of small songbirds that occupy virtually all of southern Africa's biomes. Using both whole animal and molecular data, he finds that the evolutionary relationships between southern African white-eyes are substantially different to those put forward by previous researchers. As a result of this finding, mechanisms driving the rapid plumage diversification in the region can be attributed to novel environmental conditions as these birds expanded south from the northeastern regions of Africa.

Graeme Oatley obtained his BSc and BSc (Hons) from UCT and has been pursuing his PhD at the Percy FitzPatrick Institute of African Ornithology since 2007. During this time he has contributed to the collection of material for other research projects being run at the Percy FitzPatrick Institute in collaboration with other universities and institutions. His supervisor is Professor Timothy Crowe.

***ENDS***

**Please note:** Information in this release is based on the supervisor's citation for the PhD thesis. UCT advises journalists to obtain a copy of the thesis and/or interview the PhD graduate to verify and expand on this information.

***Issued by: UCT Communication and Marketing Department***

#### **Patricia Lucas**

Tel: (021) 650 5428 Fax (021) 650 5628

Cell: **076 292 8047**

E-mail: [pat.lucas@uct.ac.za](mailto:pat.lucas@uct.ac.za)

University of Cape Town

Rondebosch

Website: [www.uct.ac.za](http://www.uct.ac.za)