



**The 4<sup>th</sup> biennial Learn About Birds (LAB) Conference**

**8-9 March 2018**

**Club Mykonos, Langebaan, Western Cape, South Africa**



Albert Froneman

**PROGRAMME AND ABSTRACTS**

CO-HOSTED BY:



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## **Welcome**

BirdLife South Africa’s predecessor, the Southern African Ornithological Society, held fairly regular ornithological conferences. Unfortunately, however, for a period during the 1990s and early-2000s, no conferences were held. Regular ornithological meetings were then reinstated in 2012, and LABs (the clever acronym for these conferences) have been held in Port Elizabeth, the Drakensberg, Kruger National Park, and now on the West Coast.

LABs form part of Flock, the annual gathering (AGM) of BirdLife South Africa’s members. Flock is a time to celebrate our country’s birds, and to hear about BirdLife South Africa’s work, its conservation achievements as well as bird conservation challenges.

It is important to study birds, especially as the knowledge gained through research helps guide necessary conservation decisions and actions. Ornithologists also need to present and discuss the results of their research, and this is achieved during these biannual meetings.

LAB is co-hosted by BirdLife South Africa and the FitzPatrick Institute of African Ornithology, and the conferences are successful because they are well attended by ornithologists, conservation biologists, citizen scientists and birdwatchers.

I would like to welcome you to LAB and to wish you a very productive and enjoyable conference.

Thank you for your support.



Mark D. Anderson  
Chief Executive Officer  
BirdLife South Africa

## Keynote Speakers

### Dr Mark Brown



Mark has a PhD in ornithology from the University of KwaZulu-Natal (UKZN), and has published 80 peer-reviewed scientific papers, written about a dozen book chapters, and is a contributing author on the *Roberts Birds of Southern Africa VII<sup>th</sup> Edition*. He is Programme Director of the Nature's Valley Trust, a conservation NPO based in the Western Cape that does integrated conservation work. Mark and his team base education and awareness programmes on sound ecological data they collect, and use this to influence how communities interact with the environment, and how the region is managed. Mark is also an honorary researcher at UKZN. Mark holds a Y2 rating with the National Research Foundation, is an Associate Editor for *Ostrich* and the *Open Ornithology Journal*. He has given over 100 public talks, supervised 30 postgraduate students, and is passionate about getting people informed and involved on the biodiversity issues we face.

### Dr Alan Lee



Alan Lee is Editor-in-chief of BirdLife South Africa's scientific journal: *Ostrich – Journal of African Ornithology*. A generalist in terms of research scope and interests, he completed a PhD on parrots of the Peruvian Amazon, before returning to South Africa to help set up a family nature reserve, and then going on to do a postdoc at the FitzPatrick Institute on the birds of the Fynbos Biome. He is currently contracted to BirdLife South Africa to complete a conservation assessment of the endemic birds of the Karoo Biome, but also to assist monitoring leopards of the Baviaanskloof in conjunction with ECPTA, and work as a data scientist for the International Union for Conservation of Nature (IUCN). He has not published as much as Mark Brown, or ringed as many birds, and is not even as funny, but he does try his best.

## ***What you need to know***

Welcome to the Learn About Birds (LAB) Conference 2018. Our aim is to make your stay as comfortable as possible, so please take a moment to read through the following:

### **LAB Programme Committee:**

Dr Rob Little, Dr Hanneline Smit-Robinson, Linda van den Heever and Dr Melissa Whitecross

### **Oral Presentations:**

1. All delegates who are presenting at either Science or Layman's LAB are requested to load their presentations into the assigned session folders using a USB device. Folders will be labelled with the day, date and session name – please refer to the programme in the next section to confirm your assigned timeslot.
2. Please save your presentation with the following file name:  
*YourSurname\_YourInitial\_FirstSixWordsOfYourTitle*  
*i.e. Whitecross\_M\_CreativeConservationTheOrangeBreastedWaxbill*
3. All morning (pre-lunch) session presentations MUST be loaded onto the computers in the respective Science and Layman's venues BEFORE 08:00 on the day that the presentation will be given. All afternoon (post-lunch) session presentations must be loaded before the end of lunch on the day that the presentation will be given.



The LAB Conference is a registered Category 1 SACNASP event worth two credits. The validation number is 2017-0441-000100.

## ***African Seabird Group***

The African Seabird Group brings together scientists, conservationists, and managers to promote research and conservation for seabirds breeding in Africa and associated islands. The group provides a platform for communication and collaboration to support quality research and to assist in identifying and addressing major threats to seabird populations.

For more information or to join the African Seabird Group email: [taryn.morris@birdlife.org.za](mailto:taryn.morris@birdlife.org.za) or find us on facebook: <https://www.facebook.com/groups/168739770296004>

## LAB Conference 2018 Club Mykonos, Langebaan, Western Cape

### Programme of events

<b>Tuesday, 6 March 2018</b>				
06:30	<b>Organised Birding Outings</b>			
18:00	(see Excursion Schedule for more information)			
<b>Wednesday, 7 March 2018</b>				
06:30	<b>Organised Birding Outings</b>			
18:00	(see Excursion Schedule for more information)			
15:00	<b>LAB Registration at Athene Conference Centre Club Mykonos</b>			
18:00	<b>LAB Registration at Athene Conference Centre Club Mykonos</b>			
<b>19:00</b>	<b>Icebreaker: Quiz at Bouzouki's Restaurant</b>			
<b>Thursday, 8 March 2018</b>				
06:30	<b>LAB Registration at Athene Conference Centre, Club Mykonos</b>			
08:00	<b>LAB Registration at Athene Conference Centre, Club Mykonos</b>			
<b>Science LAB</b>			<b>Layman's LAB</b>	
Venue: Athene 3&4			Venue: Athene 1&2	
<b>Day 1</b>	<b>Title</b>	<b>Presenter</b>	<b>Title</b>	<b>Presenter</b>
<b>08:00</b>	<b>Welcome address and introduction of the plenary speaker - Mark Anderson</b>			
<b>08:15</b>	<b>Plenary: Dr Mark Brown</b>			
	<b>Share the shores</b>			

	<b>Session Theme: Breeding biology</b>	<b>Session Chair: Rob Thomson</b>	<b>Session Chair: Taryn Morris</b>	
08:45	Breeding success and productivity of the Southern Ground-Hornbill <i>Bucorvus leadbeateri</i> in an area supplemented with nest boxes	Kate Carstens	The flora and ecology of the West Coast	<b>Rupert Koopman</b>
09:00	Density dependence in space and time: Does staggered laying reduce effective breeding densities in an urban raptor species?	Petra Sumasgutner		
09:15	Variation in White-browed Sparrow-Weaver <i>Plocepasser mahali</i> nest insulation over a climatic gradient	Gabriel Foley		
09:30	Cooperative breeding biology of the African Pygmy Falcon <i>Polihierax semitorquatus</i>	Diana Bolopo	African Penguin conservation: taking the fish to the penguins and the penguins to the fish	<b>Christina Hagen</b>
09:45	Sharing the Shores: Measuring and mitigating disturbance on breeding White-fronted Plovers <i>Charadrius marginatus</i> in the Garden Route region	Selena Flores		
10:00	<b>Tea</b>			
	<b>Session Theme: Physiology &amp; climate change</b>	<b>Session Chair: Colleen Downs</b>	<b>Session Chair: Linda van den Heever</b>	
10:30	How much does it cost to be cool? Hidden consequences of behavioural thermoregulation in birds	Susie Cunningham	A history of Dassen Island and the birds that call it home	<b>Kevin Shaw</b>
10:45	Global variation in heat tolerance and evaporative cooling capacity among arid-zone passerine birds	Andrew McKechnie		
11:00	Slow down little Lark: the costs of rapid fledging in the Chestnut-backed Sparrow-Lark <i>Eremopterix leucotis</i>	Therminah Mashau		

11:15	Acute and chronic heat stress risk in desert birds under past, present and future climates	Shannon Conradie	Black Harriers and wind farms: lessons learned locally and in the Eastern Cape	<b>Rob Simmons</b>
	<b>Session Theme: Conservation</b>	<b>Session Chair: Hanneline Smit-Robinson</b>		
11:30	Bird-friendly: habitat management guidelines for the endemic birds of the Fynbos biome	Dale Wright		
11:45	Why key biodiversity areas are important for birds	Daniel Marnewick		
12:00	Site occupancy and activity patterns of Critically Endangered White-winged Flufftail <i>Sarothrura ayresi</i>	Robin Colyn	Protecting Our Estuaries: BirdLife South Africa's work on estuaries in the Western Cape	<b>Giselle Murison</b>
12:15	Creating suitable breeding habitat for priority species at Ingula	Carina Coetzer		
<b>12:30</b>	<b>Lunch sponsored by Kumba Iron Ore</b>			
<b>13:55</b>	<b>Introduction of Plenary Speaker - Dale Wright</b>			
<b>14:00</b>	<b>Plenary: Dr Alan Lee</b>			
	<b>South Africa's endemic birds: threats, status and conservation assessments</b>			
	<b>Session Theme: Morphology &amp; Taxonomy</b>	<b>Session Chair: Susie Cunningham</b>	<b>Session Chair: Robin Colyn</b>	
14:30	A study on African Rock Pipits <i>Anthus crenatus</i> in the Tswalu Kalahari Reserve and the Groblershoop area, Northern Cape	Dawie de Swardt	Finding and identifying the tricky specials of western South Africa	<b>Etienne Marais</b>

14:45	From dust to dust? On the origin of substrate colour-matching in larks	Abigail Ramudzuli	Finding and identifying the tricky specials of western South Africa	<b>Etienne Marais</b>
15:00	Flight feather microstructure of larks with different types of display flights	Derek Engelbrecht		
15:15	Application of Morpich-Google Images web tool for ornithological studies	Arjun Amar		
15:30	Difference in prey provisioning between mixed and like-morph pairs in the colour polymorphic Black Sparrowhawk <i>Accipiter melanoleucus</i>	Carina Nebel		
15:45	Mechanosensory structures in the beaks of waders in relation to their foraging ecology	Carla Du Toit		
16:00	<b>Tea Break</b>			
<b>Speed Talks</b>			<b>Layman's LAB attendees are invited to join the Science LAB speed talks at this time</b>	
<b>Session Theme: Mixed</b>		<b>Session Chair: Andrew McKechnie</b>		
16:30	Birds, bees and bushbabies: Interspecific competition for cavities	Peter Mokumo		
16:35	Unifying cultural heritage with conservation practice in rural communities of south-central KwaZulu-Natal: Southern Ground-Hornbills <i>Bucorvus leadbeateri</i> as a case study	Yvette Ehlers Smith		
16:40	Creative conservation: the Orange-breasted Waxbill <i>Amandava subflava</i> project	Melissa Whitecross		

16:45	Systematic conservation planning and ecological niche modelling for waterbirds across South Africa	Neil Daniels	<p style="text-align: center;"><b>Layman's LAB attendees are invited to join the Science LAB speed talks at this time</b></p>
16:50	Assessing the impact and source of lead toxicosis on South Africa's bird species	Linda van den Heever	
16:55	Interesting lessons learnt since the establishment of the BirdLife South Africa Ethics Committee	Erika Vercuiel	
17:00	Birdwatching is NOT for the birds	Nomusa Mkhungo	
17:05	The Albatross Task Force: driving seabird conservation in southern Africa	Reason Nyengera	
17:10	Disturbance effects of boat-based tourism on waterbirds at the Ramsar-designated De Hoop Vlei	Andrew de Blocq	
17:15	<i>Ostrich: African Journal of Ornithology</i>	Alan Lee	
<b>17:20</b>	<b>Speed talk question session</b>		
17:30	<b>Session Closes</b>		
<b>18:30</b>	<b>Cocktail Function at Oceanis Bar, Club Mykonos</b>		

## Friday, 9 March 2018

Science LAB			Layman's LAB
Venue: Athene 3&4			Venue: Athene 1&2
Day 2	Title	Presenter	<p style="text-align: center;"><b>Local birding at WCNP and other excursions (see Excursion Schedule for more information) Layman's LAB attendees are also invited to join the Science LAB</b></p>
	<b>Session Theme: African Seabird Group</b>	<b>Session Chair: Pierre Pistorius</b>	
08:00	Tagging along: where do Marion Island's Grey-headed Albatrosses <i>Thalassarche chrysostoma</i> go?	Kim Stevens	
08:15	Predicting how the isotopic composition of seabird tissues changes with different foraging behaviour	Tegan Carpenter-Kling	
08:30	Foraging strategies of Wedge-tailed Shearwaters <i>Ardenna pacifica</i> breeding on Réunion Island	Danielle van den Heever	
08:45	Seasonal variation in the diets of four sympatric penguin species at the sub-Antarctic Marion Island	Makabongwe Siggala	
09:00	Tristan Albatrosses <i>Diomedea dabbenena</i> : tracking overlap with fisheries, mouse eradication, and the bigger picture for BirdLife South Africa's seabird conservation	Ross Wanless	
09:15	Unravelling the impacts of tick-borne blood parasites of South African seabirds	Ralph Vanstreels	
09:30	Individual and within-pair foraging specialisation in Cape Gannets <i>Morus capensis</i> breeding at Bird Island, Algoa Bay	Ilana Engelbrecht	

09:45	Two decades of southern-ocean species admitted for rehabilitation at SANCCOB, South Africa	Albert Snyman		
<b>10:00</b>	<b>Conference Photograph</b>			
<b>10:15</b>	<b>Tea Break</b>			
	<b>Session Theme: African Seabird Group</b>	<b>Session Chair: Pierre Pistorius</b>	<b>Session Chair: Melissa Whitecross</b>	
10:45	Eradicating mice from Marion Island: research questions and logistical challenges	Andrea Angel	Hot Birds: our birdlife and climate change	<b>Andrew McKechnie</b>
11:00	Do or die: Spatial use of African Penguins <i>Spheniscus demersus</i> before and after moulting fast	Taryn Morris		
11:15	Understanding moult patterns and breeding success of albatrosses and giant petrels at Marion and Gough Islands	Alexis Osborne		
	<b>Session Theme: Ecology</b>	<b>Session Chair: Derek Engelbrecht</b>	<b>Session Chair: Melissa Whitecross</b>	
11:30	Southern Ground-Hornbills <i>Bucorvus leadbeateri</i> - the big picture: past, present and future	Lucy Kemp	Assessing the current population status of range-restricted small passerine species (Rudd's Lark, Botha's Lark & Yellow-breasted Pipit) in the highland grasslands of South Africa	<b>Robin Colyn</b>
11:45	Tracking Grey-headed Gull <i>Chroicocephalus cirrocephalus</i> movements to develop effective bird strike mitigation strategies for O. R. Tambo International Airport, JHB	Hanneline Smit-Robinson		
12:00	The seasonal response of birds to <i>Seriphium plumosum</i> densification at Telperion, Mpumalanga, South Africa	Susannah Patrocinio	An increasing trend in a world of decline: the tale of southern Africa's European Honey Buzzards	<b>Caroline Howes</b>
12:15	Flower length matters more than width in nectar feeding by White-bellied Sunbirds <i>Cinnyris talatala</i>	Celiwe Ngcamphalala		
12:30	Sunbird seasons: ringing reveals movements in the Eastern Cape	Adrian Craig		

12:45	Lunch sponsored by Kumba Iron Ore			
	Session Theme: Ecology	Session Chair: Rob Little	Session Chair: Giselle Murison	
13:30	Effects of land-use changes on aspects of the ecology of Long-crested Eagles <i>Lophaetus occipitali</i> including habitat use	Machawe Maphalala	Strandveld birding	
13:45	Measuring protection levels for species for South Africa's National Biodiversity Assessment: Birds	Ernst Retief		
14:00	Seasonal variation in avian diversity and tolerance of migratory forest specialists to the patch-isolation gradient across a critically endangered forest system	David Ehlers Smith		
14:15	The spatial ecology of fledging Cape Vultures <i>Gyps coprotheres</i> from the Eastern Cape, South Africa	Francis Martens	Where have all the waders gone? Conservation actions needed to address declines in migratory waders	
14:30	More eyes on the skies? Understanding the apparent increase of the European Honey Buzzard <i>Pernis apivorus</i> in southern Africa relative to birdwatching effort	Caroline Howes		
	Session Theme: Threats & disturbances	Session Chair: Arjun Amar	Session Chair: Giselle Murison	
14:45	Are bullets killing our Cape Vultures <i>Gyps coprotheres</i> ?	Nndwandiyawe Muhali	The East Atlantic Flyway Initiative	
15:00	Camera-trap data elucidate habitat requirements and conservation threats to an endangered forest specialist, the Spotted Ground Thrush <i>Geokichla guttata</i>	Yvette Ehlers Smith		
15:15	Tea Break			

	Session Theme: Threats & disturbances	Session Chair: Arjun Amar	Session Chair: Martin Taylor	
15:45	Avoiding a collision course for vultures and renewable energy in Africa	Sam Ralston	The international work of the RSPB (Royal Society for the Protection of Birds)	<b>Dieter Hoffmann</b>
16:00	Nocturnal movements of the Lesser Flamingo <i>Phoeniconaias minor</i> in southern Africa – evidence for nocturnal power-line mitigation	Matt Pretorius		
16:15	Killing threatened birds with green energy: how do we make it greener?	Rob Simmons	The Champions of the Flyway: more than just a bird race	<b>Andrew de Blocq</b>
16:30	Searching for carrion: African vultures hindered by bush encroachment relinquish their competitive advantage over mammalian scavengers	Kyle Walker		
<b>16:45</b>	<b>Raffle Draw for Zeiss Binoculars</b>			
<b>17:00</b>	<b>Closing Address - Mark Anderson</b>			
<b>17:10</b>	<b>Session Closes</b>			
<b>19:00</b>	<b>Gala Dinner at Boesmanland Plaaskombuis</b>			
<b>Saturday, 10 March 2018</b>				
06:30 12:00	<b>Organised Birding Outings</b> (see Excursion Schedule for more information)			
<b>14:00</b>	<b>BirdLife South Africa 89<sup>th</sup> AGM</b> <b>Athene Conference Centre, Club Mykonos</b> (AGM will start at 14:30 sharp)			
<b>18:30</b>	<b>Final Dinner at Marc's Beach Bar, Club Mykonos</b>			
<b>Sunday, 11 March 2018</b>				
06:30 11:00	<b>Organised Birding Outings</b> (see Excursion Schedule for more information)			
<b>12:00</b>	<b>Departure</b>			
<b>LAB Programme Committee:</b> Rob Little, Hanneline Smit-Robinson, Linda van den Heever, Melissa Whitecross				



## ABSTRACTS

**Thursday, 8 March 2018**

### KEYNOTE SPEAKER

#### SHARE THE SHORES

Mark Brown

*Nature's Valley Trust, P.O. Box 230, The Craggs, 6602, South Africa*

Contact: [mark@naturesvalleytrust.co.za](mailto:mark@naturesvalleytrust.co.za)

#### Abstract

Every summer, residents and visitors flock to the beaches, and often take their companion animals with them to enjoy all the beaches have to offer. However, this is also the time of year several sensitive bird species, like African Black Oystercatchers and White-fronted Plovers pair, up and breed on our beaches. Over the last four summers, Nature's Valley Trust (NVT) researchers have investigated the impact that disturbance by people and dogs may have on breeding performance in these birds, and used the data to come up with innovative mitigation and intervention methods that, coupled with high-impact education and awareness programmes, have seen an increase in the breeding success in these birds. In this talk, Mark will explain the lessons learnt from NVT's work, and discuss how similar work can and should be done all along the coastline.

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## SESSION: BREEDING BIOLOGY

### BREEDING SUCCESS AND PRODUCTIVITY OF THE SOUTHERN GROUND-HORNBILL *BUCORVUS LEADBEATERI* IN AN AREA SUPPLEMENTED WITH NEST BOXES

Kate F. Carstens<sup>1</sup>, Reshma Kassanjee<sup>2</sup>, Rob M. Little<sup>1</sup>, Peter G. Ryan<sup>1</sup> & Phil A.R. Hockey<sup>1</sup>

<sup>1</sup>*FitzPatrick Institute of African Ornithology, DST-NRF Centre of Excellence, University of Cape Town, Cape Town*

<sup>2</sup>*Department of Statistical Sciences, University of Cape Town, Cape Town*

Contact: kfcarstens@gmail.com

#### Abstract

Artificial nests can improve the conservation status of threatened birds that are limited by nest-site availability. For the endangered Southern Ground Hornbill *Bucorvus leadbeateri*, the shortage of natural nesting sites is one factor limiting population growth. A total of 31 wooden nest boxes were installed in an 1800 km<sup>2</sup> study area in north-eastern South Africa during 2002–2015. The study area initially had only one known breeding group. During the 2003 breeding season, 24% of nest boxes were occupied. By 2015, 68% of nest boxes were occupied, representing 70% of groups breeding in the study area. The amount of rain that fell over the previous year came close to having a significant effect on whether a group attempted to breed in the subsequent year. However, fledging success was not associated with rainfall. In addition, fledging success was not affected by habitat, group size, orientation of the nest entrance or by removing from the nest the redundant second chick. But the thickness of the cavity walls, and the height of the nest entrance above the ground were important factors influencing fledging success. In addition, the timing of breeding had important consequences for fledging success, with nests initiated earlier in the season having a higher likelihood of fledging a chick than nests initiated later in the season. Importantly, fledging success was not associated with the type of nest occupied (natural tree cavity or nest box). Furthermore, predation levels were similar between the two nest types (20% in nest boxes and 18% in natural nests). The only adverse effect of nest boxes was the high population density created by the availability of the artificial nests at this study site. A density-dependent threshold was reflected by the fact that fledging success increased initially but then decreased as the number of breeding groups increased above 20 breeding groups in the study area. Nest boxes are therefore an effective conservation tool if spaced optimally. In this study area, optimal density is one group per 90–120 km<sup>2</sup>. Nest boxes can and should be used together with other conservation initiatives, such as harvesting of redundant second chicks, to enhance breeding and reproductive output in areas where suitable nest sites are lacking.

### DENSITY DEPENDENCE IN SPACE AND TIME: DOES STAGGERED LAYING REDUCE EFFECTIVE BREEDING DENSITIES IN AN URBAN RAPTOR SPECIES?

Petra Sumasgutner<sup>1</sup>, Ann Koeslag<sup>1</sup> & Arjun Amar<sup>1</sup>

<sup>1</sup>*FitzPatrick Institute of African Ornithology, DST-NRF Centre of Excellence, University of Cape Town, Cape Town*

Contact: petra.sumasgutner@univie.ac.at

#### Abstract

Many studies have examined the influence of breeding density on breeding performance. However, the vast majority have explored this issue in the northern hemisphere, mainly in temperate environments where breeding seasons are relatively short and synchronised. In contrast, breeding seasons in the southern hemisphere and tropical regions may be far longer and highly asynchronous. Density dependence has been explored using various metrics, for example, breeding performance in relation to (i) numbers of pairs in the study area; (ii) nearest neighbour distances; or, (iii) numbers of pairs within a buffer of a nest. Few, if any have however incorporated a temporal component into such analyses, which may be important where species have extended breeding seasons. We use a highly territorial urban population of Black Sparrowhawks *Accipiter melanoleucus* in Cape

Town which has a nine-month breeding season to explore density dependence in both space and time. We used a 16-year data-set of colour ringed breeding pairs, information on their timing of breeding and breeding performance to explore various approaches to score the competitive landscape, including a proximity index that takes temporal aspects into account (the time of overlap between active nests). We found the effect of density dependence was strongest when we incorporated a temporal aspect in the analysis. This suggests that staggered breeding may enable higher overall breeding densities and higher productivity. Our findings are amongst the first to show that failing to incorporate a temporal component into density dependence analyses can reveal unrealistic results, particularly in the southern hemisphere.

## VARIATION IN WHITE-BROWED SPARROW-WEAVER *PLOCEPASSER MAHALI* NEST INSULATION OVER A CLIMATIC GRADIENT

Gabriel Foley<sup>1</sup> & Andrew McKechnie<sup>1</sup>

<sup>1</sup>University of Pretoria, Lynwood Rd, Hatfield, Pretoria, 0002

Contact: gabriel.j.foley@gmail.com

### Abstract

Arid regions experience hot days and cool nights, and organisms living there must cope with both extremes. Birds are typically exposed to hot daytime temperatures, but may use a nest to reduce nocturnal thermoregulatory expenses. White-browed Sparrow-weavers *Plocepasser mahali* are a common bird in eastern and southern Africa and inhabit arid and semi-arid regions. They are a colonial species, but rather than take advantage of the thermoregulatory benefits of communal roosting, they roost individually in a domed nest at night. To understand how they cope with hot day and cool night temperatures, we are looking at the insulative values of their nests across a climatic gradient. In drier areas with cooler nights, we predict that nest insulation values will be higher. To test this, we will be collecting nests from four sites in South Africa that represent a 10 °C temperature gradient. To determine the insulative values of the nests, we will use thermocouples to measure the cooling curve of capsules containing ~50 °C water placed inside the collected nests. The nests will be in a temperature-controlled room set to 10 °C. Adapting the environment to meet an organism's physiological requirements is a central desert survival strategy, and this has become particularly important to understand in arid regions where climate change-induced temperature increases are predicted.

## COOPERATIVE BREEDING BIOLOGY OF THE AFRICAN PYGMY FALCON *POLIHIERAX SEMITORQUATUS*

Diana Bolopo<sup>1</sup>, Anthony Lowney<sup>1</sup> & Robert Thomson<sup>1</sup>

<sup>1</sup>FitzPatrick Institute of African Ornithology, DST-NRF Centre of Excellence, University of Cape Town, Cape Town

Contact: diana.bolopo@uct.ac.za

### Abstract

Arid regions experience hot days and cool nights, and organisms living there must cope with both extremes. Birds are typically exposed to hot daytime temperatures, but may use a nest to reduce nocturnal thermoregulatory expenses. White-browed Sparrow-weavers *Plocepasser mahali* are a common bird in eastern and southern Africa and inhabit arid and semi-arid regions. They are a colonial species, but rather than take advantage of the thermoregulatory benefits of communal roosting, they roost individually in a domed nest at night. To understand how they cope with hot day and cool night temperatures, we are looking at the insulative values of their nests across a climatic gradient. In drier areas with cooler nights, we predict that nest insulation values will be higher. To test this, we will be collecting nests from four sites in South Africa that represent a 10 °C temperature gradient. To determine the insulative values of the nests, we will use thermocouples to measure the cooling curve of capsules containing ~50 °C water placed inside the collected nests. The nests will be in a temperature-controlled room set to 10 °C. Adapting the environment to meet an organism's physiological requirements is a

central desert survival strategy, and this has become particularly important to understand in arid regions where climate change-induced temperature increases are predicted.

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**SHARING THE SHORES: MEASURING AND MITIGATING DISTURBANCE ON BREEDING WHITE-FRONTED PLOVERS  
*CHARADRIUS MARGINATUS* IN THE GARDEN ROUTE REGION**

Selena D. Flores<sup>1</sup>, Peter G. Ryan<sup>1</sup> & Mark Brown<sup>2</sup>

<sup>1</sup>FitzPatrick Institute of African Ornithology, DST-NRF Centre of Excellence, University of Cape Town, Cape Town

<sup>2</sup>Nature's Valley Trust, Greater Plettenberg Bay region, & UKZN, Pietermaritzburg

Contact: selenaflores@gmail.com

**Abstract**

South Africa's coastal regions face a myriad of threats, from widespread global climate change to remarkable rates of encroachment due to development. Along with these larger concerns, it is also necessary to examine cumulative impacts of smaller, everyday forms of anthropogenic disturbance, such as effects of recreational use on coastal wildlife and habitats in high-tourism regions. Despite economic and ecological importance, environmental policy and enforcement chronically neglect disturbance to sandy beach ecosystems. Ground-nesting shorebirds are notably vulnerable to the presence of beach visitors. Following the global trend of shorebird decline, the White-fronted Plover *Charadrius marginatus* has undergone considerable reduction in populations across the Western Cape over the last three decades, largely due to anthropogenic pressure. The Garden Route shoreline, being a popular holiday destination, experiencing recent increases in tourism and development interest amongst the natural areas, yet being relatively unstudied, serves as an ideal study site. This research aims to utilize empirical data to determine the influence of anthropogenic disturbance on shorebird breeding success in high recreational use areas. Based on field observations and experiments, shorebird response to human presence and resulting effects on reproductive output will be outlined. The outcome is to emphasize contemporary, on-the-ground application of conservation research, by drafting conservation management recommendations. Suggestions from a sound scientific standpoint will assist those driving our community to make appropriate decisions, taking into consideration both economic development and environmental conservation. Such site- and species-specific strategies will be developed, implemented locally, and evaluated for their effectiveness to provide comprehensive management recommendations to a variety of environmental agencies and stakeholders.

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## SESSION: PHYSIOLOGY & CLIMATE CHANGE

### HOW MUCH DOES IT COST TO BE COOL? HIDDEN CONSEQUENCES OF BEHAVIOURAL THERMOREGULATION IN BIRDS

Susan J. Cunningham<sup>1</sup>, Tanja M.F.N. van de Ven<sup>1</sup>, Ryan Olinger<sup>1</sup>, Thomas Flower<sup>1</sup> & Rowan O. Martin<sup>1</sup>

<sup>1</sup>*FitzPatrick Institute of African Ornithology, DST-NRF Centre of Excellence, University of Cape Town, Cape Town*

Contact: sj.cunningham@uct.ac.za

#### Abstract

For birds, physiological mechanisms for keeping cool during hot weather can involve the use of 'adaptive hyperthermia' and rapidly increasing expenditure of water with attendant risks of dehydration; especially in arid environments. In the face of these challenges, birds often use behavioural thermoregulation: reducing activity and choosing cool, sheltered locations within the landscape to minimise environmental heat load. However, these behaviours carry important missed-opportunity costs which can translate into fitness consequences. Cumulatively, these costs have potential to impact avian populations and communities as the climate warms. The importance of these non-lethal costs is often overlooked in studies attempting to predict avian responses to climate change. We present results from studies of two bird species from the Kalahari Desert, Fork-tailed Drongos *Dicrurus adsimilis* and Southern Yellow-billed Hornbills *Tockus leucomelas*. In both species, changes in behaviour for thermoregulation correlate with reduced foraging intake and reduced provisioning rates to nests. Using drongos, we show experimentally that these effects are independent of prey availability. In hornbills, missed foraging opportunities associated with behavioural thermoregulation result in reduced body condition of adults and compromised nestling growth. In drongos, nestling growth is maintained despite reductions in parental provisioning effort. We discuss the implications of these findings and next steps for untangling the relationships between temperature, behaviour and fitness in birds.

### GLOBAL VARIATION IN HEAT TOLERANCE AND EVAPORATIVE COOLING CAPACITY AMONG ARID-ZONE PASSERINE BIRDS

Andrew E. McKechnie<sup>1</sup>, E.K. Smith<sup>2</sup>, A.R. Gerson<sup>3</sup>, T.J. McWhorter<sup>4</sup> & B.O. Wolf<sup>2</sup>

<sup>1</sup>*Department of Zoology and Entomology, University of Pretoria*

<sup>2</sup>*Biology Department, University of New Mexico*

<sup>3</sup>*Department of Biology, University of Massachusetts, Amherst*

<sup>4</sup>*School of Animal & Veterinary Sciences, University of Adelaide*

Contact: aemckechnie@zoology.up.ac.za

#### Abstract

Quantifying the upper limits of avian heat tolerance and evaporative cooling capacity is vital for understanding the ecology of arid-zone birds and modelling their vulnerability to acute heat stress under future climates. We quantified heat tolerance limits and interactions between  $T_b$ , evaporative water loss (EWL) and resting metabolic rate (RMR) at high air temperature ( $T_a$ ) in 15 passerines from three arid regions: South Australia, the Kalahari Desert and the Sonoran Desert. Heat tolerance limits ranged from  $T_a = 46$  °C to 54 °C, and varied among assemblages in terms of scaling with body mass. All 15 species showed maximum  $T_b$  values of approximately 44-45 °C, large increases in EWL at high  $T_a$ , and distinct upper critical limits of thermoneutrality. Fractional increases in EWL varied substantially, with values for three African ploceid weavers approximately double those of five Australian species. Maximum ratios of evaporative heat loss to metabolic heat production ranged from 1.2 to 2.2, broadly consistent with previously-reported passerine values but substantially lower than those typical of taxa such as columbids and caprimulgids. Our data reiterate the variation that exists in passerine evaporative cooling capacity, and provide the basis for large-scale spatial analyses of vulnerability to extreme heat events.

## **SLOW DOWN LITTLE LARK: THE COSTS OF RAPID FLEDGING IN THE CHESTNUT-BACKED SPARROW-LARK *EREMOPTERIX LEUCOTIS***

Therminah Mashau<sup>1</sup>, G. Derek Engelbrecht<sup>1</sup> & Peter Mokumo<sup>1</sup>

<sup>1</sup> *Department of Biodiversity, University of Limpopo, P/Bag X1106, Sovenga, 0727*

Contact: themhumbu@gmail.com

### **Abstract**

Most passerines perform a partial post-juvenile moult a few weeks to months after fledging. Although variable, this moult usually involves the contour feathers, coverts, inner secondaries and tail feathers. An uncommon strategy is the replacement of all the juvenile feathers, e.g. contour feathers, remiges and rectrices, soon after fledging. This strategy seems counter-productive at first glance as growing an entire set of feathers must place tremendous demands on the energy and nutritional resources of the juvenile. It is presumably a strategy that allows rapid growth of the nestlings to fledge at an early age to reduce the likelihood of predation, but at the cost of quality of the feathers. Juvenile feathers are often of an inferior quality and it is unlikely that they will last an entire year until the next moult.

We compared the quality of all the remiges and rectrices of juvenile and adult Chestnut-backed Sparrow-larks (male and female) using feather mass and length, the mass:length ratio as well as the degree of fluctuating asymmetry in these features. The results confirmed that juvenile flight feathers are of inferior quality compared to adults and there were only limited differences in the feather quality of adult males versus females. The results support the general notion of poorer quality juvenile feathers. To determine which micro-structural features are compromised at the expense of rapid growth, we compared selected micro-structural parameters of three primaries, three secondaries and three tail feathers of adults and juveniles. These differences will be discussed during the presentation.

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## **ACUTE AND CHRONIC HEAT STRESS RISK IN DESERT BIRDS UNDER PAST, PRESENT AND FUTURE CLIMATES**

Shannon R. Conradie<sup>1</sup>, Stephan Woodborne<sup>2</sup> & Andrew E. McKechnie<sup>1</sup>

<sup>1</sup> *Department of Zoology and Entomology, University of Pretoria*

<sup>2</sup> *iThemba LABS, Johannesburg, South Africa*

Contact: aemckechnie@zoology.up.ac.za

### **Abstract**

Organisms' niches are part of a dynamic system that shifts under changing climates. Modelling species distribution through time facilitates understanding, conservation and management of ecosystem services and the mitigation of extinction risk. Past climate data combined with species responses to climate change are a way of validating extinction risk and reducing uncertainty for species' responses to future climate change. Future trajectories of species distributions and extinction risks in response to changing environmental conditions have not considered climate histories and the physiological responses that organisms might have expressed historically. We developed a dynamic tool to interrogate spatial-temporal climate models, revealing changes over the last millennium and allowing identification of areas of acute and chronic heat-stress risk in desert birds in the southern region of the Kalahari Desert. Birds are particularly vulnerable to increased air temperatures ( $T_a$ ) due to their predominantly diurnal lifestyle, small size, and their high energy and water requirements. When exposed to short term (typically over hours) increases in  $T_a$  to values above body temperature, birds experience acute heat stress, where their only avenue of heat dissipation to maintain body temperature below environmental temperatures is through evaporative heat loss. The rates of evaporative water loss (EWL) over a range of air temperatures determine critical thresholds of lethal dehydration risk. When increased  $T_a$  persists over periods of days to weeks, birds experience chronic heat stress. Conditions of chronic heat stress result in trade-offs between individual survival and fitness, resulting in sub-lethal fitness costs such as compromised foraging efficiency, provisioning rates to nestlings and loss of body condition. We

found desert birds to have experienced varying degrees of exposure to both acute and chronic heat stress over the last millennium. In recent and future years (using a 4 °C warming scenario) the risk of heat stress has been increasing and expanding in desert birds. This study highlights the important role that historical air temperature has played on endotherms' physiologically-limited distributions in the past, present and likely in the future. Further, we highlight the importance of conserving thermally-buffered microsites and water bodies in light of these findings.

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## SESSION: CONSERVATION

### BIRD-FRIENDLY: HABITAT MANAGEMENT GUIDELINES FOR THE ENDEMIC BIRDS OF THE FYNBOS BIOME

Dale R. Wright<sup>1</sup> & Alan T.K. Lee<sup>1,2</sup>

<sup>1</sup> Regional Conservation Manager: Western Cape, South Africa, BirdLife South Africa, Private Bag X16, Pinegowrie, 2123, Johannesburg, South Africa

<sup>2</sup> FitzPatrick Institute of African Ornithology, DST-NRF Centre of Excellence, University of Cape Town, Cape Town

Contact: dale.wright@birdlife.org.za

#### Abstract

BirdLife South Africa is a National NGO tasked with conserving the threatened and endemic birds of South Africa, and their associated habitats. In 2016 a four-year research project focused on the fynbos endemic birds came to a close, and the information generated from this research project was used to draft habitat management guidelines for these species. There are eight species which can be considered as strict endemics within the Fynbos Biome, namely; Cape Sugarbird, Orange-breasted Sunbird, Cape Rock-jumper, Cape Siskin, Victorin's Warbler, Protea Seedeater, Hottentot Buttonquail and the Agulhas Long-billed Lark. The Fynbos endemics are also Important Bird and Biodiversity Area (IBA) trigger species for a number of IBAs across the Western Cape, in particular the large Cape Fold mountain IBAs which stretch across the Province. These species face a range of threats across the biome, including habitat transformation through agricultural expansion or alien-vegetation infestation, fire-regime changes, climate-change effects and other threats such as poisoning. Each of these threats impacts on each of the fynbos endemic birds to varying degrees. We scored each threat for each species, to determine the most important mitigation actions. The results of the threat scoring and priority conservation actions are presented, alongside aspects of each species' ecology. For example; Cape Rock-jumpers will be at greatest threat from shifts in their bio-climatic envelope due to climate change; whereas Cape Sugarbirds are predicted to decline with inappropriate fire regimes. A suite of overarching conservation actions targeting the threats, designed as habitat management guidelines for these birds, are also presented. The conservation actions include a number of interventions for agricultural landowners, appropriate fire management, alien vegetation eradication and habitat rehabilitation. We hope that diverse stakeholders including managers of protected areas in IBAs, scientists at NGOs or government agencies, and private landowners, find the guidelines to be a useful tool for enhancing the conservation of the Fynbos endemic bird species.

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#### WHY KEY BIODIVERSITY AREAS ARE IMPORTANT FOR BIRDS

Daniel Marnewick<sup>1</sup>

<sup>1</sup> BirdLife South Africa, Private Bag X16, Pinegowrie, 2123, Johannesburg, South Africa

Contact: daniel.marnewick@birdlife.org.za

#### Abstract

Key Biodiversity Areas are 'sites contributing significantly to the global persistence of biodiversity', in terrestrial, freshwater and marine ecosystems. Sites qualify as global KBAs if they meet one or more of 11 criteria, clustered into five categories: threatened biodiversity; geographically restricted biodiversity; ecological integrity; biological processes; and irreplaceability. The KBA criteria can be applied to species and ecosystems.

Currently South Africa has 168 KBAs, a network which currently is constituted of sites previously designated as IBAs and those KBAs that were identified under the previous KBA criteria by the Critical Ecosystem Partnership Fund (CEPF). These sites will soon be reassessed to ensure they meet the new KBA criteria, and then new KBAs will be proposed to capture other priority species and ecosystems. This is a project in partnership between BirdLife South Africa and the South African National Biodiversity Institute.

It is vitally important for South Africa's ornithological experts and researchers to take an active interest in KBAs to ensure we pool all our knowledge to identify those sites important for birds. We will need to capture local expert knowledge and our extensive data banks to inform the process. It is also more efficient to recognise sites that also include other taxa or important ecosystems, so ornithological research needs to take note of other important biodiversity.

KBAs are not a systematic conservation planning tool, however they will contribute an important layer to such spatial planning. Nonetheless, a comprehensive and rigorous KBA network will be important to highlight South Africa's mega-biodiversity and thereby ensure global financial investment for the conservation of these sites. Also, what sets the global KBA Programme apart from other similar initiatives is that it has the full weight behind it of 12 of the largest global conservation NGOs<sup>1</sup>, meaning advocacy for KBAs packs a powerful punch.

<sup>1</sup><http://www.keybiodiversityareas.org/kba-partners>

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## **SITE OCCUPANCY AND ACTIVITY PATTERNS OF CRITICALLY ENDANGERED WHITE-WINGED FLUFFTAIL *SAROTHRURA AYRESI***

Robin B. Colyn<sup>1</sup>, A. Campbell<sup>2</sup> & Hanneline A. Smit-Robinson<sup>1,3,4</sup>

<sup>1</sup> *Terrestrial Bird Conservation Programme, BirdLife South Africa, Private Bag X16, Pinetown, 2123, Johannesburg, South Africa*

<sup>2</sup> *Ingula Nature Reserve, Eskom Holdings SOC Ltd, Ladysmith, South Africa*

<sup>3</sup> *Applied Behavioural Ecological & Ecosystem Research Unit (ABEERU), UNISA, Private Bag X6, Florida, 1717, South Africa*

<sup>4</sup> *School of Animal, Plant and Environmental Sciences, University of the Witwatersrand, 1 Jan Smuts Ave, Braamfontein, Johannesburg, 2050*

Contact: [robin.colyn@birdlife.org.za](mailto:robin.colyn@birdlife.org.za)

### **Abstract**

Some of the greatest challenges to studying some threatened rallidae species are their cryptic and elusive behaviour together with the often dense wetland vegetation inhabited by these species. One of the few methods of determining the presence of rare and elusive rallid species in order to study them has been the use of auditory surveys and rope-dragging. In the case of the Critically Endangered White-winged Flufftail *Sarothrura ayresi*, which is silent in the non-breeding grounds in South Africa and generally considered a very low-density species globally, has resulted in both survey methods being largely ineffective at yielding robust datasets. Therefore, many aspects of this species biology and conservation status are poorly understood or unknown. In order to effectively determine the population status of this species and other similar rallidae species, a new monitoring method is required. The aim of our study was to test camera trapping as a novel and non-invasive method of surveying rare and elusive rallidae species such as White-winged Flufftail. Our results successfully displayed the efficacy of camera trapping for these species and provided the first documented estimation of the site occupancy and activity patterns of White-winged Flufftail.

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## CREATING SUITABLE BREEDING HABITAT FOR PRIORITY SPECIES AT INGULA

Robin B. Colyn<sup>1</sup>, Carina Coetzer<sup>1</sup>, Hanneline A. Smit-Robinson<sup>1,2,3</sup>

<sup>1</sup> *Terrestrial Bird Conservation Programme, BirdLife South Africa, Private Bag X16, Pinetown, 2123, Johannesburg, South Africa*

<sup>2</sup> *Applied Behavioural Ecological & Ecosystem Research Unit (ABEERU), UNISA, Private Bag X6, Florida, 1717, South Africa*

<sup>3</sup> *School of Animal, Plant and Environmental Sciences, University of the Witwatersrand, 1 Jan Smuts Ave, Braamfontein, Johannesburg, 2050*

Contact: [carina.coetzer@birdlife.org.za](mailto:carina.coetzer@birdlife.org.za)

### Abstract

Managing landscapes, nature reserves and habitats for threatened-species conservation is essential for the persistence of many of these species, but is a task filled with challenges. The challenge is further augmented when the objective is to conserve species-suites with varied micro-habitat niches, thereby necessitating the need for heterogeneity across the respective conservation area. Management interventions are often needed on smaller sections of the landscape such as nature reserves, but the impact and success thereof can vary greatly. We studied the breeding success of a suite of threatened grassland avian species at the soon to be declared Ingula Nature Reserve, KwaZulu-Natal. These species were used to assess the effect of the continuous implementation of fire and grazing plans on their breeding success over the course of four consecutive years. In addition to the impact of grassland drivers such as fire and grazing, the breeding success of Southern Bald Ibis (Vulnerable) on an artificial ledge was also compared to that on natural ledges within the given study area. Our results provide insight into the breeding success of these species in relation to management interventions, as well as recommendations on grassland management practices for threatened avian species conservation.

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## KEYNOTE SPEAKER

### SOUTH AFRICA'S ENDEMIC BIRDS: THREATS, STATUS AND CONSERVATION ASSESSMENTS

Alan Lee

*FitzPatrick Institute of African Ornithology, Private Bag X3, Rondebosch, Cape Town, 7701, South Africa*

Contact: [alan.tk.lee@googlemail.com](mailto:alan.tk.lee@googlemail.com)

### Abstract

South Africa is blessed with great birds, and great birders who have now been monitoring them for years through the South African Bird Atlas Project. We should all be interested in our endemic birds and aware of the threats they face, because they are part of our heritage. Owing to rapid global change and development on all fronts, this is an important time to take stock of the threats that face our birds. This talk will give an overview of some of the insights gained from atlas data, as well as some of the field-work projects that are being undertaken on our endemic birds. After this talk you should be able to name at least 10 endemic bird species, and understand a little more about their ecology.

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## SESSION: MORPHOLOGY & TAXONOMY

### A STUDY ON AFRICAN ROCK PIPITS *ANTHUS CRENATUS* IN THE TSWALU KALAHARI RESERVE AND THE GROBLERSHOOP AREA, NORTHERN CAPE

Dawie de Swardt<sup>1</sup>

<sup>1</sup>Department of Ornithology, National Museum, PO Box 266, Bloemfontein, South Africa

Contact: dawie@nasmus.co.za

#### Abstract

The African Rock Pipit *Anthus crenatus* (ARP) is endemic to South Africa and Lesotho with at least five isolated populations in the Northern Cape. This species is associated with mountainous areas, karoo hills and escarpments with rocky hills preferring open areas with adequate grass cover. During an ongoing study on the vocalizations of ARP, populations occurring in the Northern Cape at Tswalu Kalahari Reserve and the Groblershoop area were visited to obtain recordings of song vocalizations. ARP's were studied in Tswalu during October 2013 and December 2014 and in the Groblershoop area during February and November 2015. Songs of individual pipit males were recorded at isolated hills in 12 different territories at Tswalu and nine territories sampled in different localities in the Groblershoop area. All recording localities were also plotted on GPS. Statistics of song components (S2a-d) recorded at Tswalu and the Groblershoop were compared. Preliminary statistical analysis on the song structures of the Northern Cape ARP populations differs from those along the core population. Preliminary analysis of DNA tissue samples also suggests that the birds in the Northern Cape possibly evolved to a separate, unique form. This species is also listed as "Near Threatened" in the "The 2015 Eskom Red Data Book of Birds of South Africa, Lesotho and Swaziland". A study is needed to determine the population sizes of the isolated populations in the Northern Cape at these isolated hills and regular field surveys is also needed to assess this species responses to the effects of climate change (SABAP2).

### FROM DUST TO DUST? ON THE ORIGIN OF SUBSTRATE COLOUR-MATCHING IN LARKS

Abigail Ramudzuli<sup>1</sup>, G. Derek Engelbrecht<sup>1</sup> & Paul Donald<sup>2</sup>

<sup>1</sup>Department of Biodiversity, University of Limpopo, P/Bag X1106, Sovenga, 0727

<sup>2</sup>BirdLife International, The David Attenborough Building, Pembroke Street, Cambridge CB2 3QZ, UK

Contact: derek.engelbrecht@ul.ac.za

#### Abstract

The plumage of many lark species (Alaudidae) exhibits a remarkably close match to the substrate they inhabit. It is generally considered to be a strategy employed by larks to blend into their environment by making them difficult to detect by predators. This substrate colour-matching has resulted in a plethora of intraspecific colour variations and the recognition of a large number of subspecies based mainly on variation in plumage colour tones. However, the exact mechanism by which larks are able to match the colour of the substrate they live on is not known, although a genetic/epigenetic origin and/or cosmetic colouration are usually invoked to explain this phenomenon. According to the latter hypothesis, larks regularly perform dust-bathing during which small soil particles or colourants adhere to the feathers in order to impart the colour of the substrate to the bird.

In this study, we measured various micro-structural parameters of the dorsal and ventral contour feathers of four lark species exhibiting different levels of substrate colour-matching. The results showed that lark species with good substrate colour-matching abilities have denser barbules but less dense barbicels in the distal parts of the distal region of contour feathers, compared to species with moderate colour-matching abilities. The arrangement of these structural features may well allow small soil or dust particles to be trapped between the barbules and enable larks to achieve substrate colour-matching by means of cosmetic colouration. We continue to explore this hypothesis, using spectrophotometry and scanning electron microscopy to improve our understanding of the mechanisms of substrate colour-matching in larks.

## FLIGHT FEATHER MICROSTRUCTURE OF LARKS WITH DIFFERENT TYPES OF DISPLAY FLIGHTS

G. Derek Engelbrecht<sup>1</sup>, S Peta<sup>1</sup> & D de Swardt<sup>2</sup>

<sup>1</sup>Department of Biodiversity, University of Limpopo, P/Bag X1106, Sovenga, 0727

<sup>2</sup>Department of Ornithology, National Museum, PO Box 266, Bloemfontein, 9300

Contact: faunagalore@gmail.com

### Abstract

Larks are revered for their song and, in many species, their extended aerial display flights. These song flights must place tremendous energy demands on the displaying male and may require physiological and morphological adaptations to sustain such flights. Different types of song flights may place different demands on the displaying bird, requiring different adaptations. For example, larks in the genus *Mirafra* show variation in the type of song flight, ranging from the relatively short but rapid, clapping song flight of the Eastern Clapper Lark, to the brief, clapping jump of the Rufous-naped Lark and the extended butterfly-like song flight of the Melodious Lark. It is clear that these differences may result in differences in the micro-structure of the flight feathers, e.g. if percussion is the cause of clapping sound of the Eastern Clapper Lark, it is evident that the primaries involved will need strengthening to avoid excessive damage to the feathers. Likewise, an extended song flight may require durable but relatively light feathers to reduce mass and improve flight efficiency.

We compared the quality and micro-structure of the flight feathers of males of the three lark species mentioned above to determine if there are any inter-specific differences, and if there are, where those differences are. Preliminary findings showed differences between the two species employing 'clapping' in their displays compared to the butterfly-like flight of the Melodious Lark. We will present the findings of the differences in micro-structural features of the species and discuss them in relation to the adaptive significance of these differences.

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## APPLICATION OF MORPHIC-GOOGLE IMAGES WEB TOOL FOR ORNITHOLOGICAL STUDIES

Arjun Amar<sup>1</sup>, Gabriella Leighton<sup>2</sup>, Pierre Hugo<sup>3</sup>, Vincent Naude<sup>2</sup>, Chris Briggs<sup>4</sup> & Chevonne Reynolds<sup>1</sup>

<sup>1</sup>FitzPatrick Institute of African Ornithology, DST-NRF Centre of Excellence, University of Cape Town, Cape Town

<sup>2</sup>Institute for Communities and Wildlife in Africa, Department of Biological Sciences, University of Cape Town, Cape Town

<sup>3</sup>Department of Computer Science, University of Cape Town, Cape Town, South Africa

<sup>4</sup>Biology Department, Hamilton College, Clinton, New York, USA

Contact: arjundevamar@gmail.com

### Abstract

Information on the spatial distribution of phenotypic traits can be important for evolutionary and ecological studies. However, traditional approaches, such as fieldwork, can be time-consuming and expensive. Information technologies, such as Internet search engines, could facilitate the collection of these data.

We investigated the use of Google Images to extract data on geographical variation in phenotypic traits visible from photographs. We compared the distribution of visual traits obtained from Google Images with four previous studies. We found very good agreement between fieldwork data and Google Images data across all studies. Our results suggest that this method can work well for visible traits of common and widespread species and may have many other uses. To facilitate the data capture of this method we developed a free-to-use web application (Morphic).

Using the Morphic web app approach, we extracted spatial data in a range of novel systems, and present the findings from two of these studies. Firstly, we use this approach to explore the suspected clinal variation in the morph distribution of Swainson's Hawks *Buteo swainsoni* across their North American breeding distribution, and whether these patterns are correlated with environmental variables. Secondly, we investigate the diet

across Africa of the declining Martial Eagle *Polemaetus bellicosus*, comparing prey items among regions and between adults and sub-adults.

Our results suggest that the Google Images method is cost-effective, rapid and can be used with some confidence when investigating patterns of geographical variation, and a range of other applications. The opportunities that this approach offers to tackle ecological and evolutionary questions in ornithology are only just being explored, and we provide suggestions for other avenues of research that might be explored using this approach.

#### **DIFFERENCE IN PREY PROVISIONING BETWEEN MIXED AND LIKE-MORPH PAIRS IN THE COLOUR POLYMORPHIC BLACK SPARROWHAWK *ACCIPITER MELANOLEUCUS***

Carina Nebel<sup>1</sup>, Petra Sumasgutner<sup>1</sup>, Ann Koeslag<sup>1</sup>, Shane McPherson<sup>1</sup>, Gareth Tate<sup>1,2</sup> & Arjun Amar<sup>1</sup>

<sup>1</sup> FitzPatrick Institute of African Ornithology, DST-NRF Centre of Excellence, University of Cape Town, Cape Town

<sup>2</sup> Endangered Wildlife Trust, Building K2, Ardeer Road, Pinelands Office Park, Modderfontein 1609, Gauteng

Contact: carina.nebel@gmail.com

##### **Abstract**

The colour polymorphic Black Sparrowhawk *Accipiter melanoleucus* occurs in two morphs: a light morph and a dark morph. Previous research suggests that different morphs experience different foraging success under different light conditions, with dark morphs hunting more successfully in low light conditions and light morphs being more successful in brighter conditions. Additionally, from long-term monitoring, we have found that the morph combination of the parents can influence breeding success. Mixed-morph pairs, consisting of dark- and light-morph parents, raise more chicks which have higher annual survival rates compared with chicks of parents of the same morph (like-morph pairs). One explanation for this observation could be that mixed-morph pairs may complement each other better by expanding their hunting conditions under various light levels and/or by being able to successfully forage in different habitats. Using nest cameras, we document the prey provisioning rates of like- and mixed-morph families during the chick-rearing period. We explore the prey provisioning rates of both parents and their consistency throughout the day. We expect mixed-morph pairs to show more consistency in the prey provisioning over the course of a day than like-morph pairs, which we predict might have prey deliveries occurring in a more concentrated manner. Any such difference in delivery rates could explain the higher success of mixed-morph pairs in this diurnal raptor species.

#### **MECHANOSENSORY STRUCTURES IN THE BEAKS OF WADERS IN RELATION TO THEIR FORAGING ECOLOGY**

Carla J. du Toit<sup>1,2</sup>, Susan J. Cunningham<sup>1</sup> & Anusuya Chinsamy-Turan<sup>3</sup>

<sup>1</sup> FitzPatrick Institute of African Ornithology, DST-NRF Centre of Excellence, University of Cape Town, Cape Town;

<sup>2</sup> DST-NRF Centre of Excellence in Palaeosciences, University of Witwatersrand, Johannesburg

<sup>3</sup> Biological Sciences Department, University of Cape Town, Cape Town

Contact: Cdt304@gmail.com

##### **Abstract**

Many probe-foraging bird species, such as ibises (family: Threskiornithidae), possess a unique sensory system known as remote-touch. This refers to their ability to sense and locate submerged prey objects by detecting vibrations in the substrate without contacting them directly. This is facilitated by the bill-tip organ, which is made up of mechanosensory receptors embedded in densely clustered pits in the bone at the tip of the bill. Though the general structure of the bill-tip organ is conserved across all probe-foraging species that possess it, there is a lot of interspecific variation in the structure and orientation of the pits and the receptors within them. We hypothesize that there is a relationship between the morphology and histology of the bill-tip organ and the foraging ecology of ibises. To test the hypothesis, three ibis species are being studied: Hageda Ibis *Bostrychia hagedash*, African Sacred Ibis *Threskiornis aethiopicus*, and Glossy Ibis *Plegadis falcinellus*. These

each have distinctive feeding habits in different substrate environments ranging from terrestrial to semi-saturated and saturated, to aquatic, respectively. We use standard methods of thin section preparation to describe the soft tissue histology, and utilize  $\mu$ -CT scans to reconstruct the 3D-structure of the bill-tip organ. We expect to find differences between the three species, in accordance with the preliminary work suggesting an increase in the extent of pitting over the length of the beak with increased aquatic habitat use. We will also be looking at the properties of the sediment that the three species are foraging in, as well as their specific probing behaviours in the wild, in order to gain a better understanding of the differences in foraging habitat and behaviour between the three species. These will be related to the differences in their bill-tip organs. Furthermore, we will be testing the birds' ability to utilize remote-touch to locate prey, using captive birds. Finally, we are looking at fossil specimens displaying a high degree of pitting in the bill to make inferences about the feeding ecology of extinct bird species.

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## SESSION: SPEED TALKS

### BIRDS, BEES AND BUSHBABIES: INTERSPECIFIC COMPETITION FOR CAVITIES

RHE Mullers<sup>1,2</sup>, Peter Mokumo<sup>1</sup>, D Engelbrecht<sup>1</sup> & M Stanback<sup>3</sup>

<sup>1</sup> Dept. of Biodiversity, University of Limpopo, Soveng,

<sup>2</sup> Mogalakwena Research Centre, Alldays

<sup>3</sup> Biology Department, Davidson College, Davidson

Contact: faunagalore@gmail.com

#### Abstract

Tree cavities are keystone resources in the environment as they are generally relatively scarce but their impact on the ecosystem may be disproportionately large. Comparatively few studies have considered the community ecology of cavity nesters and the processes that create and sustain these complex communities. In this study we monitored the competition for 80 nestboxes located in different habitats in the arid sweet bushveld of Limpopo. During three breeding seasons, several bird species competed with bees, bushbabies, squirrels, wasps, rock monitors, and pythons for roosting and nesting space. Although only six bird species utilized the nestboxes for breeding, a great many more expressed an interest. For example, Greater and Lesser Honeyguides were frequently seen at nestboxes occupied by bees. Interesting dynamics in temporal domination of nestboxes between species revealed a complex nest web where at least 80% of the nestboxes was occupied at some point during the study. Competition for cavities was particularly intense during the breeding season, when more than 50% of the nestboxes could be occupied at the same time. Bees would occupy up to 20% of the nestboxes, displacing breeding birds and making cavities inaccessible for other species. Southern Yellow-billed, Southern Red-billed and African Grey Hornbills would breed concomitantly, but showed subtle differences in the onset of breeding. Also, we discovered that Southern Red-billed Hornbills plug the nestboxes in close proximity of their breeding box, making them inaccessible for other species, which is likely a strategy to decrease competition for resources. Our study revealed some remarkable interspecific interactions and sheds some light on the strategies used to compete for a resource most of us take for granted. Perhaps we should spare a thought for the cavity-nesting community the next time we buy firewood for our braai, or the honey used to marinade our chops might become a scarce resource as well.

### UNIFYING CULTURAL HERITAGE WITH CONSERVATION PRACTICE IN RURAL COMMUNITIES OF SOUTH-CENTRAL KWAZULU-NATAL: SOUTHERN GROUND HORNBILLS *BUCORVUS LEADBEATERI* AS A CASE STUDY

Yvette C. Ehlers Smith<sup>1,2</sup>, David A. Ehlers Smith<sup>1</sup> & Colleen T. Downs<sup>1</sup>

<sup>1</sup> University of KwaZulu-Natal, School of Life Sciences, Private Bag X01, Scottsville, Pietermaritzburg 3209, South Africa

<sup>2</sup> Centre in Indigenous Knowledge Systems, Westville Campus, University of KwaZulu-Natal

Contact: yvetteehlers@hotmail.com

#### Abstract

In southern KwaZulu-Natal province (KZN), South Africa, Southern Ground-Hornbills *Bucorvus leadbeateri* persist within grasslands outside of Protected Areas. The habitat consists of forest-grassland mosaic (classified as Vulnerable, and Endangered, respectively), nestled within a mixed land-use mosaic of commercial forestry, agriculture and rural, communal land. The greatest threats to these habitats and rural community livelihoods are land conversion and climate change. Declines in population size of southern ground-hornbills throughout their range have been attributed to land-use change and other anthropogenic threats, including direct persecution, indirect poisoning, electrocution, and use in traditional cultural practices.

Most of the documented knowledge related to the bird's role in cultural practices is from research outside of KZN, and is associated with people's spiritual worlds and the natural environment, including beliefs and practices relating to food, rain, lightning and drought. These cultures and beliefs have not been explored throughout KZN. We conducted 280 semi-structured questionnaires across 15 villages, and assessed perceived

population change and potential threats to Southern Ground-Hornbill populations within rural communities of southern KZN. Preliminary results indicate a correlation between perceptions of a lack in rainfall, an increase in homesteads, and a reduction in the number of birds encountered. Cultural beliefs vary according to village and even within villages as the knowledge transfer is predominantly through parents and grandparents. Both beliefs and rituals with potential negative implications for the species occur throughout the study region, though the birds are not regularly hunted. However, depending on the situation, certain practices require specific parts of the birds, and in some instances, birds are caught as bycatch when hunting with dogs. The consensus amongst interviewees was that the communities benefit from the birds' presence as they are used as environmental indicators to predict, signal or summon the rain.

From an interdisciplinary and ethno-conservation perspective, it is imperative to document the cultural perception, beliefs and practices associated with Southern Ground-Hornbills as, not only do they form part of African cultural heritage, but also because indigenous knowledge systems effectively contribute to conservation efforts as a result of an increase in an understanding of the dynamics of the human-Southern Ground-Hornbill connection.

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### **CREATIVE CONSERVATION: THE ORANGE-BREASTED WAXBILL *AMANDAVA SUBFLAVA* PROJECT**

Melissa A. Whitecross<sup>1</sup>, Eelco Meyjes<sup>2</sup>, Alastair Findlay<sup>2</sup> & Hanneline A. Smit-Robinson<sup>1,3,4</sup>

<sup>1</sup> *Terrestrial Bird Conservation Programme, BirdLife South Africa, Private Bag X16, Pinegowrie, 2123, Johannesburg, South Africa*

<sup>2</sup> *Rare Finch Conservation Group, 28 6th Avenue, Parkhurst, Johannesburg, South Africa*

<sup>3</sup> *Applied Behavioural Ecological & Ecosystem Research Unit (ABEERU), UNISA, Private Bag X6, Florida, 1717, South Africa*

<sup>4</sup> *School of Animal, Plant and Environmental Sciences, University of the Witwatersrand, 1 Jan Smuts Ave, Braamfontein, Johannesburg, 2050*

Contact: melissa.whitecross@birdlife.org.za

#### **Abstract**

Wetlands cover approximately 2.4% of South Africa's terrestrial surface, with only 11% of this habitat currently conserved under formal protection. At least 65% of wetland habitats are considered threatened, making this ecosystem the most threatened habitat type in the country according to the 2011 SANBI National Biodiversity Assessment. The structure of wetlands provides a unique habitat for many highly adapted fauna, including a range of specialist bird species. Owing to the reduction in pristine wetland habitat across southern Africa, several wetland birds are now listed on the IUCN Red List, including the White-winged Flufftail (Critically Endangered) and Wattled Crane (Vulnerable). Orange-breasted Waxbills, however, are a relatively common bird found in wetlands throughout sub-Saharan Africa. BirdLife South Africa and the Rare Finch Conservation Group have identified this small, yet charismatic species as a sentinel species for eight red-listed and 84 common bird species that use a similar wetland habitat. In partnership with BirdLife South Africa, the Orange-breasted Waxbill Project aims to raise awareness within the country's youth about the plight of South Africa's wetlands and the threatened birds which live in them. Using the entertaining medium of puppetry, a 25-minute puppet show called 'Waxi the Hero' has been developed, which tells the story of a small bird doing big things for wetland conservation. The audience are taught key messages about the importance of wetlands and the services they provide for us through relatable characters such as 'Snippy' the Greater Painted Snipe and 'Olive' the African Grass Owl. The Orange-breasted Waxbill project aims to showcase the 'Waxi the Hero' puppet show at schools all around the country with particular focus on the youth in underprivileged areas. By educating young minds about the value of wetlands and nature at an early-age, it is hoped that they will continue to appreciate and protect the natural environment throughout their lives and pass these sentiments on to others.

## SYSTEMATIC CONSERVATION PLANNING AND ECOLOGICAL NICHE MODELLING FOR WATERBIRDS ACROSS SOUTH AFRICA

Neil Daniels<sup>1</sup> & R Knight<sup>1</sup>

<sup>1</sup> *Department of Biodiversity Conservation Biology, University of the Western Cape, Cape Town, South Africa*

Contact: 3262775@myuwc.ac.za

### Abstract

Wetlands are considered to be one of the most productive ecosystems providing services to their surrounding anthropogenic communities and natural environment. Agricultural development and urban built up areas are classified as the top threats to wetland health and to one of their topmost organisms in wetland trophic dynamics, waterbirds. Owing to the dynamic mobility of waterbirds, they have often been reliant bioindicators of water quality. The conservation of chains of wetlands habitats is crucial for the ongoing resource exploitation employed by waterbirds. On a national level, the NFEPA project has prioritized specific wetlands for conservation. The only extent to which birds were incorporated was by using threatened waterbird species and crane species as criteria for ranking of certain wetland habitats over others for the representation of wetland ecosystems. There were two objectives for my study. Firstly, to generate species distribution models for all waterbird conservation targets and, secondly, to develop a wetland conservation network for waterbirds. Species distribution modelling serves as a useful tool for conservation planning. The Maximum Entropy approach (MAXENT) is an algorithm that trains species distribution localities according to environmental variable envelopes. The model generates a relationship between the presence of species under a set of environmental factors. For the conservation plan, MARXAN was used to generate a wetland reserve network that conserves as many biodiversity targets under minimal cost. RAMSAR's definition of a wetland was used.

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## ASSESSING THE IMPACT AND SOURCE OF LEAD TOXICOSIS ON SOUTH AFRICA'S BIRD SPECIES

Linda van den Heever<sup>1</sup>, Hanneline Smit-Robinson<sup>1,4,5</sup>, Vinny Naidoo<sup>2</sup> & Andrew McKechnie<sup>3</sup>

<sup>1</sup> *Terrestrial Bird Conservation Programme, BirdLife South Africa, Private Bag X16, Pinetown, 2123, Johannesburg, South Africa*

<sup>2</sup> *Onderstepoort Veterinary Institute, University of Pretoria, South Africa*

<sup>3</sup> *Department of Zoology and Entomology, University of Pretoria, South Africa*

<sup>4</sup> *Applied Behavioural Ecological & Ecosystem Research Unit (ABEERU), UNISA, Private Bag X6, Florida, 1717, South Africa*

<sup>5</sup> *School of Animal, Plant and Environmental Sciences, University of the Witwatersrand, 1 Jan Smuts Ave, Braamfontein, Johannesburg, 2050*

Contact: linda.vdheever@birdlife.org.za

### Abstract

Lead is a toxic heavy metal that serves no known biological function in any living organism. Its usefulness and malleability as a metal has made it pervasive in many aspects of human society and industry, despite the fact that its harmful effects on human and animal health have been well-documented. As obligate scavengers, vultures are especially susceptible to dietary toxins, including lead poisoning. The insidious nature of lead poisoning could lead to a range of difficult-to-diagnose symptoms in birds, ranging in severity from mild to severe and even fatal. In 2016 BirdLife South Africa launched a project entailing a systematic, nationwide assessment of the levels of lead toxicosis in South Africa's birds in general, and in vultures in particular. An overview of the results is presented, along with the implications this may have for the welfare of South Africa's vulture species.

## INTERESTING LESSONS LEARNT SINCE THE ESTABLISHMENT OF THE BIRDLIFE SOUTH AFRICA ETHICS COMMITTEE

Erika Vercuil<sup>1</sup>, Andrew McKechnie<sup>2</sup>, Brett Gardner<sup>3</sup>, Philip Stapelberg<sup>4</sup>, Reg Thomson<sup>5</sup> & Hanneline Smit-Robinson<sup>6,7,8</sup>

<sup>1</sup> *Animal Ethics Unit, National Council of SPCAs, South Africa*

<sup>2</sup> *Department of Zoology and Entomology, University of Pretoria, South Africa*

<sup>3</sup> *Australia Zoo Wildlife Hospital, Beerwah, Australia*

<sup>4</sup> *Radiokop Animal Clinic, 1204 Opera Road, Radiokop, Roodepoort, 1724*

<sup>5</sup> *Advocate of the Supreme Court, 7 Heytor Road, Victory Park, Johannesburg*

<sup>6</sup> *Terrestrial Bird Conservation Programme, BirdLife South Africa, Private bag X16, Pinegowrie, 2123, Johannesburg, South Africa*

<sup>7</sup> *Applied Behavioural Ecological & Ecosystem Research Unit (ABEERU), UNISA, Private Bag X6, Florida, 1717, South Africa*

<sup>8</sup> *School of Animal, Plant and Environmental Sciences, University of the Witwatersrand, 1 Jan Smuts Ave, Braamfontein, Johannesburg, 2050*

Contact: [animalethics@nspca.co.za](mailto:animalethics@nspca.co.za)

### Abstract

The BirdLife South Africa Ethics Committee (BLSAEC) was established in 2014. There has been a radical increase in ethical awareness around the country over the past few years, which has prompted the establishment of a formalized ethics committee, adding to the credibility of scientific research undertaken by BirdLife South Africa and its partners. The role of the BirdLife South Africa Ethics Committee is to scrutinize all research applications, particularly those involving the handling of wild birds in which the bird's welfare is considered as a priority. It is encouraging to know that with the establishment of the BLSAEC we are able to allow only necessary, conservation-directed research while following relevant National Standards and other legislation. During the presentation we share some important lessons learnt since the establishment of the committee.

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## BIRDWATCHING IS NOT FOR THE BIRDS

Nomusa Mkhungo<sup>1</sup>, Nontuthuko Xaba<sup>1</sup> & Nqobile Masuku<sup>1</sup>

<sup>1</sup> *Women's Leadership and Training Programme, P.O. BOX 145, Underberg, 3257, South Africa*

Contact: [gnomusa.m@gmail.com](mailto:gnomusa.m@gmail.com)

### Abstract

When the Women's Leadership and Training Programme (WLTP) initiated birdwatching groups amongst young Zulus in three areas of KwaZulu Natal in 2013, knowledge of birds amongst girls was virtually nil because they stay indoors doing household chores. Boys had more knowledge, especially on how to kill and braai birds while herding cattle and how to raid nests for eggs. Birdwatching was considered a very strange pastime that was engaged in by old English or Afrikaans-speaking people.

In four years WLTP has transformed attitudes towards birds and birdwatching amongst these youth. There are now more than 70 girls and a few boys in each of the rural areas of Hlokozi and Centocow, and also in the Durban township of KwaMashu, who go on birdwatching expeditions every month. They keep bird lists, have acquired binoculars for their clubs and recognize bird calls with the assistance of Tablets. The group members range from 10 to 25 years in age. Girls comprise 80% of the members, thus addressing the sexual bias of the past where girls had been deprived of outdoor activities. The Apartheid exclusion from Protected Areas has also been redressed and the young birdwatchers have begun to reclaim, appreciate and protect the birding hotspots in their areas and the Red Data species – Cape Parrots, Southern Ground-Hornbills, Crowned Cranes, Cape Vultures, Southern Bald Ibis, Blue Swallows. The birdwatching activities have aroused the interest of older people in the rural areas, including the Traditional Leadership, who have begun to dream of establishing a Protected Area in Hlokozi. WLTP has helped them get their land assessed. The challenge now is to change a dream into a reality.

This presentation will outline the process used to break down peer and other prejudices: the first “Flock at Sea” undertaken by two staff members, two other “Flocks” and two LABS; the questionnaire used to form the initial birdwatching groups; the Bird Clubs joined and the meetings attended; the bridging of race and age barriers when good birders have reached out to the young birders by taking them birdwatching, and the Ground-Hornbill project established in Hlokozi and Centocow in partnership with the Mabula Ground-Hornbill Project based in Limpopo.

The work in these three areas is a hopeful sign that birding demographics in South Africa can be changed when young aspirant birders and older experienced birders work together across class, race and age gaps.

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## **THE ALBATROSS TASK FORCE: DRIVING SEABIRD CONSERVATION IN SOUTHERN AFRICA**

Reason Nyengera<sup>1</sup> & Andrea Angel<sup>1</sup>

<sup>1</sup>*Seabird Conservation Programme, BirdLife South Africa, PO Box 7119, Roggebaai, 8012, South Africa*

Contact: reason.nyengera@birdlife.org.za

### **Abstract**

For the past ten years the Albatross Task Force in South Africa has been working with the fishing industry and government to protect albatrosses and petrels from getting killed by fishing gear. A core part of our work is spent on board fishing vessels, where we demonstrate to fishermen how to observe and deploy seabird bycatch mitigation measures. We also collect data to assess the effectiveness and impact of these measures, and find ways to improve them whilst minimizing the impact on fishing activities. Our work with the trawl fleet is a well-documented success and the reasons for this are highlighted and discussed. Our current work is focused on other fishing fleets for which we have less information and face more challenges. How to address these and how we view our role going forward is the exciting challenge of the years ahead as we take on a regional approach. Our goal is to achieve 100% uptake of seabird bycatch mitigation measures across fleets and reduce the seabird deaths to negligible levels.

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## **DISTURBANCE EFFECTS OF BOAT-BASED TOURISM ON WATERBIRDS AT THE RAMSAR-DESIGNATED DE HOOP VLEI**

Andrew D. de Blocq<sup>1</sup>, Peter G. Ryan<sup>1</sup> & Robert Thomson<sup>1</sup>

<sup>1</sup>*FitzPatrick Institute of African Ornithology, DST-NRF Centre of Excellence, University of Cape Town, Cape Town; South Africa*

Contact: adeblocc@gmail.com

### **Abstract**

Protected area managers may seek to introduce novel tourism activities in order to generate revenue. However, disturbance effects brought about through encounters between humans and wildlife can have negative consequences, which conflict with conservation goals. De Hoop Vlei is a large coastal lake within the De Hoop Nature Reserve. It is a Ramsar site as well as a key feature of a BirdLife Important Bird Area (IBA). Proposals for motorized boat tours and kayak tours on the vlei have been made, for which this study provides an impact assessment. Repeated counts were performed in order to characterize the waterbirds present during the high-water level conditions required for boating. Birds were found to be concentrated and breeding in specific areas and habitats, which were deliberately avoided on the two boat tour routes to minimize disturbance. Count data were also used to revise the Ramsar and IBA assessments, which underestimated the site’s conservation value. Boat tours were monitored to estimate the number of birds disturbed, and to measure agitation distances (ADs) and flight initiation distances (FIDs) in response to the boat as well as a kayak. Post-disturbance recovery was investigated, as was the likelihood of habituation using a space-for-time substitution at a site with regular boat traffic. Boat tours did not typically disturb more than 10% of birds present at the vlei, and largely avoided disturbing species of conservation concern. Responses to the kayak were more severe than to the boat, which suggests that although the speeds of the two boats are similar, the kayak is more readily perceived as a realistic threat. Post-disturbance recovery of species was slow and incomplete, meaning that there are likely costs for

foraging opportunities and breeding if important areas are disturbed. Most species did allow a closer approach at the site with regular boating, but AD did not differ between them for most species. From these results it would be dangerous to assume that habituation will mitigate against disturbance impacts. Recommendations made to reserve management included that kayak tours should not be permitted. Boat tours, with correct management, can be conducted in a manner that will not be too disruptive to birds. This study is the first to document such a large difference in responses of birds to two differing boat types, and is a rare example of disturbance of birds being studied in an African context.

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***OSTRICH: AFRICAN JOURNAL OF ORNITHOLOGY***

Alan Lee<sup>1</sup>

<sup>1</sup>*FitzPatrick Institute of African Ornithology, DST-NRF Centre of Excellence, University of Cape Town, Cape Town; South Africa*

Contact: alan.tk.lee@googlemail.com

**Abstract**

Dr Alan Lee has been the Scientific Editor of *Ostrich: African Journal of Ornithology* since July 2016. Dr Lee will highlight the successes of the journal and discuss the plans for this journal going forward. All authors attending the Learn About Birds (LAB) Conference are encouraged to consider publishing some of their research in *Ostrich*.

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**Friday, 9 March 2018**

**SESSION: AFRICAN SEABIRDS**

**TAGGING ALONG: WHERE DO MARION ISLAND'S GREY-HEADED ALBATROSSES *THALASSARCHE CHRYSOSTOMA* GO?**

Kim L. Stevens<sup>1</sup> & Peter G. Ryan<sup>1</sup>

<sup>1</sup>*FitzPatrick Institute of African Ornithology, DST-NRF Centre of Excellence, University of Cape Town, Cape Town; South Africa*

Contact: [stevenskim18@gmail.com](mailto:stevenskim18@gmail.com)

**Abstract**

The Grey-headed Albatross *Thalassarche chrysostoma* is listed as endangered on the IUCN Red List and belongs to the most threatened group of seabirds – the albatrosses. Key threats include incidental fisheries bycatch, global climate change and predation by introduced predators at their breeding islands. Globally, the population of Grey-headed Albatrosses is declining, although the sub-Antarctic Marion Island population, comprising 8% of the global population, is considered stable. They return to land to mate and breed, and although most of their life is spent at sea, little is known about where they go. We investigated their year-round foraging at Marion Island using tracking technology during both the breeding and non-breeding seasons in relation to environmental variables, marine protected areas and longline fishing effort. In total 86 GPS loggers were deployed at various stages of their breeding season (mid-incubation, late-incubation and brood guard) between 2012 and 2016. Sixty-four geolocation sensors (GLSs) were deployed between 2002 and 2005, and between 2012 and 2016 to record the at-sea distribution during the non-breeding season. We found that during the breeding season adults take much shorter trips (both in distance and duration) to waters over the South West Indian Ridge, an area of high productivity due to upwelling, whereas trips during incubation were much more wide-ranging and longer in duration, extending east and west of the island. During the non-breeding season, several migration strategies were observed – either remaining near the island; going east or west of the island; or circumnavigating the Southern Ocean one or more times. Several core use areas were also identified. The more wide-ranging trips, both during the breeding and non-breeding seasons, also mean that birds spend most of their time outside of Marine Protected Areas and in the high seas where they are more at risk to incidental fishery bycatch. As long-lived and wide-ranging predators, they are indicators of global ocean health and shifts in climate regime. Thus understanding their distribution and at-sea habitat selection are essential in both contributing to their conservation as well as giving insight into global climate change.

**PREDICTING HOW THE ISOTOPIC COMPOSITION OF SEABIRD TISSUES CHANGES WITH DIFFERENT FORAGING BEHAVIOUR**

Tegan Carpenter-Kling<sup>1,2</sup>, Pierre Pistorius<sup>1</sup>, Maëlle Connan<sup>1</sup>, Ryan Reisinger<sup>1,3</sup>, Clive Trueman<sup>2</sup>

<sup>1</sup>*Marine Apex Predator Research Unit, Percy FitzPatrick Institute for African Ornithology, Zoology Department, Nelson Mandela University, South Africa*

<sup>2</sup>*National Oceanography Centre, University of Southampton, United Kingdom*

<sup>3</sup>*Centre d'Etudes Biologique de Chizé, France*

Contact: [tegan.carpenterkling@gmail.com](mailto:tegan.carpenterkling@gmail.com)

**Abstract**

The understanding of the foraging ecology and life history traits of seabirds has been dramatically improved with the development of biologgers, providing high-resolution information regarding location and, in some cases, foraging behaviour. At the same time, stable isotope ecology has developed as an additional method to track the spatial origin of assimilated nutrients (and thus infer foraging-related movements). Relatively few studies have combined these two approaches, despite the potential wealth of complementary information.

A major drawback in marine isotope ecology is the lack of reference maps (isoscapes) needed to relate the isotopic composition of an animal's tissues to a location. Recently, Magozzi et al. (2017) developed a carbon isotope model that predicts the spatio-temporal distributions of the  $\delta^{13}\text{C}$  values of phytoplankton across the global ocean at one degree and monthly resolution. Modelled, spatio-temporally explicit isoscapes provide a framework for *in-silico* modelling, where an animal can move through the isoscape, assimilating nutrients. Animal movements can either be modelled experimentally, or inferred from biologger measurements, and the isotopic compositions estimated from the model can then be compared to measured values to infer likely combinations of movements and foraging locations.

Here, we apply this conceptual framework to a dataset of six pelagic seabird species nesting on sub-Antarctic Marion Island. Birds were tracked with GPS loggers and, as they returned from the logged foraging trip, a blood sample was taken for stable isotope analyses of plasma. We show how the *in-silico* experiments enhance interpretations both of geolocation and foraging behaviour, particularly improving retrospective geolocation from intrinsic biochemical tags (e.g.  $\delta^{13}\text{C}$ ). This method is a powerful tool that can be applied to any mobile marine predator, and we hope that the *in-silico* modelling approach outlined here will stimulate more studies combining biologger and intrinsic biochemical methods for geolocation.

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## FORAGING STRATEGIES OF WEDGE-TAILED SHEARWATERS *ARDENNA PACIFICA* BREEDING ON RÉUNION ISLAND

Danielle Z. van den Heever<sup>1</sup>, P.A. Pistorius<sup>1</sup>, M. Connan<sup>1</sup> & M. Le Corre<sup>2</sup>

<sup>1</sup> Department of Zoology, Nelson Mandela University, South Campus, Port Elizabeth, South Africa

<sup>2</sup> Laboratory of Marine Ecology (ECOMAR), University of La Réunion, St Denis, Réunion

Contact: dzvdheever@gmail.com

### Abstract

The advancement and miniaturization of tracking technology has enabled the study of previously unobserved smaller seabirds. Global Positioning Systems (GPS) are regularly used to identify areas of importance within the pelagic ocean, indicating areas of priority for marine conservation. GPS loggers were deployed on a monomorphic seabird, the Wedge-tailed Shearwater *Ardenna pacifica* breeding on Réunion island to identify the main foraging areas utilized by different sexes during the 2015/16 and 2016/17 breeding seasons. During season one, 4 near complete tracks (4 individuals = late chick rearing) were recorded and 81 complete tracks from 34 individuals (19 = incubation; 15 = early chick rearing) were recorded during season two. Throughout the breeding seasons, shearwaters continuously foraged SE – NW of the colony. During incubation, foraging strategies between both sexes were similar and there was a high overlap between active foraging areas (UD90: 84%). The shearwaters foraged near the south-eastern side of Madagascar ~ 440.21 km from the colony. During chick rearing, adults foraged near Reunion Island ~ 94.40 km from the colony and made use of a bimodal foraging strategy, where individuals made several short trips (< 4 days) and a single long trip (6 – 21 days). Adults would return significantly heavier after a long trip, suggesting they forage in further, more productive areas for self-maintenance. Spatial segregation was more prevalent during chick rearing and females utilized larger foraging areas. However, both sexes foraged near seamounts and nearby oceanic ridges. Individual shearwaters partaking in multiple short trip cycles, showed high site fidelity near Réunion Island. The data presented is the first time Wedge-tailed Shearwaters have been tracked using GPS devices in Réunion Island, and it was found that the shearwaters utilize similar areas previously described as 'high-priority locations' within the tropical western Indian Ocean, confirming the importance of these areas as potential Marine Protected Areas.

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**SEASONAL VARIATION IN THE DIETS OF FOUR SYMPATRIC PENGUIN SPECIES AT THE SUB-ANTARCTIC MARION ISLAND**M. Siggala<sup>1</sup>, M. Connan<sup>1</sup>, T. Carpenter-Kling<sup>1</sup>, P.A. Pistorius<sup>1,2</sup><sup>1</sup> Department of Zoology, Nelson Mandela University, South Campus, Port Elizabeth South Africa.<sup>2</sup> DST/NRF Centre of Excellence, Percy FitzPatrick Institute for African Ornithology, University of Cape Town

Contact: makabongwe.siggala@gmail.com

**Abstract**

To ensure co-existence, sympatric species have to share the same resources whether they are habitat, foraging areas or else food. At Marion Island, four species of penguins breed in sympatry, namely King *Aptenodytes patagonicus*, Gentoo *Pygoscelis papua*, Macaroni *Eudyptes chrysolophus* and Eastern rockhopper *Eudyptes chrysocome filholi* penguins. These four species have been found to spatially segregate in their foraging habitats. King penguins typically forage offshore, up to 900 km from their breeding colonies, while Gentoo penguins remain inshore, reaching no further than 15 km from the shore. In between, the Macaroni and Rockhopper penguins forage both inshore and offshore depending on life stages. These different behaviours are expected to drive varying degrees of dietary overlap and segregation. Twenty stomach content samples were collected concurrently for the four penguin species on the south-east coast of the island in 2016 and 2017. The stomach contents from the penguins were sorted into their three prey item groups: fish, cephalopod and crustaceans. These groups were then identified to their lowest taxonomic level. Preliminary results show that King and Gentoo penguins mainly foraged on fish species, with Myctophidae and Nototheniidae remains dominating the King and Gentoo stomach content samples, respectively. Macaroni and Rockhopper penguins showed a crustacean-dominated diet, with Euphausiid species representing the bulk of the species in both penguin species. Macaroni penguins consumed quantitatively more fish than Rockhopper penguins, as well as a larger size class of the fish prey component. Our study shows how sympatric penguin species at Marion Island ensure co-existence by coupling different foraging areas and dietary segregation. Species preferences in food and foraging areas are likely to be instrumental to explain the population dynamics of the four species at Marion Island in the context of environmental change.

**TRISTAN ALBATROSSES *DIOMEDEA DABBENENA*: TRACKING OVERLAP WITH FISHERIES, MOUSE ERADICATION, AND THE BIGGER PICTURE FOR BIRDLIFE SOUTH AFRICA'S SEABIRD CONSERVATION**Ross M. Wanless<sup>1,2</sup><sup>1</sup> Seabird Conservation Programme, BirdLife South Africa, PO Box 7119, Roggebaai, 8012, South Africa<sup>2</sup> FitzPatrick Institute, DST/NRF Centre of Excellence, University of Cape Town, Rondebosch 7701, South Africa

Contact: ross.wanless@birdlife.org.za

**Abstract**

The Tristan Albatross *Diomedea dabbenena* is Critically Endangered; >99% breed at Gough Island, central South Atlantic Ocean, where chicks are threatened by introduced predators. At sea they roam across the southern Atlantic and Indian oceans, where they are threatened by incidental capture in longline fisheries. Conservation measures to reduce seabird mortality in pelagic longline fisheries are confined largely to fishing effort south of 25°S, but from 14 non-breeding adult Tristan Albatrosses tracked from Gough Island, two birds spent several months off the coast of Namibia and Angola, and adjacent high seas, waters well north of 25°S. BirdLife South Africa's Seabird Conservation Programme aims to prevent seabird extinctions, and to improve the conservation status of seabirds. This research on this species encapsulates every aspect of the multi-pronged approach we have adopted to achieve those goals. Using science to drive new conservation regulations in the high seas, while incorporating analytical approaches developed by our marine IBA work, we are working to extend the area of protection of high seas tuna longline operations to cover Tristan Albatross ranges. Linked to that, our Albatross Task Force teams in SA and Namibia are benefiting from the high seas project under the 'Common Oceans ABNJ tuna project to demonstrate to Namibia's tuna fleet the Best Practice measures for seabird bycatch avoidance. Finally, the Tristan Albatross is a key species driving the effort to eradicate mice from Gough Island, which has led

directly to BLSA's partnership with the FitzPatrick Institute and government agencies to replicate that effort, so as to conserve the threatened albatrosses and petrels at risk from mice at South Africa's Marion Island.

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### UNRAVELLING THE IMPACTS OF TICK-BORNE BLOOD PARASITES OF SOUTH AFRICAN SEABIRDS

Ralph E.T. Vanstreels<sup>1</sup>, N.J. Parsons<sup>2</sup>, M.J. Yabsley<sup>3</sup>, M.A. Peirce<sup>4</sup>, K. Ludynia<sup>2</sup>, D. Fife<sup>1</sup>, A. Schultz<sup>5</sup>, R. Hurtado<sup>2</sup> & P.A. Pistorius<sup>1,6</sup>

<sup>1</sup> Marine Apex Predator Research Unit (MAPRU), Institute for Coastal and Marine Research (ICMR), Nelson Mandela University, Port Elizabeth, South Africa

<sup>2</sup> Southern African Foundation for the Conservation of Coastal Birds (SANCCOB), Cape Town, South Africa

<sup>3</sup> Daniel B. Warnell School of Forestry and Natural Resources, University of Georgia, Athens, Georgia, USA

<sup>4</sup> International Reference Centre for Avian Haematozoa, Queensland Museum, South Brisbane, Queensland, Australia

<sup>5</sup> Rhodes University, Grahamstown, South Africa

<sup>6</sup> Percy FitzPatrick Institute of African Ornithology, University of Cape Town, Cape Town, South Africa

Contact: ralph\_vanstreels@yahoo.com.br

#### Abstract

Ticks transmit a greater variety of infectious agents than any other group of arthropods. In South Africa, the soft tick *Ornithodoros capensis* is the most common tick species infecting seabirds at coastal islands; however, the hard tick *Ixodes uriae* is also occasionally present. Little is known about the impact of pathogens transmitted by these ticks to South African seabirds, but *Babesia* spp. protozoans. and *Borrelia* sp. spirochaetes have been shown to be relatively common, and *Rickettsia*-like organisms have also been recently detected. Because these pathogens have been shown to cause significant disease and even mortality of threatened South African seabirds such as African penguins *Spheniscus demersus*, Bank and Cape cormorants *Phalacrocorax neglectus* and *P. capensis*, respectively and Cape gannets *Morus capensis*, understanding their epidemiology and health effects might prove relevant to the conservation of these species. In this presentation we will review current knowledge on the biology, epidemiology and pathology of these parasites in South Africa and present our latest findings through collaborative *in situ* and *ex situ* research.

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### INDIVIDUAL AND WITHIN-PAIR FORAGING SPECIALISATION IN CAPE GANNETS *MORUS CAPENSIS* BREEDING AT BIRD ISLAND, ALGOA BAY

Ilana Engelbrecht<sup>1</sup>, P Pistorius<sup>1</sup> & G Rishworth<sup>1</sup>

<sup>1</sup> Dept. of Zoology, Nelson Mandela University, Port Elizabeth, South Africa

Contact: ilana.engelbrecht10@gmail.com

#### Abstract

The recognition of individual specialisation has until recently been increasing in evidence, ultimately rejecting the niche theory, which implies that individuals within a natural population are ecologically equivalent. Individual specialisation is defined as the repetition of specific foraging behaviours including foraging strategies, resource use and foraging areas. The diversity and distribution of marine species are greatly influenced by the inherently variable marine ecosystems due to consistent pressure from both exploitation and climate change. This potentially results in consistent differences among individuals within the same population and thus repeatability in certain behavioural responses. The aim of this study was to understand the variability and consistency of the Cape gannet *Morus capensis* behaviour between and within breeding pairs, giving insight into the extent to which gannets are likely to be able to respond to changing environmental conditions. Consequently, the main factor contributing to the changes observed in the population would be the shift in the distribution of their main epipelagic prey resources including sardine *Sardinops sagax* and anchovy *Engraulis encrasicolus*. This study would also enable a better understanding of the Cape gannet's ability to locate prey resources, as well as the importance of within-pair specialisation to maximize breeding success/fitness. Using automatic data-logging VHF equipment we studied the fine-scale foraging behaviour of the currently vulnerable listed Cape gannet

population breeding at Bird Island, Algoa bay. Firstly, we estimated the degree of individual foraging specialisation using trip duration across repeated trips. Secondly, we analysed within-pair synchronisation during the breeding season taking into account the effect on both chick age and survival. Within-pair synchronisation was estimated using both trip duration and nest attendance from Generalized linear mixed models (GLMMs), particularly during the guard and post-guarding phase. Niche variation within the Cape gannet population may enable them to buffer against the loss of prey resources by specialising in foraging strategies, behaviour or alternative prey sources. Importantly, this informs on the use of seabirds like the Cape gannet as effective biomonitors of coastal environmental health, a crucial sentinel role of these species in the face of modern climate change and fish stock depletion.

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## TWO DECADES OF SOUTHERN OCEAN SPECIES ADMITTED FOR REHABILITATION AT SANCCOB, SOUTH AFRICA

Albert Snyman<sup>1</sup>, K. Ludynia<sup>1,3</sup>, N.J. Parsons<sup>1</sup> & R.E.T. Van Streels<sup>2</sup>

<sup>1</sup>*Southern African Foundation for the Conservation of Coastal Birds (SANCCOB), Box 11116, Tableview, Cape Town 7443, South Africa*

<sup>2</sup>*Marine Apex Predator Research Unit (MAPRU), Department of Zoology, Nelson Mandela Metropolitan University, Port Elizabeth, South Africa*

<sup>3</sup>*Animal Demography Unit, Department of Zoology, University of Cape Town, Rondebosch, South Africa*

Contact: albert@sanccob.co.za

### Abstract

Several seabird species that exclusively breed in the Southern Ocean are occasionally seen in continental South African waters. While most are only seen while flying at sea, some are admitted to rehabilitation centres when found on land as well as by fishing vessels for being oiled.

Over the past 24 years (1993 to 2017), the Southern African Foundation for the Conservation of Coastal Birds (SANCCOB) has admitted a total 283 Southern Ocean seabirds from 36 species at an average of 11 birds per year, the highest number of 33 individuals being admitted in 2002 and lowest being 1 in 1993 and 1999. The most common species admitted to SANCCOB were the Southern Giant Petrel *Macronectes giganteus* (15.5%) and Northern Giant Petrel *Macronectes halli* (11.6%), both being common visitors to our coastline, as well as the White-Chinned Petrel *Procellaria aequinoctialis* (12.0%), which is considered a rare visitor.

The majority of birds were admitted as debilitated (53%) or with trauma or external injuries (17%). Of the 283 birds admitted, the outcome of rehabilitation is known for 184 birds; with a release rate of 43%. The relatively low overall release rate is likely due to the poor condition of these birds on arrival at SANCCOB. The sub-Antarctic skua *Stercorarius antarcticus* had the highest release rate of 70.5%, followed by the Pintado Petrel *Daption capense* (64.3%) and the White-Chinned Petrel (47.1%).

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## ERADICATING MICE FROM MARION ISLAND: RESEARCH QUESTIONS AND LOGISTICAL CHALLENGES

Andrea Angel<sup>1</sup>, Ross M. Wanless<sup>1,2</sup> & Peter G. Ryan<sup>2</sup>

<sup>1</sup>*Seabird Conservation Programme, BirdLife South Africa, PO Box 7119, Roggebaai, 8012, South Africa*

<sup>2</sup>*FitzPatrick Institute for African Ornithology, University of Cape Town*

Contact: andrea.angel@birdlife.org.za

### Abstract

House Mice *Mus musculus* were introduced accidentally to sub-Antarctic Marion Island, probably by sealers, over 200 years ago. Rapid climate amelioration at Marion over the last half century and the eradication of cats by 1991 has seen increasing densities of mice accumulating each summer. As seeds and invertebrate prey run out in late summer they seek alternative food sources. All four species of albatrosses and many burrowing petrel species breeding at Marion are threatened by mice, which attack chicks and eggs, in most cases resulting in chick deaths. A feasibility assessment published in 2016 suggested that mice could be eradicated using aerial baiting. Eradicating rodents from islands is a logistically complex operation requiring careful planning to ensure that every

single mouse is exposed to the bait, and that all mice find the bait desirable and palatable at the time of the eradication. A detailed research plan has been developed and is presently underway on Marion, including lethal dose and palatability testing of a range of brodifacoum poison concentrations and doing field trials to assess bait uptake rates (using non-toxic baits). This research will provide information on baiting densities for eradication, timing of operations, and options for minimizing non-target impacts. If successful, this will be the largest island from which mice have been eradicated.

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### DO OR DIE: SPATIAL USE OF AFRICAN PENGUINS *SPHENISCUS DEMERSUS* BEFORE AND AFTER MOULTING FAST

Taryn L. Morris<sup>1</sup>, Jennifer Roberts<sup>2</sup>, Craig Harding<sup>2</sup>, Christina Hagen<sup>1</sup>, Lorien Pichegru<sup>3</sup>, Peter Ryan<sup>2</sup>, Ross M. Wanless<sup>1,2</sup>

<sup>1</sup> Seabird Conservation Programme, BirdLife South Africa, PO Box 7119, Roggebaai, 8012, South Africa

<sup>2</sup> FitzPatrick Institute for African Ornithology, University of Cape Town

<sup>3</sup> Coastal and Marine Research Institute at the Nelson Mandela Metropolitan University, South Africa

Contact: taryn.morris@birdlife.org.za

#### Abstract

Moult in penguins is an energetically expensive process that entails an enforced fast of several weeks. To survive this period, it is essential that birds store sufficient reserves prior to moult and that post-moult they are able to resume foraging immediately in order to replenish reserves and body condition. There is concern that decreased food availability during these vital foraging periods may be an important factor leading to the low adult survival rates that are contributing to the rapid decrease in the African Penguin *Spheniscus demersus* populations.

We investigated the movement of African penguins from two colonies, Dassen Island (west coast) and Bird Island (south coast), over four years during the pre- and post-moult foraging periods using either Platform Terminal Transmitters or GPS loggers. Tracks were assessed against broad scale small pelagic fish availability, fishing pressure and environmental variables to determine the threats and drivers of foraging behavior during these sensitive periods. We also compared penguin behavior in east and west, where we found significant differences in distances travelled, time spent 'commuting' to foraging grounds, and other parameters. In all instances, birds in the west appear to be working exceptionally hard by comparison to those in the east. Results will be used to inform spatial fisheries management objectives and feed into efforts to drive ecosystem approaches to fishery management.

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### UNDERSTANDING MOULT PATTERNS AND BREEDING SUCCESS OF ALBATROSSES AND GIANT PETRELS AT MARION AND GOUGH ISLANDS

Alexis M. Osborne<sup>1</sup> & Peter G. Ryan<sup>1</sup>

<sup>1</sup> FitzPatrick Institute for African Ornithology, University of Cape Town

Contact: lexisosborne@gmail.com

#### Abstract

Moult is an energetically demanding process for birds, and the replacement of flight feathers impacts on flight performance. As a result, few birds overlap moult with other key activities such as breeding or migrating. Feather growth rates show little change in relation to body size, so large birds with long flight feathers take a long time to grow individual feathers, making their moult even more challenging. Unless these birds can afford to become flightless for several weeks while they replace all their flight feathers simultaneously, they lack sufficient time to breed and replace all their wing feathers each year. As a result, they have evolved complex moult strategies that replace a subset of feathers each year. Albatrosses and large petrels are prime examples of birds facing this challenge. Even immature albatrosses that lack the obligations of breeding, typically only replace about half of their primary flight feathers (by mass) each year. The number of primaries replaced by adult albatrosses varies depending on the time available between successive breeding attempts. Annual breeders such as giant petrels

*Macronectes* spp., replace all their primaries each year by overlapping their moult with breeding, but they only replace a proportion of their secondaries. We report on moult patterns in the Wandering Albatross *Diomedea exulans*, Tristan Albatross *D. dabbenena*, Northern Giant Petrel *M. halli* and Southern Giant Petrel *M. giganteus* based on repeated photographs of marked birds. I test whether the number and/or mass of flight feathers (primaries and secondaries) and secondary coverts moulted are determined by the time between breeding attempts in both male and female albatrosses. I also test whether moult status impacts breeding performance in these species. My results for Wandering Albatrosses showed that there was little difference in the number of primaries replaced between breeding attempts by successful birds, which take a year off between breeding attempts (7.8 for males and 7.5 for females), and birds that fail and return to breed the following year (7.0 and 6.0, respectively). Males that failed also managed to replace almost as many secondaries (16) as successful males (18), but females that failed only replaced 9 secondaries, compared with 15 in successful females. The general pattern for mass of feathers replaced was similar to that of number of feathers replaced in relation to time available to moult. These results also showed that females are under greater pressure to replace feathers, especially when a breeding attempt fails.

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## SESSION: ECOLOGY

### SOUTHERN GROUND-HORNBILLS *BUCORVUS LEADBEATERI* - THE BIG PICTURE: PAST, PRESENT AND FUTURE

Lucy V. Kemp<sup>1</sup>

<sup>1</sup> *Mabula Ground Hornbill Project/ Birdlife Species Guardian, P. O. Box 876, Bela Bela, 0480, Limpopo*

Contact: [project@ground-hornbill.org.za](mailto:project@ground-hornbill.org.za)

#### Abstract

The Southern Ground-Hornbill *Bucorvus leadbeateri* is Endangered in South Africa and Namibia, but little research has been conducted in the remainder of its subequatorial African range. Locality data were extracted from all available sources (primary literature, grey literature, birding trip reports and existing birding databases), while > 11 000 records enabled modelling of the habitat limits and climatic envelope of the species. Molecular analyses using nuclear and mitochondrial gene sequences, and microsatellite markers, provided an understanding of past movements and allowed insights into dispersal distances and where the genetic health of the species may require conservation management. This, coupled with projections of future climate change, indicated that conservation intervention is required and that this will likely need to be escalated into the future. Two traits of the species bring hope for their future though – they are habitat generalists and opportunistic foragers, and, if protected, will probably persist.

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### TRACKING GREY-HEADED GULL *CHROICOCEPHALUS CIRROCEPHALUS* MOVEMENTS TO DEVELOP EFFECTIVE BIRD STRIKE MITIGATION STRATEGIES FOR O. R. TAMBO INTERNATIONAL AIRPORT, JHB

Melissa A. Whitecross<sup>1</sup>, Albert Froneman<sup>2</sup>, Melissa Hofmann<sup>3</sup>, Craig Natrass<sup>4</sup> & Hanneline A. Smit-Robinson<sup>1,5,6</sup>

<sup>1</sup> *Terrestrial Bird Conservation Programme, BirdLife South Africa, Private Bag X16, Pinegowrie, 2123, Johannesburg, South Africa*

<sup>2</sup> *Albert Froneman Consulting, Box 2676, Fourways, 2055*

<sup>3</sup> *Airports Company South Africa, Private Bag X1, O.R. Tambo International Airport, Kempton Park 1627*

<sup>4</sup> *Private consultant and bird ringer, [craig@storage.co.za](mailto:craig@storage.co.za)*

<sup>5</sup> *Applied Behavioural Ecological & Ecosystem Research Unit (ABEERU), UNISA, Private Bag X6, Florida, 1717, South Africa*

<sup>6</sup> *School of Animal, Plant and Environmental Sciences, University of the Witwatersrand, 1 Jan Smuts Ave, Braamfontein, Johannesburg, 2050*

Contact: [conservation@birdlife.org.za](mailto:conservation@birdlife.org.za)

#### Abstract

Bird strikes with aircraft cost the international aviation industry millions of dollars as a result of direct damage to aircraft and indirectly due to delays caused by aircraft downtime. BirdLife South Africa in collaboration with ACSA O. R. Tambo International Airport and Albert Froneman Consulting are working towards gaining a better understanding of the movements of Grey-headed Gulls *Chroicocephalus cirrocephalus* which congregate around the airfield in large numbers during their winter breeding season. Over the past 17 years, bird collision data have indicated that Grey-headed Gulls are a high-risk species at the airport. In order to gain a better understanding of the movements of the Grey-headed Gulls, a tracking study was initiated to learn more about the movement patterns of Grey-headed Gulls at both a local and seasonal scales. Three Grey-headed Gulls were captured and fitted with light-weight, solar charged tracking units in the vicinity of the airport in Benoni, Gauteng. First results show local movements in Gauteng, as well as long-distance migration to coastal areas in northern KwaZulu-Natal and southern Mozambique. This seasonal snapshot reveals a feeding guild utilizing both terrestrial and coastal resources. Our ultimate long-term goal remains to develop a targeted management strategy to reduce the risk that these birds pose to aircraft at O. R. Tambo International Airport.

## THE SEASONAL RESPONSE OF BIRDS TO *SERIPHIMUM PLUMOSUM* DENSIFICATION AT TELPERION, MPUMALANGA, SOUTH AFRICA

Susannah C. Patrocino<sup>1</sup>, Hanneline Smit-Robinson<sup>2,3,4</sup>, Alan S. Barrett<sup>1</sup> & Leslie R. Brown<sup>1</sup>

<sup>1</sup> Applied Behavioural Ecology & Ecosystems Research Unit, UNISA, South Africa, Private Bag X6, Florida,

<sup>2</sup> Terrestrial Bird Conservation Programme, BirdLife South Africa, Private Bag X16, Pinetown, 2123, Johannesburg, South Africa

<sup>3</sup> Applied Behavioural Ecological & Ecosystem Research Unit (ABEERU), UNISA, Private Bag X6, Florida, 1717, South Africa

<sup>4</sup> School of Animal, Plant and Environmental Sciences, University of the Witwatersrand, 1 Jan Smuts Ave, Braamfontein, Johannesburg, 2050

Contact: patrosc@unisa.ac.za

### Abstract

Mesic Highveld Grassland is important for biodiversity conservation, but is under threat of bush densification by the woody dwarf shrub *Seriphium plumosum*. This indigenous encroacher has spread rapidly in the last decade due to climate change and land degradation. *Seriphium plumosum* dominates natural grass species, changing species composition and structure of natural grasslands. Changes lead to altered habitats for grassland dwelling bird species, affecting their food sources, nesting, and shelter from predators. Certain bird species exploit changes in the physical and biological environment, which other species cannot. This has a ripple effect in the food chain that affects migratory and resident birds in different ways. This study looks at the seasonal responses of birds to *S. plumosum* in grasslands at Telperion Nature Reserve. Some bird species adapt and become generalists (*Cisticola aridulus* - Desert Cisticola), while others prefer the new habitat created (*Euplectes progne* - Long-tailed Widowbird), but others cannot adapt (*Anthus vaalensis* - Buffy Pipit) and leave in search of suitable habitat or will become locally extinct as their habitat diminishes.

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## FLOWER LENGTH MATTERS MORE THAN WIDTH IN NECTAR FEEDING BY WHITE-BELLIED SUNBIRDS *CINNYRIS TALATALA*

Celiwe A. Ngcamphalala<sup>1</sup>, I.E. Bailey<sup>2</sup> & S.W. Nicolson<sup>1</sup>

<sup>1</sup> Department of Zoology & Entomology, University of Pretoria, Private bag X20, Hatfield, South Africa

<sup>2</sup> Natural Power, Ochil House, Springkerse Business Park, Stirling, UK

Contact: celiwe.ngcamphalala@zoology.up.ac.za

### Abstract

Nectarivorous birds must adjust their feeding behaviour in relation to flower morphology. Floral traits vary greatly between ornithophilous plant species, and birds associate this variation with the ease of nectar extraction. Hummingbirds, sunbirds and honeyeaters are all major flower specialists. However, studies on how flower morphology affects the feeding behaviour of nectarivorous birds have been largely restricted to hummingbirds, while sunbirds and honeyeaters remain relatively unstudied. Given that sunbirds are important pollinators of many African plants, we investigated how flower morphology influences the foraging behaviour of white-bellied sunbirds, *Cinnyris talatala* (Smith 1836). Using artificial flowers made of clear PVC tubing, filled with 20% w/w sucrose solution, we measured maximum extraction depths of 12 white-bellied sunbirds for 3 mm and 5 mm wide flowers at both upward and downward orientations. Flower width, but not flower orientation, strongly influenced maximum extraction depth, with the birds probing deeper at wider flowers. Foraging bout dynamics were tested at these two diameters and at two lengths, 14 mm and 27 mm; birds fed faster at the wider and shorter flowers. When length and width were varied simultaneously, sunbirds fed fastest at the short and narrow flowers. When they were given a choice between two floral lengths and two floral diameters, birds preferred short flowers, with diameter having no effect. Floral length appears to be more important than both width and orientation in determining sunbird foraging behaviour. This is perhaps surprising when many sunbird-pollinated plants have downward-facing flowers.

**SUNBIRD SEASONS: RINGING REVEALS MOVEMENTS IN THE EASTERN CAPE**Adrian J.F.K. Craig<sup>1</sup>, A.J. Tree<sup>2</sup>, P.E. Hulley<sup>1</sup>, B.T. Bonnevie<sup>3</sup> & A. Schultz<sup>4</sup><sup>1</sup> Dept Zoology & Entomology, Rhodes University, Grahamstown, South Africa<sup>2</sup> P.O. Box 2793, Port Alfred, 6170.<sup>3</sup> Dept Botany, Rhodes University, Grahamstown.<sup>4</sup> P.O. Box 540, Port Elizabeth, 6000.

Contact: A.Craig@ru.ac.za

**Abstract**

Six species of sunbird: Collared Sunbird *Anthreptes collaris*, Malachite Sunbird *Nectarinia famosa*, Grey Sunbird *Cyanomitra veroxii*, Greater Double-collared Sunbird *Cinnyris afer*, Southern Double-collared Sunbird *C. chalybeus*, Amethyst Sunbird *Chalcomitra amethystine* have been captured during ringing activities at three sites on or near the coast (Port Alfred, Port Elizabeth, Bathurst) and one inland site (Grahamstown) in the Eastern Cape. Capture frequency, recaptures, and moult status of birds from Grahamstown suggest seasonal movements > 10 km in the Malachite Sunbird and local (< 2 km) foraging movements in the Amethyst Sunbird and Greater Double-collared Sunbird, whereas the other species appear to be essentially sedentary. Recaptures provide no evidence of interchange between the inland site and coastal sites for any species, nor movement between these coastal sites. At Bathurst and Port Elizabeth, Malachite Sunbirds were rarely encountered (n = 7 over a 30-year period), and at all sites they are almost exclusively winter visitors (92 of 99 captures). There are no marked seasonal fluctuations in sunbird capture rates in Port Elizabeth except for the Grey Sunbird (peaks in August), while in Grahamstown there is a clear winter peak (May-July) for both Amethyst and Greater Double-collared Sunbirds. However, in Bathurst there are dramatic peaks in captures of Grey, Collared and Southern Double-collared Sunbirds in August, whereas for Amethyst and Greater Double-collared Sunbirds there appear to be two periods of influx centred on August and March. Records from individual years show numerous birds ringed on a single day and not recaptured in the same month, but in some cases recaptured at the same time of year in subsequent years. A similar pattern is evident for Port Alfred, although at this site ringing was concentrated during the flowering period of a *Leonotis* patch (March-April). This suggests a regular passage of sunbirds along the coast, perhaps not extending as far west as Port Elizabeth, and not influencing inland regions no more than 40 km away. Differences between years may be related to rainfall and flowering patterns in the local vegetation.

**EFFECTS OF LAND-USE CHANGES ON ASPECTS OF THE ECOLOGY OF LONG-CRESTED EAGLES *LOPHAETUS OCCIPITALIS* INCLUDING HABITAT USE**M. Maphalala<sup>1</sup>, C. Downs<sup>1</sup>, A. Monadjem<sup>2</sup>, K. Bildstein<sup>3</sup>, S. McPherson<sup>1</sup> & B. Hoffman<sup>4</sup><sup>1</sup> School of Life Sciences, University of KwaZulu-Natal, P/Bag X01, Scottsville, Pietermaritzburg 3209, South Africa<sup>2</sup> Department of Biological Sciences, University of Swaziland, Kwaluseni, Swaziland<sup>3</sup> Acopian Center for Conservation Learning, Hawk Mountain Sanctuary, Orwigsburg, Pennsylvania, USA<sup>4</sup> Raptor Rescue, South Africa

Contact: machawe158@gmail.com

**Abstract**

Long-crested Eagles *Lophaetus occipitalis* are considered as common raptors in parts of KwaZulu-Natal, South Africa, as they are frequently spotted in open habitats such as roadsides, marshes, farmlands and edges of forests, yet their use of these habitats has been little studied. It has been suggested that their apparent range expansion may be linked to their ability to adapt to human-modified habitats which provide suitable nesting sites and hunting habitats. The present study quantified their habitat use. We used GPS-UHF transmitters to track the movements of adult birds during breeding and non-breeding seasons. Data obtained were used to estimate breeding and non-breeding season home ranges on farmlands (n = 5) and urban areas (n = 2). Preliminary results suggest that Long-crested Eagles stay within their home ranges throughout the year and their home range is

smaller than previously thought. Results of the study will contribute to conservation and management of raptors that breed outside protected areas, particularly identifying protection worthy habitats which will also benefit other species living in the same habitats.

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### **MORE EYES ON THE SKIES? UNDERSTANDING THE APPARENT INCREASE OF EUROPEAN HONEY-BUZZARD *PERNIS APIVORUS* IN SOUTHERN AFRICA RELATIVE TO BIRDWATCHING EFFORT**

Caroline G. Howes<sup>1</sup>, Craig T. Symes<sup>1</sup> and Patrick Byholm<sup>2</sup>

<sup>1</sup> School of Animal, Plant and Environmental Sciences, University of the Witwatersrand, Private Bag 3, Wits, Johannesburg 2050, South Africa

<sup>2</sup> Bioeconomy Research Team, Novia University of Applied Sciences, 10600 Ekenäs, Finland

Contact: caroline.grace.howes@gmail.com

#### **Abstract**

Citizen science has become a widespread tool in ornithology over the past two decades. This creates a vast database of species data that covers wide areas and time periods. These data can then be used to understand bird range expansions and contractions, and the drivers behind them. In southern Africa, reporting of European Honey-buzzard (*Pernis apivorus*) have rapidly increased and the factors behind the increase are not clear. This study aimed to understand the apparent increase in honey-buzzard numbers and to elaborate on the relation between birdwatchers and the reporting of bird species. This was examined using honey-buzzard reporting data from a wide variety of birdwatching sources, including citizen science databases (1983-2017), as well as documenting birdwatcher numbers (2007-2017). European Honey-buzzard data were also compared with ten other regularly-occurring southern African vagrants. European Honey-buzzard sightings have increased over five times more than all other rare species and the increases do not coincide with changes in reporting such as the introduction of the Southern African Rare Bird Newsletter, like in the other bird species. It appears that the increase in European Honey-buzzards in the sub-region is a true population increase. This may be due to changes in the global population or in habitat across southern Africa that now attract more birds. This paper emphasizes the importance of citizen science birdwatchers in the collection of data for rare species of conservation importance.

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### **SEASONAL VARIATION IN AVIAN DIVERSITY AND TOLERANCE OF MIGRATORY FOREST SPECIALISTS TO THE PATCH-ISOLATION GRADIENT ACROSS A CRITICALLY ENDANGERED FOREST SYSTEM**

David A. Ehlers Smith<sup>1</sup>, Xingfeng Si<sup>2,3</sup>, Yvette C. Ehlers Smith<sup>1</sup> & Colleen T. Downs<sup>1</sup>

<sup>1</sup> University of KwaZulu-Natal, School of Life Sciences, Private Bag X01, Scottsville, Pietermaritzburg 3209, South Africa

<sup>2</sup> Department of Biological Sciences, University of Toronto-Scarborough, Toronto, Ontario, M1C 1A4, Canada

<sup>3</sup> College of Life Sciences, Zhejiang University, Hangzhou, Zhejiang 310058, China

Contact: smithd1@ukzn.ac.za

#### **Abstract**

Forest fragmentation reduces connectivity of forest patches, presenting a dispersal challenge for many forest-dependent species and results in deleterious effects on community structure and diversity (i.e. isolation effects). It is expected that avian forest specialists are vulnerable to forest fragmentation, yet seasonal migrants may be more resilient to isolation effects than sedentary specialists. Quantifying the influence of surrounding habitat matrix on dispersal and colonisation of isolated patches by forest specialists may improve conservation planning. We surveyed bird communities of the Indian Ocean Coastal Belt Forest in KwaZulu-Natal, South Africa using fixed-radius point counts in 138 habitat patches across a range of land-use types, vegetation sub-classes and isolation distances from mainland forests during the breeding and non-breeding seasons. We quantified taxonomic and functional diversity per patch based on species' traits, and performed generalised linear mixed-effects models on

the effects of isolation and surrounding habitat matrix on avian trait-diversity measurements. We compared diversity measures between seasons for evidence of resilience to isolation effects for forest-specialised migrants, and compared linear regressions to segmented regressions of isolation-distance effects on sedentary forest specialists to explore dispersal limits. All measures of avian diversity were higher during the breeding season. Changes in taxonomic and functional diversity were correlated. The amount of surrounding habitat was a significantly positive driver of all diversity measures; isolation-distance effects were complex, but had the most significantly negative effect during the breeding season, and on sedentary forest specialists. Segmented regressions indicated that sedentary forest specialists were largely unable to disperse across isolation distances > 500 m. The habitat matrix was crucial for promoting connectivity. Specialised niches may be occupied across the fragmented landscape, given the vagility of many forest specialists; migratory forest specialists were resilient to the isolation effect. Sedentary forest specialists were most vulnerable to local extinction from isolation effects, with negative implications for ecosystem functioning.

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## THE SPATIAL ECOLOGY OF FLEDGING CAPE VULTURES *GYPSS COPROTHERES* FROM THE EASTERN CAPE, SOUTH AFRICA

Francis R. Martens<sup>1</sup>, M.B. Pfeiffer<sup>1,2,3</sup>, C.T. Downs<sup>3</sup> & J.A. Venter<sup>1</sup>

<sup>1</sup>*School of Natural Resource Management, George Campus, Nelson Mandela University, George, South Africa, Madiba Drive, George, 6529*

<sup>2</sup>*U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services, National Wildlife Research Center, Ohio Field Station, 6100 Columbus Avenue, Sandusky, OH 44870, USA*

<sup>3</sup>*School of Life Sciences, University of KwaZulu-Natal, Private Bag X01, Scottsville, Pietermaritzburg 3209, KwaZulu Natal, South Africa*

Contact: S212258001@nmmu.ac.za

### Abstract

The post-fledging dependence period (PFDP) is one of the most critical stages in the life history of some avian species. Birds are particularly sensitive to mortality during this stage as they must learn essential skills, such as efficient locomotion, proficient food location and predator avoidance. Knowledge of this period would provide valuable information for conservation management of endangered species, many of which experience high juvenile fatality rates. Post-fledging movements of five endangered Cape Vultures *Gyps coprotheres* from Colleywobbles Vulture Colony, were recorded using GPS/GSM telemetry in South Africa. Home range sizes, distance travelled from the nest, habitat use and roost site preference were determined over 11-months during the PFDP. Fledglings increased their home range progressively for the first two months, then exhibited a rapid increase in its size associated with dispersal from the natal colony. Maximum net daily distance also rapidly increased following the dispersal period. A preference for protected areas and woody vegetation (representing cliff faces used for roosting) in terms of habitat use for foraging was evident. Density of roosts selected by juvenile birds during the PFDP was highest at a range of 20-30km from the natal colony. Roost sites facing a south-south-easterly direction and located close to active colonies were preferred. Juveniles' roost site proximity to active colonies falls within the recommended 50 km conservation buffer zone suggested for colonies, and this highlights the significance of these buffer zones in not only protected mature adult birds, but also these young, inexperienced birds. Thus, knowledge of the movement, habitat use and preferred roost sites of these inexperienced juveniles can aid in the development of an effective conservation plan.

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## MEASURING PROTECTION LEVELS FOR SPECIES FOR SOUTH AFRICA'S NATIONAL BIODIVERSITY ASSESSMENT: BIRDS

Ernst F. Retief<sup>1</sup> & Daniel Marnewick<sup>1</sup>

<sup>1</sup> Important Bird Areas Programme, BirdLife South Africa, Private Bag X16, Pinetown, 2123, Johannesburg, South Africa

Contact: ernst.retief@birdlife.org.za

### Abstract

BirdLife South Africa is assisting the South African National Biodiversity Institute (SANBI) to measure the protection level of birds. The results of the study will feed into South Africa's National Biodiversity Assessment to be published in 2018.

The analysis aimed to answer the question of "How well does South Africa's formal protected areas (PAs) network protect the country's bird species?" This analysis was complex because birds are highly mobile, are not contained by political or protected area boundaries, and have vastly different biological characteristics across the various bird species. The analysis used available data sources such as the Southern Africa Bird Atlas Project 2 which was augmented with expert opinion.

The analysis followed a two-phased approach. The aim of the first phase was to identify those species which clearly are abundant and well protected in South Africa.

During phase 2 extensive use was made of expert opinion and other data sources to obtain population data for species. The first step was to determine if the species is sufficiently protected within the PA network. In order to achieve this a population target was set for each species. The population size of the species within the PA network was then determined and compared with the population target. The result was then presented as a percentage. The second step was to determine how effective the PA in which the species occurred is at protecting that species, described as "protected area effectiveness". The rationale is that, while a species might occur in large numbers within a PA, the management of the PA might be lacking or does not protect the species against the threats the species faces within the area. As a final step the overall effectiveness of the PA network per species was calculated, the data analysed and summarized.

During this talk the final results of the analysis will be presented and explained.

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## ARE BULLETS KILLING OUR CAPE VULTURES *GYPS COPROTHERES*?

Nndwandiyawe Muhali<sup>1,2</sup> and E.M. Stam<sup>1</sup>

<sup>1</sup> University of Venda, University Road, Thohoyandou, Limpopo, 0950

<sup>2</sup> Birds & Renewable Energy Programme, BirdLife South Africa, Private Bag X16, Pinetown, 2123, Johannesburg, South Africa

Contact: muhalinndwa@gmail.com

### Abstract

The Cape Vulture *Gyps coprotheres* is a very large vulture with near-naked head and neck. Adults are creamy-buff, with contrasting dark flight and tail feathers. They have a yellowish eye, black bill, bluish throat and facial skin, and dark neck. Juveniles and immatures are generally darker and more streaked, with brown to orange eyes and red neck. The Cape Vulture is widely distributed on cliffs and grasslands of Southern Africa. It is indigenous to Lesotho, Botswana, Namibia, Zimbabwe, Swaziland, and South Africa. However, the Cape vulture has decreased in number and currently 90% of the population is confined to South Africa and Lesotho. The species status has recently been changed from Threatened to Endangered on the IUCN Red List because of the many threats it faces. The greatest threat is believed to be low availability of carcasses followed by inadvertent poisoning including lead poisoning. Vultures are highly vulnerable to lead.

Cape vultures, like California condors, are obligate scavengers. Animals that have been shot and left dead in the field are a food source. If lead-based ammunition was used, bullet fragments may be ingested by the vultures and dissolve in their stomach acid, after which the lead enters the blood circulation and exert its toxic effect. South

Africa has an extensive hunting industry and farmers also use firearms to kill problem animals. It is, therefore, likely that Cape vultures are exposed to lead from lead-based ammunition.

Cape vulture feathers collected at Nyoka Ridge and Blouberg vulture restaurants were used to monitor temporal trends of lead in the vultures. The lead concentrations were found to be higher than normal in the free-flying vultures.

Commonly used lead-based ammunition from PMP was used to find out whether the ammunition is the source of the lead in the vulture feathers. Analysis was done through an ICP-MS to identify the lead concentrations as well as the stable isotopic ratios.

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**CAMERA-TRAP DATA ELUCIDATE HABITAT REQUIREMENTS AND CONSERVATION THREATS TO AN ENDANGERED FOREST SPECIALIST, THE SPOTTED GROUND THRUSH *GEOKICHLA GUTTATA***

Yvette C. Ehlers Smith<sup>1</sup>, David A. Ehlers Smith<sup>1</sup>, T. Ramesh<sup>1,2</sup> & Colleen T. Downs<sup>1</sup>

<sup>1</sup> University of KwaZulu-Natal, School of Life Sciences, Private Bag X01, Scottsville, Pietermaritzburg 3209, South Africa

<sup>2</sup> Sálim Ali Centre for Ornithology and Natural History (SACON), Anaikatty Post, Coimbatore, Tamil Nadu, India – 641108

Contact: yvetteehlers@hotmail.com

**Abstract**

The Spotted Ground Thrush (SGT) *Geokichla guttata* is a globally endangered forest specialist whose distribution is poorly understood in the critically endangered Indian Ocean Coastal Belt Forest (IOCBF) biome on the east coast of southern Africa. More than 70% of the IOCBF has been lost to development, resulting in fragmented forest remnants within a mosaic of different land uses. We conducted camera-trap surveys with 5,796 trap-days in 82 forest patches of various sizes across a gradient of land-use types in the IOCBF during the winter seasons of 2014–2016 to establish occupancy ( $\Psi$ ) of SGT. We used occupancy modelling and incorporated forest microhabitat characteristics and surrounding land-use classifications to compare sites and determine SGT distribution across the habitat mosaic. The top model estimated an average  $\Psi = 0.39 \pm 0.09$ , and detection probability ( $P$ ) =  $0.11 \pm 0.03$ . At the landscape scale, larger, less isolated patches had a higher  $\Psi$  of SGT while  $P$  decreased with proximity to cultivated land. At the microhabitat scale, a high percentage of bare ground influenced  $\Psi$  positively but  $P$  negatively, as did short grass cover. However, short herbaceous cover and high stem density of large (11–15 m) trees influenced  $P$  positively. These results detail the influence of landscape-scale factors including forest fragmentation and conversion to agriculture in conjunction with forest microhabitat-scale characteristics, on patch selection and distribution of a cryptic, ground-dwelling species that is both threatened and under-studied. Given its endangered status and dependence on larger and more mature forest patches, SGT may be an effective flagship species for the conservation of threatened IOCBF patches.

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## SESSION: THREATS & DISTURBANCES

### AVOIDING A COLLISION COURSE FOR VULTURES AND RENEWABLE ENERGY IN AFRICA

Samantha Ralston-Paton<sup>1</sup>

<sup>1</sup> *Terrestrial Bird Conservation Programme, BirdLife South Africa, Private Bag X16, Pinetown, 2123, Johannesburg, South Africa*

Contact: [energy@birdlife.org.za](mailto:energy@birdlife.org.za)

#### Abstract

Whether you consider them revolting scavengers, or majestic kings of the African sky, vultures are increasingly recognized as a global conservation priority. Vultures perform a vital ecological role, they are important symbols in many cultures, and they help prevent the spread of pests and disease. Yet vulture numbers continue to decrease. Collisions with and electrocutions from electrical infrastructure, unintentional poisoning, persecution and habitat loss are all impacting on vulture populations. Climate change may present a new threat and, somewhat ironically, so too could efforts to mitigate climate change. In South Africa Bearded and Cape Vultures have been ranked as the top bird species at risk from the negative effects of wind-energy infrastructure. The species' behaviour and physical characteristics make them particularly vulnerable to colliding with wind turbines, and their negative conservation status implies that the impact of multiple fatalities could be significant. As wind energy expands into the rest of Africa, it is likely that other vulture species may also be at risk.

Ensuring universal access to affordable, reliable, sustainable and modern energy is of also of global importance - it is one of the United Nations Sustainable Development Goals for 2030. Most of the challenges Africa faces are in some way linked to energy, including social development, gender equality, employment, security, climate change and food production.

The continent cannot afford to make trade-offs between renewable energy and the environment, but what can be done to avoid vultures and renewable energy becoming set on a collision course? We will explore the opportunities and challenges to resolving this nexus within different realms, ranging from policy and legislation, research and data collection, to site selection and the operation of wind farms.

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### NOCTURNAL MOVEMENTS OF THE LESSER FLAMINGO *PHOENICONAIAS MINOR* IN SOUTHERN AFRICA – EVIDENCE FOR NOCTURNAL POWER-LINE MITIGATION

Mattheuns D. Pretorius<sup>1,2</sup> & Michael D. Michael<sup>3</sup>

<sup>1</sup> *Senior Field Officer, Wildlife & Energy Programme, The Endangered Wildlife Trust*

<sup>2</sup> *Eskom/Endangered Wildlife Trust Strategic Partnership*

<sup>3</sup> *Eskom: Research, Testing and Development, Sustainability Division*

Contact: [mattp@ewt.org.za](mailto:mattp@ewt.org.za)

#### Abstract

Over the past 20 years the Eskom/EWT Partnership has been collecting information on avian mortalities relating to electrical infrastructure. Lesser Flamingo *Phoeniconaias minor* collisions with overhead power lines are frequently recorded. The conventional mitigation method intended to reduce collision mortalities is to mark power lines with bird flight diverters, or 'flappers'; devices intended to improve the visibility of overhead power line cables for birds in flight. Following several reports of flamingo collision mortalities under previously marked lines, we considered the possibility that the nocturnal activity of the species may render these markers redundant. We therefore initiated a project to investigate Lesser Flamingo movements both spatially and temporally, particularly with regard to the frequency and extent of nocturnal activity. Twelve adult Lesser Flamingos were fitted with GPS/GSM satellite transmitters from two different locations in the North West and Free State provinces of South Africa. The transmitters recorded GPS fixes at set intervals throughout the day and night in order to compare diurnal and nocturnal activity. All (100%) of the long-range movements recorded by

satellite-tagged flamingos have been at night, particularly between 20h00 and 02h00, confirming previous observations of nocturnal migration between waterbodies. There was no significant difference between the frequency and extent of flights conducted during periods of different moon phase, indicating that these birds are able to navigate irrespective of the strength of ambient light conditions. Nocturnal movements included 10 flights of >800 km from South Africa to breeding grounds in Botswana (the Makgadikgadi pans). We also identified a new migration route between South Africa and Madagascar, when one of the flamingos crossed the Mozambican Channel in a single, nocturnal flight.

The Eskom/EWT Partnership, in conjunction with Pre-formed Line Products, has designed and tested a nocturnal bird flight diverter called the “OWL” device, a marker equipped with solar-powered LED lights. Preliminary results are encouraging, and more of these devices will be deployed where power lines in close proximity to waterbodies pose a risk to night-flying birds.

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## **KILLING THREATENED BIRDS WITH GREEN ENERGY: HOW DO WE MAKE IT GREENER?**

**Robert E. Simmons<sup>1</sup>, Marlei Martins<sup>2</sup>, Kate MacEwan<sup>3</sup> & Jon Smallie<sup>4</sup>**

<sup>1</sup> *FitzPatrick Institute of African Ornithology, DST-NRF Centre of Excellence, University of Cape Town, Cape Town, South Africa*

<sup>2</sup> *Birds & Bats Unlimited, South Africa*

<sup>3</sup> *Inkululeko 68 Cherington Way, Cotswold Downs, Hillcrest, 3610, South Africa*

<sup>4</sup> *Wildskies Ecological Services, 36 Utrecht Avenue, East London, South Africa*

Contact: rob.simmons@uct.c.za

### **Abstract**

More than 85% of South Africa’s energy is supplied by greenhouse-emitting coal, oil and gas, despite South Africa being a signatory to the Kyoto and Paris Climate Agreements. To reduce this dependence South Africa has embarked on a programme of green solar and wind power across the landscape. BirdLife’s 1-year summary of avian fatalities at South African wind farms indicates a predominance of raptors killed at rates as high as that in the USA. We investigated the reasons for this relatively high death rate at an Eastern Cape wind farm where five species of Red Data raptors occur and three species breed on site. In 37 months, 36 individuals of 11 raptor species were killed including some of the first records of migrant Amur Falcons *Falco amurensis* and Western Ospreys *Pandion haliaetus*. Red Data species observed killed or found under turbines included Martial Eagles *Polemaetus bellicosus* (x2) and Black Harriers *Circus maurus* (x4). We found a seasonal increase in the “risky” flying heights of the harriers which are typically low-level foragers. This increase coincided with a spate of turbine fatalities suggesting that flight height and risk of impact are related. Hidden costs were apparent following one harrier death because the male killed was a breeding bird supplying food to an active nest which failed. Since 18% of the turbines were responsible for the death of 64% of the raptors, this allows us to focus mitigation measures on the riskiest turbines. We have recommended that multi-sensor systems be installed on some turbines and that habitat manipulation be implemented to reduce mortality for all raptors attracted into the site.

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**SEARCHING FOR CARRION: AFRICAN VULTURES HINDERED BY BUSH ENCROACHMENT RELINQUISH THEIR COMPETITIVE ADVANTAGE OVER MAMMALIAN SCAVENGERS**

Kyle S. Walker<sup>1</sup> & G. Malan<sup>1</sup>

<sup>1</sup> Department of Nature Conservation, Tshwane University of Technology, PB X680, Pretoria 0001, South Africa

Contact: kyle.sandy.walker@gmail.com

**Abstract**

The spread of dense, woody vegetation into previously open savanna is an escalating problem affecting the ecology of many African savannas. We tested the hypothesis that bush encroachment in a mixed savanna lowers the ability of White-backed Vultures *Gyps africanus* and other aerial scavengers to locate and consume carcasses. The study was conducted on a nature reserve near Gravelotte, Limpopo Province, South Africa. Impala *Aepyceros melampus* carcasses were placed in experimental quadrats (n = 27) 1.5 hrs after sunrise. Woody plant density in each quadrat ranged from 0 to 58 woody plants per 64 m<sup>2</sup>, and was strongly correlated with canopy cover. Camera traps were used to remotely record scavenger arrival at each carcass. The time taken for scavengers to locate an impala carcass increased significantly with woody plant density and was significantly correlated with the likelihood that carcasses would be consumed by terrestrial scavengers overnight. Similarly, avian scavengers failed to locate carcasses in sites with woody plant density of > 4844 woody plants/ha, and foraged most efficiently in areas with 2030 woody plants/ha. These results show that White-backed and other vultures are likely to suffer reduced access to food in bush-encroached savannas, and that this widespread habitat transformation may be significantly affecting the conservation status of these globally Critically Endangered birds.

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## ABSTRACTS

**Thursday, 8 March 2018**

### **THE FLORA AND ECOLOGY OF THE WEST COAST**

Rupert Koopman<sup>1</sup>

<sup>1</sup>Scientific Services, CapeNature, Private Bag X5014, Stellenbosch, 7599

Contact: rkoopman@capenature.co.za

#### **Abstract**

The Saldanha Peninsula is a botanical hotspot. Iconic West Coast landscapes are often associated with interesting geological landmarks such as the Witteklip, and this varied geology means a varied flora. From an endemism perspective, Saldanha Limestone Strandveld and Saldanha Granite Strandveld are the two richest vegetation types and pretty much restricted to the Peninsula. This is a rapid introduction to the vegetation types of the Broader Saldanha Peninsula and some of the most threatened local Species of Conservation to look out for while birding.

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### **AFRICAN PENGUIN CONSERVATION: TAKING THE FISH TO THE PENGUINS AND THE PENGUINS TO THE FISH**

Christina T. Hagen<sup>1</sup> & Taryn L. Morris<sup>1</sup>

<sup>1</sup>Seabird Conservation Programme, BirdLife South Africa, PO Box 7119, Roggebaai, 8012, South Africa

Contact: christina.hagen@birdlife.org.za

#### **Abstract**

The African Penguin is one of five penguin species worldwide listed as endangered and is the only one found on the African continent. Once numbering in the millions, by the first official population census in 1956, 141 000 pairs remained. More than 50 years on, the population has dropped by a staggering 80%, to fewer than 18 000 pairs in South Africa. Current threats include predation by seals, the potential for a catastrophic oil spill and a lack of food, which is considered to be the biggest threat. Penguins eat mainly sardines and anchovies, but in South Africa, the distribution of these fish has shifted from the west coast to the south coast. The fishing industry has been slow to adapt owing to social and infrastructure pressures, resulting in localized overfishing of the reduced fish stocks around the west coast colonies and continued penguin population decreases.

BirdLife South Africa's conservation work on the African Penguin focuses on two projects tackling the lack of food. The first involves ensuring that there are fish where there are penguins and the second involves assisting penguins to breed successfully where there are reliable stocks of fish. The premise underlying the first project is that fishing quotas need to be set, taking ecosystem requirements into consideration. We achieve this by working with the Department of Agriculture, Forestry and Fisheries and other partners to ensure that fish quotas in each

area are given in proportion to the availability of fish. We also aim to reduce or eliminate fishing around breeding colonies, making it easier for breeding penguins to find enough food.

The second project aims to assist penguins in establishing colonies where there is more fish, by creating new colonies. Establishing or re-establishing seabird colonies can be a useful conservation tool and has been attempted for various species, mostly flying seabirds, with varying degrees of success. Work on Little Penguins in Australia suggests that this can be successful for penguins, but lessons can be learned from the previous attempts. BirdLife South Africa has identified two sites; one in De Hoop Nature Reserve, which was the site of a natural penguin colonization attempt, and the other in Plettenberg Bay, which is a completely novel site. We will report the latest progress at both of the sites and share the exciting tools we plan to use to create African Penguin colonies.

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## A HISTORY OF DASSEN ISLAND AND THE BIRDS THAT CALL IT HOME

Kevin Shaw<sup>1</sup> & J. Visagie

<sup>1</sup> CapeNature, Private Bag X5014 Stellenbosch, 7599.

<sup>2</sup> CapeNature, PO Box 306, Yzerfontein, 7351.

Contact: shawka@capenature.co.za

### Abstract

Dassen Island is situated off the west coast of South Africa, 9 km south west of the coastal town of Yzerfontein. It is the second largest island on the South African continental shelf and was proclaimed a provincial nature reserve in 1988. Historically, the island has been occupied since 1654, but the utilization of its natural resources, predominantly African Penguins and their eggs, occurred prior to this. As with many of the other bird-inhabited islands off the South African coast, Dassen Island was also subjected to the impacts of the guano-collecting industry but to a lesser degree because of the low quality of the guano. The utilization of the island's natural resources and the associated disturbances resulted in declines of the seabird populations on the island.

Although 118 bird species have been recorded on the island, the majority are visitors from the mainland. The species that have the highest conservation priority in terms of management are the African Penguin; Bank, Crowned, Cape and White-breasted Cormorant; African Black Oystercatcher; Swift Tern; Hartlaub's and Kelp Gull; Leach's Storm Petrel and the Great White Pelican. All of these species breed on the island and in the case of the latter two species the island is one of only two known breeding sites in South Africa. Other species that also breed on the island are the White-fronted and Kittlitz's Plovers, the Crowned and Blacksmith Plovers and terrestrial species such as the Speckled Pigeon, Cape Wagtail and Zitting Cisticola.

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## **BLACK HARRIERS AND WIND FARMS: LESSONS LEARNED LOCALLY AND IN THE EASTERN CAPE**

Rob Simmons<sup>1</sup>

<sup>1</sup>*FitzPatrick Institute of African Ornithology, DST-NRF Centre of Excellence, University of Cape Town, Cape Town*

Contact: rob.simmons@uct.ac.za

### **Abstract**

This talk will focus on a hot topic – what effect wind farms are having on our raptors. I will illustrate it with a focus on work we have undertaken in the Eastern Cape and the Black Harriers that we have satellite-tracked from here in Langebaan.

Wind farms have had a bad press ever since figures of thousands of raptors were reported killed at the Altamont Pass wind farm in California. Since then South Africa has joined the renewable energy world and now 22 operational wind farms are producing almost 2000 MW of renewable power. Preliminary results indicate that 36% of the first 271 fatalities recorded were raptors, and among these were four Verreaux's Eagles, one Martial Eagle and five Black Harriers – all Red Data species.

The most frequently killed raptors were Jackal Buzzards. This is not unusual as other areas of the world report buzzards at the top of their fatality lists. However, the large number of harriers is unusual. So why are harriers so susceptible when they have never appeared on lists elsewhere?

This talk will explore the reasons behind this, and show that there are some unexpected hidden costs. I will also present some of the first images of birds being killed by turbines. The talk will conclude with possible solutions as to what can be tried to mitigate the problems found, those that have worked and those that still need to be tested.

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## **PROTECTING OUR ESTUARIES: BIRDLIFE SOUTH AFRICA'S WORK ON ESTUARIES IN THE WESTERN CAPE**

Giselle C. Murison<sup>1</sup>, Samantha Schröder<sup>2</sup> & Dale R. Wright<sup>3</sup>

<sup>1</sup>*BirdLife South Africa: Project Manager: Western Cape Estuaries Conservation Project, Private Bag X16, Pinetown, 2123, Johannesburg, South Africa*

<sup>2</sup>*BirdLife South Africa: Project Manager: Verlorenvlei Protected Areas Project, Private Bag X16, Pinetown, 2123, Johannesburg, South Africa*

<sup>3</sup>*BirdLife South Africa: Regional Conservation Manager: Western Cape, Private Bag X16, Pinetown, 2123, Johannesburg, South Africa*

Contact: giselle.murison@birdlife.org.za

### **Abstract**

Estuaries are some of South Africa's most threatened ecosystem types. Of the nine wetland or estuarine Important Bird and Biodiversity Areas (IBAs) in the Western Cape, four have little or no formal protection, including the Olifants Estuary, Verlorenvlei and Lower Berg River Wetlands IBAs on the West Coast, and the Cape Whale Coast IBA near Hermanus. Through projects such as the Western Cape Estuaries Conservation Project, and the Verlorenvlei Protected Areas Project, BirdLife South Africa is seeking formal protection through the national Biodiversity Stewardship Programme for these severely under-protected systems, while testing and developing innovative approaches for achieving this protection.

Biodiversity Stewardship is a conservation model that engages private and communal landowners to help them gain conservation recognition and protection for their high-biodiversity lands, which could include declaration as a formal protected area, while assisting in the management of these natural assets to ensure a more productive and sustainable landscape for the future.

The Verlorenvlei Project, which ended in December 2017, has seen the establishment of the Moutonshoek Protected Environment covering 8093 ha, as well as the new Verlorenvlei Conservancy. Various stewardship initiatives were implemented to improve the quality and quantity of water in the Verlorenvlei Estuary. The

ongoing Western Cape Estuaries Conservation Project is focused on the expansion and proclamation of protected areas at an additional three high-priority estuaries: the Berg River, Bot River-Kleinmond and Klein River estuaries, and on improving conservation action at all sites to further enable their maintenance and management. This includes providing input into the various Estuary Management Plans, and working with riparian landowners and partners to help tackle the environmental issues they're currently facing, such as erosion and the spread of alien vegetation.

BirdLife South Africa is also actively supporting partners in the formal protection and improved management of the key estuarine waterbodies in the Western Cape, through the establishment of Responsible Management Authorities for the estuaries and with the implementation and enforcement of the newly revised Estuary Management Plans and associated by-laws.

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## FINDING AND IDENTIFYING THE TRICKY SPECIALS OF WESTERN SOUTH AFRICA

Etienne Marais<sup>1</sup>

<sup>1</sup> *Indicator Birding, 314 Friederich Street, Wierda Park, Centurion, Pretoria, 0157*

Contact: [Etienne@birding.co.za](mailto:Etienne@birding.co.za)

### Abstract

Birding a new region can be a challenge and the success or failure of a birding trip is often dependent on the quality of preparation undertaken by the birder(s). This talk has two parts. Firstly, a humorous, but comprehensive step-by-step approach on how not to do trip planning for Western South Africa, including several examples of real-life birding trip "fails". The second part of the talk covers 60 of Western South Africa's most sought-after terrestrial "specials", with an emphasis on the more difficult to find species. For these species the talk highlights aspects of ecology, habitat preferences, best locations, birding approach and seasonal issues. The approach taken is to understand habitat, behaviour and movements of each species in a way which makes the process of finding birds an immersion in the fascinating and complex world of nature. The species are covered in two sections: easy to identify and tricky to identify – where the LBJs in particular get special attention. The aim of the talk is to provide insights that will help minimise (or even erase) that nagging feeling of uncertainty and self-doubt, which often comes with the process of ticking a new LBJ!

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## HOT BIRDS: OUR BIRDLIFE AND CLIMATE CHANGE

Andrew E. McKechnie<sup>1,2</sup>

<sup>1</sup> *Department of Zoology and Entomology, University of Pretoria, South Africa*

<sup>2</sup> *South African Research Chair in Conservation Physiology, National Zoological Gardens, Pretoria*

Contact: [aemckechnie@zoology.up.ac.za](mailto:aemckechnie@zoology.up.ac.za)

### Abstract

Earth's climate is currently undergoing a period of rapid warming, driven primarily by anthropogenic increases in atmospheric concentrations of greenhouse gases such as carbon dioxide. Global warming is manifested as increases in maximum and minimum temperatures, more frequent and intense heatwaves, and shifts in precipitation patterns. Because the world's birds live in habitats that are increasingly degraded and fragmented by human activities, and in which responses that might have been possible during past warming periods are no longer an option, climate change is one of the greatest challenges facing conservationists and scientists in the 21<sup>st</sup> Century. Arid-zone birds are among the most vulnerable to the impacts of higher temperatures, and provide some of the most dramatic insights into how heatwaves can negatively affect populations. Over the last nine years members of the Hot Birds Project, a collaborative research programme at the Percy FitzPatrick Institute and the University of Pretoria, have been exploring the ways in which warmer future climates will affect desert birds

around the world. Work in the Kalahari Desert on species including Southern Pied Babblers and Southern Yellow-billed Hornbills has revealed that high temperatures affect body condition and breeding success in a number of consequential ways, and more frequent heatwaves will reduce the likelihood of birds persisting in very hot areas. Climate warming also has the potential to dramatically increase bird mortality during extreme heatwaves, particularly in intensely hot areas like North America's Sonoran Desert and the arid interior of Australia. Using physiological data, we can undertake continental-scale risk assessments, and model the frequency with which desert birds will encounter potentially lethal dehydration in the future. A new research project that commenced in 2017 focuses on the threatened Red Lark in the Northern Cape; the exposed sand dune and gravel plain habitats occupied by this lark make it a flagship species for research seeking to predict the impacts of global warming on southern Africa's birdlife.

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**ASSESSING THE CURRENT POPULATION STATUS OF RANGE-RESTRICTED SMALL PASSERINE SPECIES (RUDD'S LARK, BOTHAS LARK & YELLOW-BREADED PIPIT) IN THE HIGHLAND GRASSLANDS OF SOUTH AFRICA**

Robin Colyn<sup>1</sup> & Hanneline Smit-Robinson<sup>1,2,3</sup>

<sup>1</sup> *Terrestrial Bird Conservation Programme, BirdLife South Africa, Private bag X16, Pinegowrie, 2123, Johannesburg, South Africa*

<sup>2</sup> *Applied Behavioural Ecological & Ecosystem Research Unit (ABEERU), UNISA, Private Bag X6, Florida, 1717, South Africa*

<sup>3</sup> *School of Animal, Plant and Environmental Sciences, University of the Witwatersrand, 1 Jan Smuts Ave, Braamfontein, Johannesburg, 2050*

Contact: robin.colyn@birdlife.org.za

**Abstract**

The southern African Grassland Biome, as with numerous grassland systems worldwide, has been placed under significant anthropogenic threat and pressure. The highland grassland system, which occurs at higher-lying altitudes within the respective Biome, is known to support a diverse range of threatened and endemic avian species. The current population status and conservation measures required for some of the most threatened, endemic and localized small passerine species occurring within highland grassland system are unknown. Our study aimed to develop a monitoring tool that was effective at estimating the population status of severely range-restricted and elusive threatened small passerine species. Focal species covered in the study included Endangered Rudd's Lark *Heteromirafra ruddi*, Endangered Botha's Lark *Spizocorys fringillaris* and Yellow-breasted Pipit *Anthus chloris*. Results from our study highlight the current range of these species, incorporating new sites as well as sites no longer occupied, current measures of relative abundance, drivers of presence and a conservation network design required to accommodate these species in protected area networks.

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Caroline G. Howes<sup>1</sup>, Craig T. Symes<sup>1</sup> & Patrick Byholm<sup>2</sup>

<sup>1</sup>*School of Animal, Plant and Environmental Sciences, University of the Witwatersrand, Johannesburg, South Africa*

<sup>2</sup>*Novia University of Applied Sciences, Ekenäs, Finland*

Contact: caroline.grace.howes@gmail.com

#### **Abstract**

Ask any southern African birder about the European Honey-buzzard *Pernis apivorus* and they will likely wonder aloud about the enormous increase in the number of records over the past ten years. This migratory specialist has gone from a species that was recorded 20 times over the 1980s to over 300 times just last season (2016-2017). Our work focuses on better understanding the ecology of the honey-buzzard as well as investigating several hypotheses about why this species seems to be increasing in southern Africa. In order to do this, we have used a huge variety of techniques, including examining rarity and citizen science records, tagging birds with satellite trackers, and analysing feathers using stable isotopes. Through these methods, we have started to learn about where these honey-buzzards come from and what they are doing here, as well as what this may be telling us about the changing world.

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#### **STRANDVELD BIRDING**

Faansie Peacock<sup>1</sup>

<sup>1</sup>*Pavo Publishing, 1114 Robbejacht Circle, Langebaan Country Estate, Langebaan, 7357, South Africa*

Contact: faansiepeacock@gmail.com

#### **Abstract**

Strandveld, translated as “beach vegetation”, is a fascinating and oft-overlooked ecosystem that occurs on sandy, alkaline coastal sands along the West Coast. Although not quite fynbos, and not quite Succulent Karoo, Strandveld has characteristics of both biomes. This is reflected in the diverse biological community that calls this harsh but hardy habitat home. Join Faansie Peacock on his quest to discover the avian riches of the area, and learn more about the biology of the Strandveld specials.

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#### **WHERE HAVE ALL THE WADERS GONE? CONSERVATION ACTIONS NEEDED TO ADDRESS DECLINES IN MIGRATORY WADERS**

Dale R. Wright<sup>1</sup>

<sup>1</sup>*Regional Conservation Manager: Western Cape, BirdLife South Africa, Private Bag X16, Pinegowrie, 2123, Johannesburg, South Africa*

Contact: dale.wright@birdlife.org.za

#### **Abstract**

Migratory waders visit our shores each summer, taking advantage of energy-rich habitats along the coast, including lagoons, estuaries, beaches and even waste-water treatment works. Recent studies of many migratory species are indicating declines across a number of different species using different migratory flyways. BirdLife South Africa was involved in two different studies which reviewed population changes in migratory waders, at the False Bay Nature Reserve and along various beaches around our coastline.

False Bay Nature Reserve Important Bird and Biodiversity Area (IBA), is situated on the Cape Flats in the City of Cape Town. The Cape Bird Club has undertaken monthly bird counts at this site, and compiled what is likely the longest-running survey at a single site in South Africa. We analysed changes in the abundance of 28 IBA “trigger” bird species using the 31-year dataset. Five migratory wading bird species, namely Common Sandpiper, Wood Sandpiper, Curlew Sandpiper, Little Stint and Ruddy Turnstone, declined significantly during this period. In addition, all nine migratory wading bird species analysed illustrated declines over the study period.

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Coastlines are relatively stable habitats that can provide important insights into some of the drivers of population trends affecting migrant and resident waders. In the 1980s the Western Cape Wader Study Group undertook surveys along vast stretches of the South African coastline and repeat surveys of parts of the Western Cape coastline were undertaken in 2010/11 and 2011/12. With the help of volunteers, we counted priority stretches of the KwaZulu-Natal and Western Cape coastlines in February 2014 and February 2015.

Sadly, results from these counts also indicate declines in migratory waders. The Western Cape counts in 2015 further supported the 2010/11 and 2011/12 count results, with marked declines recorded among most migrant waders; no Sanderlings or Curlew Sandpipers were recorded. Among resident waders, White-fronted Plovers declined by 22% whereas African Oystercatchers increased by 166%. Species diversity along the coastline has increased due to colonization by wetland-dependent species in both the Western Cape and KZN, although this trend is not as evident along less developed stretches of the Zululand coast.

These results mirror global declines for migratory birds and warrant immediate conservation attention. BirdLife South Africa is working with stakeholders at the False Bay Nature Reserve IBA to improve the habitat for waders in particular. We are also assisting partner organizations to launch coastal conservation projects aimed at reducing disturbance and threats to species such as White-fronted Plover along our beaches. Additional conservation actions include our projects focused on protecting estuary habitats, and supporting conservation partners along the East Atlantic migratory flyway.

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## **PARTNERSHIP FOR MIGRATORY BIRDS: EAST ATLANTIC FLYWAY**

Martin Taylor<sup>1</sup>

<sup>1</sup>*Special Projects Programme Manager, BirdLife South Africa, Private Bag X16, Pinegowrie, 2123, Johannesburg, South Africa*

Contact: martin.taylor@birdlife.org.za

### **Abstract**

The East Atlantic Flyway, a component of the Africa-Eurasia Flyway, is the region of the world used each year by approximately 90 million birds migrating between their breeding grounds in the northern hemisphere to non-breeding areas further south in Europe and the western half of Africa. Flyways encompass the whole life cycle of migratory birds. As well as safe nesting sites of high quality, migratory birds need to stop for food and rest on their migrations, relying on a fragile chain of undisturbed stopover sites or wider landscapes that need to be preserved. Many migrant species on the flyway have undergone substantial declines over the past few decades, with several species now regarded as globally threatened. The ambition of the Partnership for Migratory Birds: East Atlantic Flyway (PAMBEAF) Task Force, a coalition of BirdLife partners, is to design and implement an ambitious flyway conservation programme that will improve the conservation status of Palearctic migratory bird species, by 1) identifying and addressing priority threats to migratory birds, 2) strengthening the capacity of BirdLife Partners, and 3) promoting BirdLife's local-to-global approach to conservation through flyways. An update of the progress made by the PAMBEAF Task Force is provided, as well as an overview of activities undertaken by conservation organizations in southern Africa as part of this initiative. Opportunities for citizen scientists to contribute to PAMBEAF are also outlined.

Dieter Hoffmann<sup>1</sup>

<sup>1</sup> *Head of International Strategy and Capacity Building, The RSPB, The Lodge, Potton Road, Sandy, Bedfordshire, SG19 2DL, UK*

Contact: dieter.hoffmann@rspb.org.uk

**Abstract**

The Royal Society for the Protection of Birds (RSPB) is Europe's largest Conservation Organization, with more than 1.2m members and 2000 staff. The RSPB is a founding member of BirdLife International and is currently working with BirdLife Partners in more than 25 countries in Africa, Asia, Europe and Central Asia, the Middle East as well as 12 of the 14 UK Overseas Territories. Our work includes some of the world's most ambitious conservation projects, as well as policy and advocacy work to influence national, regional and international policies that affect nature. We strongly believe in the BirdLife International model of nature conservation through local and national nature conservation organisations and have been helping to build the capacity of BirdLife Partners for more than 30 years.

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**THE CHAMPIONS OF THE FLYWAY: MORE THAN JUST A BIRD RACE**

Andrew de Blocq<sup>1,2</sup>

<sup>1</sup> *Coastal Seabird Conservation Project Officer, BirdLife South Africa, PO Box 7119, Roggebaai, 8012*

<sup>2</sup> *Birding Ecotours, P.O. Box 215, Newlands, 7725*

Contact: Andrew.deblocq@birdlife.org.za

**Abstract**

For the teams competing, this is race to see as many bird species as possible. For the birds, it's a race against extinction. The Champions of the Flyway, for all, is a race against time.

Teams from all over the world gather in Eilat, Israel – a major migration bottleneck - every year to raise funds and awareness around the plight of migratory birds. Each year an estimated 25 million birds are captured or killed illegally on African-Eurasian flyways. Using the platform of a birding big day, this event, known as the 'Dakar Rally of birding', contributes critical funds to projects on the ground fighting this slaughter. The conservation of migrant birds is exceedingly difficult as they cross many political boundaries along their flight paths. However, the Champions' message is that multi-national efforts are possible and it's not too late, yet.

Andrew de Blocq is a graduate of the FitzPatrick Institute at UCT and competed in the 2017 edition of Champions of the Flyway. His team, the Birding Ecotours Youth Africa Birders, were one of two South African teams taking part with great success last year. He will cover the conservation issues and struggles being addressed, recount last year's event, and will cast a glance forward to the imminent 2018 iteration.

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