



DST-NRF Centre of Excellence
“Birds as Keys to Biodiversity Conservation”
FitzPatrick Institute of African Ornithology, UCT

ANNUAL REPORT 2016

Reporting Period
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CoE Identification

Name of Director	: Prof. Peter Ryan
Name of CoE	: DST-NRF Centre of Excellence at the Percy FitzPatrick Institute of African Ornithology
Abbreviated CoE name	: PFIAO CoE
Host Institution	: University of Cape Town
Date completed	: 30 March 2017

EXECUTIVE SUMMARY

1. Funding of the CoE for 2015

DST-NRF CoE funding for 2016	:	R 6 820 857
Carry forward from 2015	:	R 1 141 267
Interest earned during 2015	:	R 1 989
UCT URC support for Hotbirds project in 2016	:	R 341 043*
Funding from other sources for the CoE in 2016	:	R 6 553 000**
Total funding	:	R 14 858 156

* represents UCT's direct contribution to the CoE R341 043 of R6 820 857 = 5%

** funding from sources, other than the DST-NRF or UCT URC 'hotbirds' grants, for projects conducted by the CoE (see Finances Section pages 26 - 29)

2. Summary of progress against Five Key Performance Areas

(i) Research

The CoE Director, Prof. Peter Ryan, was awarded NRF A-Rated Scientist status in December 2016; all CoE core members are now NRF rated, with Prof. Claire Spottiswoode being recently awarded B1 status. The CoE had another record year with 151 papers published in peer-reviewed journals during 2016, 42 in journals with an impact factor rating of ≥ 3.5 , including 15 in journals with a rating of ≥ 5 . Claire Spottiswoode (et al.) published a paper titled "Reciprocal signalling in honeyguide-human mutualism" in the journal *Science* during July 2016. Margaux Rat won the 2015 Purcell Memorial Prize awarded during 2016 for her PhD.

(ii) Education and Training

A total of 71 post-graduate students (27 PhD, 41 MSc and three BSc Hons) registered at South African universities (18% black and 55% women) were supported by the CoE during 2016. Twenty-four students graduated during 2016 (8 PhD, 2 MSc by dissertation, 11 MSc Conservation Biology and 3 BSc Honours). Collaboration with A/Prof. Derek Engelbrecht at the University of Limpopo (UL) resulted in a further four students visiting the CoE for three weeks during June and July 2016 as interns. Ditiro Moloto completed her BSc Hons at UL with a project through the CoE and registered for an MSc at the CoE during 2016. Nine post-doctoral fellows were supported by the CoE during 2016.

(iii) Information Brokerage

CoE members published 97 semi-popular articles, three books and two chapter contributions to semi-technical books during 2016. CoE members attended 19 international and seven local conferences, and presented over 50 seminars and illustrated talks at numerous universities, bird clubs and membership-based societies during 2016. CoE post-docs and students were awarded three oral and two poster awards at conferences during 2016. The CoE and BirdLife SA co-hosted the third biennial conference *Learn About Birds (LAB)* at Skukuza Camp, Kruger National Park, during March 2016, which was attended by more than 400 delegates and was regarded as a great success, particularly for young scientists.

(iv) Networking

A broad range of close collaborative working relationships with scientific peers and a variety of conservation NGOs and governmental organisations exists both nationally and internationally. The CoE continues to build much-needed African capacity in the broad arena of biodiversity conservation.

(v) Service rendering

The CoE actively advised NGOs, government departments and industry on a variety of research and applied conservation topics. CoE members served on 26 journal editorial boards, 70 membership fora and advisory services, and reviewed 159 papers for 76 peer-reviewed journals during 2016.

Summary of 2016 achievements against SLA6 targets

SLA Output	SLA target	Achieved
Number of students	≥ 30	71
Women students	≥ 50%	55%
Black students	≥ 30%	18%*
Average duration of MSc degrees	≤ 2 yrs	1.6 yrs
Average duration of PhD degrees	≤ 4 yrs	3.6 yrs
Average duration upgraded PhDs	≤ 5 yrs	4.5 yrs
Number of Post-docs	≥ 6	9
Number of peer-reviewed papers	≥ 60	151
Papers with IF ≥ 3.5	≥ 15	42
Papers with IF ≥ 5	≥ 5	15
Joint venture training	≥ 2	2

*13 black students = 43% of the SLA student number target

3. Red Flags/concerns for the future of the CoE

Until recently, the proposal was to terminate the full NRF CoE grant award after 2019, reducing the grant level by 20% per year from 2020 to 2023, with complete cessation of funding in 2024. The intention was to consider the period from 2020-2024 as a scaling down period to finalise existing CoE-supported students and to consolidate research programmes to align with the anticipated level of external funds. However, following discussions at the CoE Directors' Forum in Durban in August 2016, and subsequent meetings held between officials from the DST, NRF and host universities, it became clear that there was a desire to see CoEs continue beyond 2019, but with a revised funding model that saw greater contributions from *inter alia*, host institutions, relevant government departments and other potential beneficiaries. Uncertainty of the process and the ultimate outcome remains a concern for the future of the CoE.

4. General Comments

Following the positive news from the NRF in 2012 that the CoE will receive support for a third phase (2015-2019) with a minimum expectation of the same level of funding during 2015, a strategic plan and a sixth service level agreement (SLA 6) for 2015-2019 were drafted and approved by the CoE Steering Committee on 19 November 2014. The UCT Research Contracts Office has also drafted a renewed Memorandum of Agreement (MoA) between the NRF and UCT for 2015-2019 and renewed CoE collaboration MoAs with the University of Pretoria and the Nelson Mandela Metropolitan University. Developments towards creating a collaborative partnership with the University of Limpopo have resulted in a draft MoA being formalised. This annual report is the second year of SLA 6 and the renewed MoA between the NRF and UCT.

PROGRESS REPORT

1. Scientific Research

Objective

The research strategy of the CoE is aligned to a medium-term goal of producing world-class research outputs, measured as the number of papers published in international, peer-reviewed journals with high scientific impact-factor ratings. To meet this goal, the CoE SLA 6 has a target of publishing ≥ 60 peer-reviewed publications per year, with an average of ≥ 15 papers with an impact rating of ≥ 3.5 , of which 5 should have an impact factor of ≥ 5 each year during 2015-2019.

Progress

The CoE had another record year of scientific research publication output, with 151 papers carrying the CoE address published in peer-reviewed journals during 2016 (Appendix 1); 42 papers were in journals with impact factors of ≥ 3.5 , including 15 in journals with impact factors of ≥ 5 (Fig. 1).

FitzPatrick Institute CoE publications in peer-reviewed journals, 2001-2016

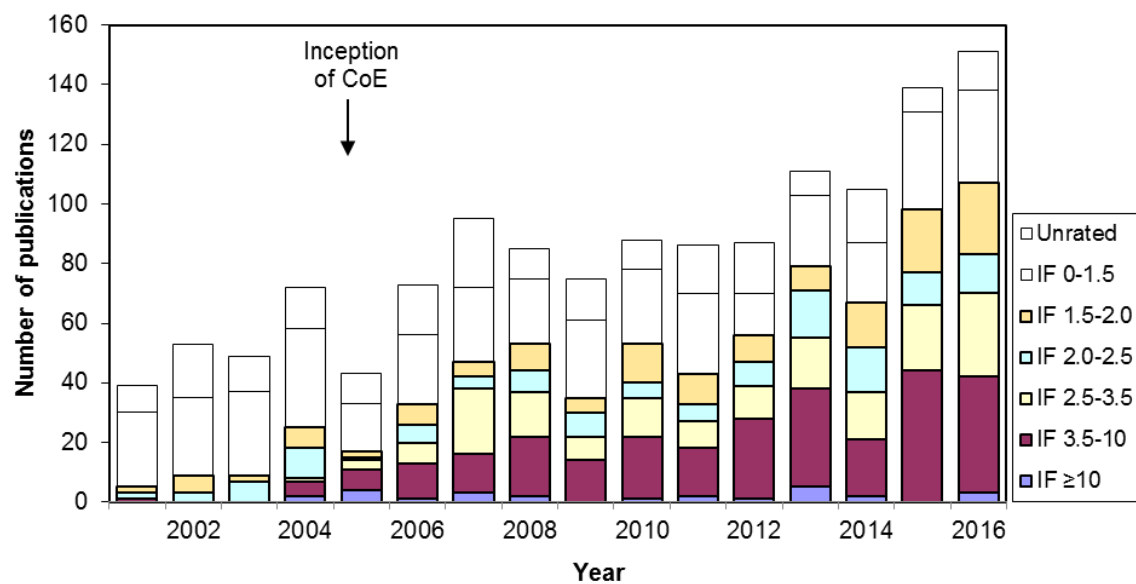


Figure 1. Trends in the number and quality of FitzPatrick Institute publications (measured by journal 'Impact Factors' IF) before and after the establishment of the Centre of Excellence.

Prof. Claire Spottiswoode published a paper titled "*Reciprocal signalling in honeyguide-human mutualism*" in the journal *Science* during July 2016, co-authored by Keith Begg and Dr Colleen Begg of the Niassa Carnivore Project. This paper was presented as a feature article in the Summer 2016 issue of *SANParks Times* and received significant print media coverage overseas. See <https://www.cam.ac.uk/research/news/how-humans-and-wild-birds-collaborate-to-get-precious-resources-of-honey-and-wax>

Prof. Spottiswoode has also received a substantial European Research Council consolidator grant of Euro 2 million (ca R30 mil) in collaboration with the University of Cambridge of which Euro 600 000 (ca R9 mil) will be allocated via UCT to fund her honeyguide and human interactions research for the next five years.

PhD student Gareth Tate published a paper which examined differential hunting success between the two Black Sparrowhawk morphs in relation to ambient light levels in the leading ecology journal *Ecology Letters*. This paper was highlighted as a recommended paper by Faculty 1000.

Dr Rob Little submitted a CoE research report for inclusion in the UCT 2016 report on research to the university senate and council.

Awards received during 2016

Dr Margaux Rat won the 2015 Purcell Memorial Prize for her PhD thesis titled “Dominance, social organisation and cooperation in the Sociable Weaver *Philetairus socius*”. The Purcell Memorial Prize is awarded annually for the best zoological MSc or PhD thesis submitted at UCT.

Post-doc Petra Sumasgutner received the top oral presentation award as an early career ornithologist at the British Ornithologists Union conference on “Urban birds: pressures, processes and consequences” held in Leicester, United Kingdom, during April 2016.

Post-doc Alan Lee received the best poster award at the Fynbos Forum held in Port Elizabeth during July 2016.

PhD student Alistair McInnes (best oral presentation on conservation based research) and MSc student Noelle Tubbs (best poster on conservation based research) were among five students who won Royal Society for the Protection of Birds (RSPB) seabird conservation prizes at the 9th International Penguin Congress held in Cape Town during September 2016.

Post-doc Anina Coetzee was awarded a travel grant from the International Association of Vegetation Science to attend their conference in Brazil during June 2016 and won their prize for the best young scientist presentation at that conference.

2. Education and Training

Objective

The short-term objective, as outlined in the SLA 6, is for the CoE to support (at least partially) an average of ≥ 30 postgraduate students and six Post-doctoral Fellows each year during 2015-2019. A further target is for black students to comprise $\geq 30\%$ and women students to comprise $\geq 50\%$ of the students supported by the CoE over this period. A medium- to long-term objective is to continue to build a vibrant research environment that instils a rigorous hypothetico-deductive approach to problem solving among the postgraduate student body.

Progress

Twenty-seven PhD, 41 MSc and three BSc Honours students (total = 71) registered at South African universities were supported directly or indirectly by the CoE during 2016 (Tables 1 & 8). Thirteen (18%) of these students were black, and 39 (55%) were women (Tables 9 & 10). Forty one (58%) of the students were South African, but there were only six black South African students.

Twenty four students graduated during 2016 (8 PhD, 2 MSc by dissertation, 11 MSc Conservation Biology and 3 BSc Honours).

In June 2016, Dominic Henry, Megan Murgatroyd, Mathew Noakes (U. Pta) and Chevonne Reynolds were awarded their PhD, Jenni Roberts and Tegan Carpenter-Kling (NMMU) were awarded their MSc by dissertation, Jennifer Angoh, Christiaan Brink, Angela Ferguson, Gabi Fleury, Kyle Lloyd, Hermenegildo Matimele, Penny Pistorius, Jessleena Suri, Wataru Tokura, Julia van Velden and Elke Visser were awarded MScs in Conservation Biology.

In December 2016, Julia Baum, Hayley Clements, Alistair McInnes and Gareth Tate were awarded their PhD, Alexis Osborne completed his BSc Hons at UCT, and Mpho Malematja and Ryno Kemp completed their BSc Hons at the University of Pretoria. All three of the latter will stay on at UCT and U. Pta, respectively, under CoE support for their MSc registration during 2017.

Nine Post-docs were supported by the CoE during 2016 (Tables 1 & 6). Two Post-docs (Sophie Lardy & Alan Lee) completed their term, while two new Post-docs (Diana Bolopo & Anina Coetzee) were appointed and three recent CoE PhD graduates (Megan Murgatroyd, Chevonne Reynolds & Margaux Rat) continued at the CoE as Post-docs during 2016.

Efforts were continued to engage with students at HDIs to attract black South African students. Collaboration with Prof. Derek Engelbrecht at the University of Limpopo (UL), resulted in 3-4 students visiting the CoE for three weeks during June and July of 2014, 2015 and 2016 as interns. Ditiro Moloto, who came to UCT in 2014, completed her BSc Hons at UL in 2015, with her research project led through the CoE. She registered for an MSc at the CoE during 2016 under the supervision of Prof. Peter Ryan. Abigail Ramudzuli, who was part of the 2016 group, will undertake her BSc Hons at UL with CoE support in 2017. A MoA between UCT and UL is being finalised to bring Prof. Engelbrecht onto the core team of the CoE.

Table 1. Summary statistics for Post-doc, PhD & MSc student numbers 2004 – 2016

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Post-doc	0	6	9	8	9	12	11	12	13	12	15	8	9
PhD	6	8	13	18	19	15	18	21	19	21	23	20	27
MSc	5	8	6	5	7	6	7	6	13	19	20	21	15
MSc CB	15	11	14	12	11	11	12	13	15	13	13	13	14
MSc CB ₂	13	15	11	14	12	11	11	12	12	15	13	13	12
BSc Hons	0	0	9	6	8	2	2	7	1	0	3	1	3
Tot – CB₂	26	33	51	49	54	46	50	59	61	65	74	63	68
Tot +CB₂	39	48	62	63	66	57	61	71	73	80	87	76	80

2004 = prior to CoE; MSc CB₂ = second year of a CB class cohort

Considering the new requirement that researchers working with wild birds need to be certified by a vet before they can legally take blood samples from their study species (or have a vet present when they do it), and that the UCT Animal Ethics Committee (AEC) is keen to ensure that UCT is compliant with these rules, Susie Cunningham and the Chairman of the AEC organized a 'training' session (or a certification session for those who already have this skill) with a qualified vet so that CoE staff and students are able to carry on their research. This was initiated during July 2016 by holding a 'trial' session, involving 13 CoE post-docs and students, to take blood samples from weavers, etc. that were being caught as part of a constant effort ringing scheme, and thus developed a training model that will work going forward. This will be an annual joint training activity through which supervisors can certify new post graduate students. The second session for 2016 involving a further eight CoE post-docs and students was held during August 2016. A follow-up workshop on research ethics was held during November 2016, which was attended by 20 CoE post-docs and students.

Robert Thomson, Campbell Fleming and Andrew de Blocq represented the Fitz CoE at the UCT 2nd year BIO2012S Life on Land course at the West Coast National Park during August 2016. Peter Ryan and Robert Thomson also facilitated the Biological Sciences 3rd year ecology course at Potberg Research Centre in the De Hoop Nature Reserve. Students at both these courses captured birds with mist nets and learnt standard bird identification, handling and anatomical measurement procedures.

3. Information Brokerage

Objective

Medium- to long-term objectives are to: (1) make a sustained contribution to the semi-popular literature aimed at popularizing science in the fields of conservation biology in general and ornithology in particular; (2) provide expert views on relevant matters for newspaper and magazine articles; and (3) contribute to books of a semi-technical nature. The CoE also has a SLA 6 target to organize at least one local conference during this stage (2015-2019).

Progress

Ninety-seven semi-popular articles, three books and two chapter contributions to semi-technical books were published during 2016 (Appendix 1).

At least 50 public talks and outreach activities were given by CoE members to partner organisations and interested parties, such as the Sasol Birds and Birding Fair, various NGOs, Environmental Action Groups, Conservancies, Bird Clubs and other membership-based societies during 2016. Print media exposure included regular features in *African Birdlife*, *Wild* and *SANParks Times* as well as feature articles in the *Daily Mail* (UK), *The New Yorker*, *The Times*, *The Guardian*, *Science News* and *National Geographic*. Various radio interviews also were conducted, including on Cape Talk Radio, Radio 702, OFM Radio, two BBC national radio stations (including BBC Radio 4, part of the "Natural Histories" series), German and Canadian national radio, the Hectic Nine-9 live television show for the youth on SABC2, 50/50 on SABC3, as well as the BBC World Series and French, Swiss and UK TV channels.

CoE staff and students attended 19 international and seven local conferences during 2016 (Table 2), at which CoE staff and students received three oral presentation and two poster presentation awards.

The CoE and BirdLife South Africa co-hosted the third biennial conference *Learn About Birds (LAB)* at Skukuza Camp, Kruger National Park, during 10-11 March 2016. The conference was attended by over 400 delegates and was regarded as a great success, particularly for young scientists. Six CoE staff members and 12 CoE students attended the conference. This event satisfies the SLA 6 target of organizing at least one local conference during this CoE stage.

Dr Susie Cunningham, Prof. Andrew McKechnie and the Hot Birds team organized a symposium on desert birds and climate change in Africa, Australia and North America at the North American Ornithological Conference (NAOC) during August 2016 in Washington DC, USA. Team members from UCT, U. Pretoria, Nelson Mandela Metropolitan University, and the University of New Mexico presented talks. The symposium received coverage in *Science News*.

CoE Research Associates Rita Covas and Claire Doutrelant facilitated a symposium titled 'Patterns of adaptation on islands and the insularity syndrome' at the 2nd International Conference on Island Biology, Evolution and Conservation during July 2016 at the University of Azores, Terceira Island, Portugal, which led to a review on the topic. Research Associate Martim de Melo convened a Symposium on 'Biodiversity in the Gulf of Guinea Islands' at the same conference which will form the basis for a reference book on this system. Six abstracts carrying the CoE address from this conference were published in a special issue of the journal *Arquipélago: Life and Marine Sciences* (Supplement 9).

The CoE also contributed material on the research activities of the CoE to the UCT 2015-2016 Research & Innovation Report (pages 85-86, 117), and to the Science Faculty contribution to the UCT Social Responsiveness report for 2014-2015 (pages 100 & 101).

Prof. Peter Ryan, Dr Arjun Amar and six students presented a Fitz CoE stand at the launch of the DST National Science Week fair at the University of the Western Cape on 5-6 August 2016. The National Science week, launched by the Minister of Science and Technology, Naledi Pandor, is a countrywide celebration of science, initiated by the DST in partnership with the South African Agency for Science and Technology Advancement (SAASTA) and various other stakeholders. The DST National Science Week initiative aims to contribute to the development of a society which values and appreciates science, engineering and technological fields, to provide a platform for scientists to instil interest in learners to follow careers in the scientific community. The National Science Week programme ran from 1 to 6 August 2016, and some of the activities for the 1 625 learners from 65 schools, and over 1 000 members of the general public, included career exhibitions from across the country, representing various stakeholders in the scientific community, public lectures, seminars and presentations on the latest innovations made through scientific research.

Prof. Peter Ryan, Dr Rob Little and two CoE Post-docs, Dayo Osinubi and Chevonne Reynolds, attended the 2016 NRF CoE Directors Forum at the University of KwaZulu-Natal during 25-26 August 2016 and presented a Fitz CoE stand, which exposed hundreds of school learners to the CoE's research work.

Table 2. Conferences attended during 2016: Meeting (month, place), people who attended

Pathways Conference (Jan; Nanyuki, Kenya) Dayo Osinubi
Nordic OIKOS conference (Feb; Turku, Finland) Petra Sumasgutner
Learn About Birds (LAB) Conference (March; Skukuza, SA) Six CoE staff members and 12 CoE students attended
British Ornithological Union (BOU) conference (April; Leicester, UK) Arjun Amar, Petra Sumasgutner, Jessleena Suri
INDABA –SANPark rangers conference (May; Langebaan, SA) Sophie Garcia-Heras
International Association of Vegetation Science Conference (June; Pirenópolis, Brazil) Phoebe Barnard, Anina Coetzee
8th Annual Meerkat and Mongoose Cooperative Breeding Meeting (July; Cambridge, UK) Susie Cunningham
Society for Conservation Biology Oceania (July; Brisbane, Australia) Haley Clements
2nd International Conference on Island Biology, Evolution and Conservation (July; U Azores, Terceira Island, Portugal) Rita Covas, Claire Doutrelant, Martim Melo
SA National Antarctic Programme Symposium (July; Pretoria, SA) Peter Ryan, Alexis Osborne
Fynbos Forum (July; Port Elizabeth, SA) Alan Lee
16th International Society for Behavioural Ecology Conference (ISBE) (July/Aug; U. Exeter, Wales) Rita Covas, Mandy Ridley, Marguax Rat
North American Ornithological Conference (NAOC) (Aug; Washington DC, USA) Arjun Amar, Susie Cunningham, Claire Spottiswoode, Marguax Rat, Sophie Garcia-Heras
15th International Hibernation Symposium (Aug; Las Vegas, USA) Andrew McKechnie
Southern Ground-Hornbill Action Group (Aug; Loskop Dam, SA) Rob Little
6th North American Ornithological Conference (NAOC) (Aug; Washington DC, USA) Andrew McKechnie, Petra Sumasgutner, Michelle Thompson, Ryan O'Connor
13th International Seabird Group Conference (Sept; Edinburgh; Scotland, UK) Davide Gaglio
9th International Penguin Congress (IPC9) (Sept; Cape Town; South Africa) Lorien Pichegru, Pierre Pistorius, Tegan Carpenter-Kling, David Green, Alistair McInnes, Noelle Tubbs
Indian Ocean Tuna Commission (IOTC): Working Party on Ecosystems Bycatch (Sept; Seychelles) Dominic Rollinson
14th Pan African Ornithological Congress (PAOC) (Oct; Dakar, Senegal) Arjun Amar, Robert Thomson, Phoebe Barnard, Anina Coetzee, Alan Lee, Megan Murgatroyd, Dayo Osinubi, Petra Sumasgutner, Beckie Garbett, Davide Gaglio
Pan African Vulture Summit (Oct; Dakar, Senegal) Arjun Amar, Robert Thomson, Beckie Garbett
7th Diamond Route Research Conference (Oct; Jhb., SA) Andrew McKechnie, Carla du Toit, Kervin Prayag
BirdLife SA Birds and renewable energy forum (Oct; SANBI, Cape Town) Vonica Perold
Australian Land Conservation Alliance National Private Land Conservation Conference (Nov; Melbourne, Australia) Hayley Clements
Workshop on monitoring macrodebris at sea (Nov; Barcelona, Spain) Peter Ryan
Trends in Biodiversity and Evolution (Nov; CIBIO, U Porto, Portugal) Martim Melo

PhD student Tanja van de Ven, research associate Dr Rowan Martin, research assistant Tim Vink, Prof. Andrew McKechnie and Dr Susie Cunningham published a paper in *PLoS ONE* that reported how hornbills living in deserts use their beaks as controllable thermal radiators, regulating heat loss to the environment and keeping them cool. As an example, when shared via a press release and on Facebook, significant media attention was received:

<http://blogs.plos.org/ecology/2016/05/18/hornbills/>

<https://www.sciencedaily.com/releas.../2016/.../160518152800.htm>

<http://www.examiner.com/.../kalahari-desert-hornbills-keep-th...>

<http://phys.org/.../2016-05-hornbills-kalahari-cool-beaks.html>

<https://www.sciencenews.org/.../hornbills-join-toucans-cool-b...>

The CoE's raptor research programme Black Sparrowhawk monitoring project in Cape Town was featured by the editor, René de Klerk, in the Autumn 2016 issue of *SANParks Times*.

Rowen van Eeden's PhD research on the status and threats to the Martial Eagle in the Kruger National Park was filmed during early 2016 for Steve Backshall's new show "Fierce". This was shown on ITV in the UK in June 2016 (<https://youtu.be/9WOaTgY3rBg>). Rowen's work featured for 26 minutes in episode 6.

MSc student Selena Flores, in conjunction with the project partner, the Nature's Valley Trust, presented several public talks and programmes across various platforms in the Garden Route to raise awareness. In February 2016, she assisted a crew from Cape Town's Homebrew Studios in filming an episode for a nature documentary series, focusing on the disturbance issues facing the White-fronted Plover and highlighting the research project. With co-supervisor Dr Mark Brown she also led a workshop on human impacts on coastal breeding shorebirds with local stakeholders of the Bitou Municipality during November 2016. Informational signboards highlighting conservation concerns and responsible beach use are now installed at beach entrances in the greater Plettenberg Bay region. Signage around White-fronted Plover nests is also experimentally being placed, with research participants actively engaging with the public regarding beach regulations that help protect local wildlife. In addition, the research team is surveying the public to present evidence to municipal government, nature conservation, and land management agencies regarding enforcement, public opinion and perception, and general rates of compliance with local beach regulations (i.e. municipal bylaws, WESSA Blue Flag regulations). The results from the conservation intervention programme as well as the public questionnaire will be analysed to develop appropriate suggestions for ongoing conservation measures, and will be presented to a variety of relevant stakeholders.

The Friends of the Liesbeek (River) (FOL) held their annual general meeting (AGM) at the Vineyard Hotel, Cape Town, during August 2016. The central theme to the meeting was key developments along the river in the past. Fitz CoE student Jesleena Suri gave a presentation on urban rivers and ecological function, highlighting how different habitats conserve species and that habitat restoration can be manipulated to favour certain species. The event and her presentation were featured in an article in the news/Tatler section of the *Thursday Argus* on 4 August 2016. Prof. Peter Ryan gave a talk on the changing birds of the Cape Peninsula at the AGM of the Sandvlei Trust, also in August 2016.

The activities of the Sociable Weaver nests as an important resource project activities were filmed twice by the BBC. The first piece featured PhD student Anthony Lowney working with African Pygmy Falcons, and was aired on BBC's "Naomi's Nightmares of Nature" in 2016. The second film crew came in December 2016 specifically to film falcon-weaver interactions at nests for a new series called "Animals Behaving Badly" that will be aired in 2017.

Dr Rob Little published a monograph on the *Terrestrial Gamebirds and Snipes of Africa*, which offers a concise summary of the large but scattered body of accumulated scientific research and field guide literature. Interesting facts about the distribution, habits, breeding and conservation of each species are presented, while over 250 photographs convey the characteristic features, behavioural activities, and in many cases the preferred habitats of each bird. This is a worthy addition to the ornithological literature and to the bookshelves of bird enthusiasts, particularly birders, wing-shooters, land owners and anyone with an interest in nature and conservation.

Warwick Tarboton and Prof. Peter Ryan published a *Guide to Birds of the Kruger National Park* which covers 518 bird species in the main text, including 275 year-round residents, 80 regular visitors and 20 less regular visitors. The introduction gives a comprehensive

background to the park, its avifauna, geology and climate, and birding activities in the park. Each species text is accompanied by one or two superbly illustrative photographs and includes a summary of identification features of the species, seasonal occurrence, habitat preferences and a description of characteristic calls. Each species is also accompanied by a colour coded distribution map which are extracted from the Southern African Bird Atlas Project (SABAP2) compiled by the Animal Demography Unit at UCT.

4. Networking

Objective

Medium- to long-term objectives are to: (1) establish a wide range of key collaborative associations with scientific peers and peer research groups, both locally and abroad; (2) establish partnerships with conservation organisations and NGOs; and (3) establish strong relationships with business organisations with either direct or indirect interests in the fields of conservation biology and ornithology.

Progress

The CoE continued its involvement with networking interactions between institutions directly or loosely collaborating with the CoE (Table 3). Primary collaboration continued with the molecular laboratories of A/Prof. Rauri Bowie at the University of California, Berkeley and Prof. Paulette Bloomer at the University of Pretoria, with Prof. Andrew McKechnie also at the University of Pretoria and with Dr Pierre Pistorius and Dr Lorien Pichegru at the Nelson Mandela Metropolitan University.

Close collaborative working relationships with scientific peers now exist both nationally and internationally (Tables 3 & 7). Additional emphasis has been placed on working with historically black universities in South Africa and African universities, e.g. University of Limpopo, Fort Hare University, Tshwane University of Technology and the Universities of Zimbabwe and Zambia. Eleven of the 15 Post-doctoral Fellows came from nine different foreign countries.

The MSc Conservation Biology Course has continued to build much-needed capacity within and outside of South Africa in the broad area of biodiversity conservation, with the graduation of students from SA (x6), India, Japan, Madagascar, Mauritius and Zimbabwe, and the enrolment of students from SA (x4), Australia, Spain, UK, USA (x4), Zambia and Zimbabwe (x2) during 2016.

Prof. Peter Ryan and Dr Pierre Pistorius at NMMU have a significant ongoing collaborative relationship with the South African National Antarctic Programme, with links to the Royal Society for the Protection of Birds and the British Antarctic Survey. Dr Lorien Pichegru continued as a member of a Penguin Task Team organized by the Department of Agriculture, Forestry and Fisheries' Pelagic Working Group to address conservation issues relating to fishery closures around African Penguin colonies in Algoa Bay.

Prof. Claire Spottiswoode maintained her affiliation with co-funding from the University of Cambridge, UK. Her ongoing research in Zambia has led to a formal MoU between UCT, Cambridge and Copperbelt Universities, with Dr Lackson Chama as lead collaborator in Zambia. She has also fostered strong links with the Niassa Carnivore Project in Niassa Province, Mozambique, for her ongoing research on honeyguide-human interactions. She is investigating the mechanistic basis of egg colouration in honeyguides in collaboration with a

physicist, Dr Silvia Vignolini, from Cambridge. Her research on the maintenance of evolutionary processes in bird-plant pollination interactions is done in collaboration with Dr Colleen Seymour at SANBI.

Dr Arjun Amar collaborated regularly with Prof. Steve Redpath from the University of Aberdeen, Scotland, regarding research into human-wildlife conflict and related issues. Arjun's team also developed a web application called *MORPHIC* which facilitates the capture of morph distributions of polymorphic species from the web, specifically using Google images. The team ran a workshop at the British Ornithologist Union (BOU) conference in Leicester, UK to demonstrate the use of the *MORPHIC* web app. Their demonstration that Google Images can provide robust unbiased information on the spatial distribution of visible phenotypes, and the development of the *MORPHIC* web app will open up a new approach for research in this field.

Drs Arjun Amar and Megan Murgatroyd initiated a collaboration with Dr Andrew Jenkins, of AVISENSE Consulting, to GPS tag Verreaux's Eagles at a wind farm development site in the Karoo. In partnership with the AVISENSE field team, six Verreaux's Eagles were equipped with high-resolution GPS tags from the University of Amsterdam Bird Tracking System, and have yielded high resolution tracking data. These data will be used for the Environmental Impact Assessment and for their proposed collision risk model.

Dr Robert Thomson collaborated with Dr Jukka Forsman from the University of Oulu, Finland and Dr Tomas Grim from Palacky University, Czech Republic, investigating front-line defences in host-brood parasite systems using Common Cuckoo parasitism of cavity nesting Redstarts. He also worked with Dr Andrea Santangeli from the University of Helsinki, Finland, to reconcile farmers with vulture conservation in southern Africa.

Dr Susie Cunningham is leading a research team to investigate the comparative anatomy of ibis bill-tip organs, using histological and micro-CT scanning techniques to understand bill-tip organ morphology and the structure of bill-tip organ mechanoreceptors. Collaborators on this project are Dr Isabel Castro (Massey University, New Zealand), A/Prof. Jeremy Corfield (Salisbury University, New Zealand), Prof. Anusuya Chinsamy-Turan (BioSci UCT) and Morea Petersen (HUB histology lab, Groote Schuur campus UCT).

Dr Martha Nelson-Flower, a former Post-doc at the Fitz CoE, now based at the University of British Columbia, Canada, continued her ongoing collaboration on Southern Pied Babbler research with Dr Mandy Ridley at the University of Western Australia, looking at aspects of dispersal, kin selection and nepotism.

Post-doc Chevonne Reynolds co-ordinates an international research experience for students (IRES) based in north-eastern Swaziland. This University of Florida project, funded by a USA National Science Foundation (NSF) grant, is designed to train young ecologists to conduct field-based research. The project also aims to broaden the experience of the students by encouraging collaboration across countries and cultures. In 2016, four students from various US-based institutes and three students from the University of Swaziland undertook extensive field surveys of several taxonomic groups along gradients of increasing agricultural land-use in Swaziland. The students were exposed to a variety of survey and trapping techniques, from point counts to determine bird diversity to baited camera trapping to detect meso-carnivores. To further enhance their numeracy skills, each student analysed the data for a specific taxon and presented the findings to the Swaziland National Trust Commission in a feedback session. Several papers arising from this research have been submitted to peer-reviewed journals, including one on bird diversity co-led by a Swazi student and an American student.

In celebration of their 90th anniversary of Caring for the Earth, the Wildlife and Environment Society of South Africa (WESSA) presented 90 Lifetime Conservation Achiever Awards on 12

September 2016 to acknowledge individuals who have dedicated their lives to conservation in South Africa. Dr Rob Little was among the group of award recipients.

Prominent research and conservation partners who visited the CoE during 2015:

Prof. Bob Scholes from the University of the Witwatersrand and one of the lead authors in the assessment reports of the Intergovernmental Panel on Climate Change (IPCC) on present and future impacts of climate change, visited the CoE to present part of the module on conservation leadership to the CB MSc class and presented a talk titled “Assessments: are they science, who should do them, and how” on 5 February 2016.

Dr Tomas Grim, a CoE collaborator and external student supervisor from the Palacky University, Olomouc, Czech Republic, visited the CoE during March 2016 and gave a talk titled “In the light of metareplication” on 8 March 2016.

Prof. Thomas Martin from the US Geological Survey Montana Cooperative Wildlife Research Unit, University of Montana, USA, visited the CoE during September 2016 with his research team and presented a talk titled “Causes and considerations of the variation in growth strategies among temperate and tropical songbirds” on 8 September, and another titled “Why do life history strategies vary within and among latitudes? Turning theory in new directions” on 29 September. Two of Prof. Martin’s PhD students also gave seminars: Juan Carlos Oteyza asked “Does adult survival probability explain inter-specific variation in parental risk-taking behaviour?” (6 October 2016), and Andy Boyce asked “Does metabolic rate explain variation in adult survival probability in passerines?” (27 October 2016).

Prof. Wayne Getz from the University of California, Berkeley, visited the CoE and gave a talk on a new Population Viability Analysis (PVA) tool that he has developed on 25 October 2016.

Dr Margarita Mulero Pázmány from the Department of Evolutionary Biology, Doñana Biological Station, CSIC, Sevilla, Spain visited the CoE and presented a talk titled “The use of drones in conservation biology” on 31 October 2016.

Prof. Steve Redpath from Aberdeen University, UK, visited the CoE and gave a presentation titled "Understanding and managing conservation conflicts" on 16 November 2016.

Dr Rowan Martin from the World Parrot Trust visited the CoE during November 2016 to collaborate with staff and student supervision and gave a presentation titled “The wild bird trade and African parrots: past, present and future challenges” on 29 November 2016.

Table 3. Collaborators involved with the CoE

Title	Surname	Country	Institution	Gender	Race	% time in CoE
South Africa						
Prof.	Res Altwegg	Switzerland	UCT	M	W	5
Prof.	Raymond Jansen	SA	Tshwane U Tech	M	W	1
Dr	Ian Little	SA	EWT	M	W	5
Dr	Guy Midgley	SA	U Stellenbosch	M	W	2
Dr	Colleen Seymour	SA	SANBI	F	B	5
Dr	Hanneline Smit-Robinson	SA	BirdLife SA	F	W	2
Dr	Ross Wanless	SA	BirdLife SA	M	W	20
Africa						
Dr	Colleen Begg	Mozambique	Niassa Carnivores	F	W	10
Dr	Jackson Chama	Zambia	Copperbelt U	M	B	10
Dr	Christine Dranzoa	Uganda	Makerere U	F	B	1

Mr	Innocent Magunje	Zimbabwe	BirdLife Zimbabwe	M	B	10
Mr	Fadzai Matsvimbo	Zimbabwe	BirdLife Zimbabwe	F	B	30
Prpf.	Ara Monadjem	Swaziland	U Swaziland	M	W	5
Asia						
Dr	Richard Cuthbert	UK	WCS, New Guinea	M	W	2
Prof.	Hideshige Takada	Japan	Tokyo Agric U	M	W	2
Australia & New Zealand						
Prof.	Jeremy Corfield	New Zealand	Salisbury U	F	W	2
Prof.	Isabel Castro	New Zealand	Massey U	F	W	2
Dr	Nicola Mitchell	Australia	U Western Australia	F	W	10
Prof.	Bruce Robertson	New Zealand	Otago	M	W	1
Dr	Alan Tennyson	New Zealand	Te Papa	M	W	1
Europe & UK						
Dr	Per Alstrom	Sweden	Uppsala U	M	W	5
Dr	Beatriz Arroyo	Spain	IREC, Ciudad Real	F	W	10
Prof	Andrew Balmford	UK	U Cambridge	M	W	1
Dr	Alex Bond	UK	RSPB	M	W	5
Dr	Marta Cuellar Cerda	Spain	CreSa U Barcelona	F	W	5
Dr	Claire Doutrelant	France	CNRS France	F	W	5
Prof.	Nicholas Davies	UK	Cambridge	M	W	1
Dr	Gareth Dyke	Ireland	UC Dublin	M	W	1
Prof.	Jon Fjeldsa	Denmark	U Copenhagen	M	W	1
Dr	Jukka Forsman	Finland	U Oulu	M	W	2
Dr	David Grémillet	France	CNRS	M	W	20
Dr	Michael Griesser	Switzerland	U Zurich	M	W	3
Dr	Tomas Grimm	Czech Rep.	Palacky U	M	W	5
Dr	Jacob Gonzalez-Solis	Spain	U Barcelona	M	W	5
Dr	Bengt Hansson	Sweden	Lund U	M	W	10
Prof.	Ben Hatchwell	UK	U Sheffield	M	W	3
Dr	Anoushka Kinahan	Ireland	Frankfurt Zoo Soc	F	W	1
Prof.	Luc Lens	Belgium	U Ghent	M	W	1
Dr	Rowan Martin	UK	World Parrot Trust	M	W	10
Dr	Francois Mougeot	Spain	IREC, Ciudad Real	M	W	20
Dr	Mathieu Paquet	UK	U Edinburg	M	W	5
Dr	Richard Phillips	UK	Br Antarctic Survey	M	W	2
Dr	Steve Portugal	UK	U London	M	W	2
Prof.	Petra Quillfeldt	German	U Giessen	F	W	1
Prof.	Andy Radford	UK	U Bristol	M	W	5
Dr	Nichola Raihani	UK	IOZ, London	F	W	5
Prof.	Steve Redpath	UK	Aberdeen U	M	W	10
Dr	Angela Ribiero	Denmark	U Copenhagen	F	W	10
Dr	Yan Ropert-Coudert	France	CNRS France	M	W	5
Dr	Andrea Santangeli	Finland	U Helsinki	M	W	2
Dr	Marjorie Sorenson	UK	U Cambridge	F	W	5
Dr	Martin Stevens	UK	U exeter	M	W	2
Dr	Jakub Szymkowiak	Poland	Adam Mickiewicz U	M	W	10
Dr	Rene van Dijk	UK	U Sheffield	F	W	5
Dr	Silvia Vignolini	UK	U Cambridge	F	W	5
Dr	Henri Weimerskirch	France	CNRS	M	W	5
Dr	Stephen Willis	UK	Durham	M	W	2
Prof.	Rory Wilson	UK	Swansea U	M	W	2
USA & Canada						
Prof.	Mark Brigham	Canada	U Regina	M	W	5
Dr	Theresa Burg	Canada	U Lethbridge	F	W	1
Dr	Alex Gerson	USA	U Massachussetts	M	W	5
Dr	Robert Hackett	USA	Chicago Mus	F	W	1
Prof.	Bill Karasov	USA	U Wisconsin	M	W	5
Prof.	Martinez del Rio	USA	U Wyoming	M	W	1
Dr	Martha Nelso-Flower	Canada	U British Colombia	F	W	5
Prof.	Michael Sorenson	USA	Boston U	M	W	2
Prof.	Gary Voelker	USA	Texas A&M U	M	W	1
Dr	Blair Wolf	USA	U New Mexico	M	W	5

5. Service rendering

Objective

A medium- to long-term objective is to establish formal contact with a range of conservation agencies and other relevant government bodies, such as the Department of Environmental Affairs and the Department of Agriculture, Forestry & Fisheries, to ensure the expertise of the CoE is used to address practical research and information needs. CoE members will continue to render their services to the broader scientific community and the general public.

Progress

Links continue to be serviced with a diversity of conservation agencies, NGOs, government departments, and industry partners. These include the Department of Environmental Affairs (DEA), Department of Agriculture, Forestry & Fisheries (DAFF), the South African National Biodiversity Institute (SANBI), SANParks, IUCN, Conservation International, Fauna & Flora International, the Royal Society for the Protection of Birds (RSPB), BirdLife South Africa & Zimbabwe, the World Parrot Trust, the Endangered Wildlife Trust, the Namibian Ministry of the Environment, the Wildlife Conservation Society, the Nature Conservation Corporation and the South African Deep Sea Trawling Industry Association.

CoE members served on the editorial boards of 26 scientific journals, on 69 membership and advisory services, and reviewed 159 papers for 76 peer-reviewed journals during 2016 (see below).

Prof. Peter Ryan gave advice to the Department of Environmental Affairs' Working for the Coast Programme (DEA's Extended Public Works Programme) to improve beach cleaning efforts. He was invited to address the African Marine Litter Network meeting on key research issues and methods, in Port Elizabeth during November 2016, and to give a keynote address on marine litter to a joint meeting between DEA and EU advisors in Pretoria during September 2016. He was also invited to attend the EU workshop on monitoring marine litter at sea during October 2016 in Barcelona, Spain. During the Antarctic Circumnavigation Expedition (ACE) he facilitated the donation of three helicopters to DEA to assist with alien control and eradication operations. He continues to conduct autopsies on pelagic birds killed by long-line and trawl fisheries off South Africa for the DEA/Albatross Task Force. In 2016, he reviewed research proposals for agencies in Hungary, the UK, USA and United Arab Emirates.

Prof. Andrew McKechnie served on the ethics committees of the National Zoological Gardens and of BirdLife South Africa. Peter Ryan and Andrew McKechnie are also scientific advisors for the magazine *African Birdlife*.

Dr Susie Cunningham and PhD student Dominic Rollinson facilitated a half-day course on arid zone bird behavioural ecology and adaptation to climate change for the Cape Bird Club during May 2016.

Dr Pierre Pistorius is an external examiner for an undergraduate course at the Walter Sisulu University and reviewed funding proposals for the Chilean Antarctic Institute and the French Polar Institute.

At the Indian Oceans Tuna Commission (IOTC) working party on ecosystems bycatch held during September 2016 in the Seychelles, recommendations emanating from the research work of PhD student Dom Rollinson were put forward to change IOTC regulations with regards to line-weighting of longline branchlines to reduce seabird bycatch. Dom's study was

conducted in 2015 in collaboration with scientists from the National Institute of Fishery Science, Republic of Korea, with whom he drafted a paper that will to be published soon. Their recommendations were assessed by the IOTC Scientific Committee during December 2016, before being introduced into IOTC legislation.

Dr Lorien Pichegru is Chairperson of the Algoa Bay Hope Spot steering committee, driving the Hope Spot initiative for Mission Blue and the Sustainable Seas Trust in Algoa Bay. She facilitates public talks about local and international environmental issues (estuaries conservation, plastic pollution, renewable energy, etc.), fund raises for marine education initiatives, such as Marine Week in Port Elizabeth, and co-ordinates environmental projects, such as regular beach clean-ups, setting waste recycling plans for the squid fishing industry and the Nelson Mandela Metropolitan University. She is also a Trustee of the South African Marine Rehabilitation and Education Centre (SAMREC), a committee member of the Wildlife and Environment Society of South Africa (WESSA), a member of the Advisory Panel of the African Marine Waste Action Network, and a mentor for Kaba–Quest school, for the Uvolane marine guiding course and for the French School of Cape Town.

Ongoing research by Lorien and her team on the foraging behaviour of African Penguins in Algoa Bay since 2008 and during the experimental purse-seine fishing exclusion has shown the impact of the competition with industrial fisheries on seabirds for the first time and the benefit of closing small areas to fishing. The results are used by the Island Closure Task Team of the Small Pelagic Scientific Working Group, from the Department of Agriculture, Forestry and Fisheries, to assess the use of fishing exclusion around penguin colonies to increase penguin numbers. South African National Parks henceforth extended the Greater Addo Marine Protected Area in Algoa Bay to include the foraging habitat of African Penguins around St Croix Island, the world largest African Penguin colony.

Following his research on a novel and inexpensive method to quantify relative fish abundance using recreational fish-finders for his PhD, Alistair McInnes designed and analysed small pelagic fish surveys in Plettenberg Bay to assess the suitability of pelagic habitat for an artificial African Penguin breeding colony. The study was commissioned by BirdLife South Africa under the supervision of Christina Hagen and in collaboration with Dr Gwenith Penry. Six surveys were undertaken between February and August 2016 within the African Penguin foraging range centered at the Keurbooms Estuary, which is the proposed new penguin colony site. Results to date are largely inconclusive largely due to a poor year for fish stocks in the Eastern Cape probably related to anomalous oceanographic conditions associated with the prevailing El Niño effect. Surveys are planned to continue during 2017 to establish if this site is suitable for breeding African Penguins.

As part of her MSc, Jenny Roberts tracked African Penguins from Dassen Island on the West Coasts and Bird Island on the South Coast for the 3rd consecutive year, during the pre-moult and post-moult periods. She aims to explore the potential for competition between penguins and fisheries during the non-breeding period. She consistently showed contrasting results between the coasts, with a large dispersal of penguins from the West Coast compared to the South during both pre- and post-moult periods, suggesting that a combination of the low relative fish abundance and higher commercial fishing pressure on the West Coast may force pre-moulting birds to seek food sources farther from the colony, putting them at higher risk of not surviving the annual moult. Recently she also noticed a high proportion of PTTs that stopped emitting on the West Coast, suggesting that the penguin died, were localised in a relative small area off St Helena Bay. She is writing a short note about important areas for penguins during the non-breeding season that requires specific protection.

The CoE also assisted a team of SANParks rangers with manufacturing artificial nests for African Penguins to shelter them from extreme weather events (storms or heat waves) and

from predation on land by gulls targeting their eggs and small chicks. Artificial nests made from fiberglass have been placed on different colonies in the past but were proved to be not suited as they retained heat. As a consequence the hatching success in these nests was lower than those of surface nests. SANParks is now exploring different material, such as Styrofoam in cement, which so far has been successful in reducing temperatures inside the nest.

Dr Martim Melo is the coordinator of the Biodiversity twin-lab between CIBIO (Portugal) and the Zoological Museum and Herbarium of Lubango (Angola). He drafted a report on the need to implement a protected area for the forests of the central scarp, with guidelines on how to design it, which has been endorsed by the local authorities who are now engaging with the central Angolan government. He also contributes to capacity building of members of a conservation NGO in São Tomé and Príncipe that supports the implementation of the BirdLife International and BirdLife Africa action plans for the threatened species in those countries.

Post-doc Dayo Osinubi has supported the MSc Conservation Biology programme at the AP Leventis Ornithological Research Institute (APLORI) in Nigeria by teaching courses in behavioural ecology, field techniques, and writing and presentation skills, as well as supervising a MSc student's research project. His services on the African-Eurasian Migratory Landbirds Working Group led to the adoption of the Abuja Declaration on Sustainable Land Use for People and Biodiversity in West Africa.

Post-doc Anina Coetzee assisted the Worcester Bird Club with registering a new waterbird monitoring site, since there is a lack of such information gathering in the area, and continued to co-ordinate their bi-annual waterbird monitoring events.

Post-doc Alan Lee engaged with CapeNature during their May 2016 Quarterly Ecological Meeting held in Oudtshoorn and worked with them to secure a social development grant through the Table Mountain Fund which paid for local labour to remove c15km of old agricultural fences on the Blue Hill Nature Reserve during October and November 2016. During July 2016, he assisted BirdLife South Africa with the development of their 5-year strategy plan, especially with respect to the importance of South Africa's endemic birds. During September 2016, he consulted for Biosphere Expeditions on the monitoring of macaws and wildlife of the Peruvian Amazon in the implementation of their proposed volunteer tourism research project based on the Las Piedras River, Madre-de-Dios, including the training of local scientists. He also worked with the LandMark Foundation on a leopard conservation project, which also involved work with potential bird and mammal prey monitoring on Blue Hill Nature Reserve during October 2016. With regards to research policy impacts, he has been working with Dale Wright of BirdLife South Africa on the development of a manual focusing on environmental management for fynbos endemic birds.

Post-doc Megan Murgatroyd was a reviewer for BirdLife South Africa's 'Verreaux's Eagle and wind farms: Guidelines for impact assessment, monitoring and mitigation', and provided recommendations from Global Positioning Systems (GPS) tracking research data from her PhD.

Dr Rob Little participated in a Taylor & Francis Journal Editorial Workshop held in Cape Town on 7 October 2016 which was convened to interrogate how scientific journal publishing was serving the scientific sector of Africa and how better use could be made of assessing the impact of science. He also continued to participate on the Ford Wildlife Foundation (FWF) advisory panel to assist the FWF with the placement of loan vehicles in support of conservation projects.

Positions on Editorial Boards, Councils, Advisory/Steering Committees during 2016

Editorial Boards

- *Acta Ethologica* (Associate Editor; Covas)
- *African Journal of Ecology* (International Review Panel; Barnard)
- *African Journal of Marine Science* (Editorial Advisory Board; Pistorius)
- *Animal Conservation* (Associate Editor; Barnard)
- *Antarctic Science* (Associate Editor; Ryan)
- *Behavioral Ecology* (Editorial Board; Ridley)
- *Biology Letters* (Associate Editor; Cunningham, Spottiswoode)
- *Bird Conservation International* (Associate Editor; Ryan)
- *Bird Study* (Associate Editor; Amar)
- *BMC Climate Change Responses* (Associate Editor; Barnard, McKechnie)
- *BMC Evolutionary Biology* (Editorial Board; Bowie)
- *Diversity and Distributions* (Associate Editor; Cumming)
- *Ecology & Society* (Associate Editor; Cumming)
- *Emu – Austral Ornithology* (Associate Editor; McKechnie)
- *Frontiers in Ecology and the Environment* (Editorial Board; Ridley)
- *Frontiers in Marine Science* (Review editor; Pichegru)
- *Ibis* (Editor; Bowie, Associate Editor; Amar, Pichegru, Wanless)
- *International Scholarly Research Notices ISRN Ecology* (Editor; Ridley)
- *International Scholarly Research Notices ISRN Zoology* (Associate Editor; Pistorius)
- *Journal of Comparative Physiology B* (Editorial Board; McKechnie)
- *Landscape Ecology* (Editorial Board; Cumming)
- *National Geographic News Watch* (Contributing Editor; Boyes)
- *Marine and Freshwater Behaviour and Physiology* (Associate Editor; Pistorius)
- *Ornis Fennica* (Associate Editor; Thomson)
- *Ostrich – Journal of African Ornithology* (Editor-in-Chief; Lee; Associate Editors; Little, McKechnie, Ridley; Book Review Editor; Mvungi)
- *South African Journal of Wildlife Research* (Associate Editor; Cumming)

Membership & Advisory services

- ACAP Taxonomy Working Group (Ryan)
- African-Eurasian Migratory Landbirds Working Group (Osinubi)
- *Africa Geographic* (Director; Boyes)
- *African Birdlife* (Scientific Advisors; McKechnie, Ryan)
- African Penguin Population Reinforcement Working Group (Pistorius)
- African Seabird Group (Cook, Pistorius, Pichegru, Steinfurth, Ryan, Wanless)
- African Marine Waste Action Network (Advisory panel member, Pichegru, Ryan)
- American Ornithologists' Union (Bowie, Cunningham, McKechnie, Melo, Sumasgutner)
- Animal Demography Unit, UCT (Deputy Director: Thomson)
- Association for the Study of Animal Behaviour (Flower)
- Association for Tropical Biology & Conservation (Lee)
- BirdLife Portugal (Melo)
- BirdLife South Africa Council (President; Barnard)
- BirdLife South Africa Conservation Advisory Committee (Chair; Barnard, Member; Ryan)
- BirdLife South Africa Ethics Committee (McKechnie)
- British Ecological Society (Boyes, Flower, Nelson-Flower, Ridley, Tubbs)

- British Ornithologists' Union (Council; Bowie; Member; Cunningham, Lee, Spottiswoode, Sumasgutner)
- Cambridge Philosophical Society (Ridley)
- Cooper Ornithological Society (Amar, Bowie, McKechnie)
- Eastern Cape Forest Management and Research Committee (Boyes)
- Ecological Society of America (Cumming, Tubbs)
- Endangered Wildlife Trust Birds of Prey Programme Advisory Committee (Amar)
- Endangered Wildlife Trust Threatened Grassland Species Programme Advisory Group (Little, McKechnie)
- European Ornithologists Union (Member; Sumasgutner)
- European Society of Evolutionary Biology (Melo)
- Expert Group on Birds and Marine Mammals of the Scientific Committee for Antarctic Research (Cook)
- Faculty Member, 'Faculty of 1000'. See <http://f1000.com/> (Cumming)
- Fellow of Magdalene College, Cambridge (Spottiswoode)
- Ford Wildlife Foundation Advisory Board (Little)
- Forest & Bird Society (Cunningham)
- Galapagos Conservation Trust (Ambassador; Steinfurth)
- German Ornithologists' Society (Member; Sumasgutner)
- International Association of Vegetation Science (Coetzee)
- International Bio-logging Society (Cook)
- International Ornithology Council Taxonomy Advisory Committee (Bowie, Ryan)
- International Parrot Research Group (Africa Coordinators; Boyes, Martin)
- International Society for Behavioural Ecology (Flower, Nelson-Flower, Ridley, Spottiswoode, Thomson)
- IUCN Red List of Threatened Species (Cook)
- Mabula Ground-Hornbill Project Advisory Board (Vice Chairman; Little)
- Migrant Landbird Study Group (Osinubi)
- National Geographic Society (Boyes)
- National Zoological Gardens Research Ethics & Scientific Committee (McKechnie)
- Pan-African Ornithological Congress Committee (Osinubi)
- Raptor Research Foundation (Amar, Sumasgutner)
- Red Data Book Revision Steering Group (Chair: Barnard, Member; Amar, Wanless)
- Resilience Alliance (Cumming)
- RNSC-SNAAS (Reseau National des Systemes Complexes-Social Network Analysis in Animal Societies) (Rat)
- SAFRING Steering Committee (Barnard)
- Society for Conservation Biology (Barnard, Cumming, Melo, Pichegru, Tubbs)
- Society for Integrative and Comparative Biology (McKechnie)
- Society for Systematic Biology (Bowie)
- Society for the Study of Evolution (Bowie, Melo)
- South African Association of Botanists (Scientific Committee; Coetzee)
- South African Biosystematics Initiative Steering Committee (Bloomer)
- South African Bird Atlas Project 2 Steering Committee (Chair; Barnard)
- South African Marine Rehabilitation and Education Centre (SAMREC) (Trustee; Pichegru)
- South African Young Academy of Science (Founder member; McKechnie)
- Southern African Bird List Committee (Bowie, Ryan)
- Southern African Society for Systematic Biology (President; Bloomer)
- Southern African Wildlife Management Association (Little, Maciejewski)
- Southern Ground-hornbill Action Group (Carstens, Little)
- Sustainable Seas Trust (Chairperson Algoa Bay Hope Spot committee; Pichegru)

- Tristan's Biodiversity Advisory Group (Ryan, Wanless)
- Wild Bird Trust (Trustees; Boyes, Little)
- Wildlife and Environment Society of South Africa (Board member; Pichegru)
- WI-IUCN SSC Cormorant Specialist Group (Cook)
- World Parrot Trust (Africa Director; Boyes)
- World Seabird Union (Africa representatives; Pichegru, Wanless; Member; Cook)
- Zoological Society of Southern Africa (Members; Cunningham, Little, McKechnie, Pistorius)

Manuscripts reviewed for scientific journals during 2016

Acta Ethologica (3 Covas, 1 Rat)
African Journal of Ecology (1 Reynolds)
Anatomical Record (1 Cunningham)
Animal Behaviour (1 Covas, 1 Flower, 1 Ridley, 1 Ryan, 3 Sumasgutner, 1 Thomson)
Animal Cognition (3 Flower, 1 Spottiswoode)
Antarctic Science (1 Ryan)
Ardea (1 Thomson)
Auk (1 Bolopo)
Austral Ecology (1 Lee)
Behaviour (1 Rat)
Behavioural Ecology (3 Ridley, 1 Spottiswoode)
Birdlife Conservation International (1 Melo)
Bird Study (1 Amar)
Biological Conservation (2 Clements, 2 Joseph, 1 Maciejewski, 1 Reynolds, 1 Ryan, 1 Sumasgutner)
Biology Letters (1 Flower, 4 Ridley)
Biology Open (1 Pistorius)
Biological Reviews (1 McKechnie)
Bothalia (1 Spottiswoode)
Bulletin of the British Ornithologist's Club (1 Ryan)
Chemoecology (2 Flower)
Cities (1 Maciejewski)
Climate Change Responses (1 Cunningham, 1 McKechnie)
Current Zoology (1 Thomson)
Diversity & Distributions (1 Reynolds)
Ecology (1 Pistorius)
Ecosystem Services (1 Clements, 1 Maciejewski)
Emu (1 Ridley, 1 Thomson)
Environmental Conservation (1 Maciejewski)
Environmental Pollution (2 Ryan)
Evolution (1 Covas)
Frontiers in Ecology and Evolution (1 Ridley)
Functional Ecology (1 Cunningham, 1 McKechnie, 1 Ridley, 1 Spottiswoode)
Ibis (2 Cunningham, 1 Ryan, 6 Sumasgutner)
Integrative Zoology (1 Little)
Journal of Animal Ecology (1 Sumasgutner)
Journal of Avian Biology (1 Amar, 2 Sumasgutner, 2 Thomson)
Journal of Biogeography (1 Joseph)
Journal of Comparative Physiology B (2 McKechnie)
Journal of Experimental Biology (2 McKechnie)
Journal of Ecology (1 Joseph)
Journal of Ecology New Zealand (1 Rat)

Journal of Functional Ecology (1 Bolopo)
Journal of Great Lakes Research (1 Ryan)
Journal of Ocean Technology (1 Ryan)
Journal of Ornithology (1 Lee, 1 Ryan, 1 Sumasgutner)
Journal of Raptor Research (2 Sumasgutner)
Journal of Vegetation Science (1 Joseph)
Journal of Zoology, London (2 McKechnie, 1 Ridley, 1 Ryan)
Koedoe (1 Maciejewski, 1 Osinubi)
Malimbus (1 Melo)
Marine Biology (1 Pistorius)
Marine Ecology Progress Series (1 Pichegru, 2 Pistorius, 1 Ryan)
Marine Environmental Research (1 Ryan)
Marine Pollution Bulletin (3 Ryan)
Molecular Phylogenetics & Evolution (1 Melo)
Nature: Scientific Reports (1 Cunningham)
Oecologia (1 Lee)
Ornis Fennica (1 Gaglio, 1 Sumasgutner)
Ostrich (1 Cunningham, 1 Flower, 1 Gaglio, 3 Lee, 1 Little, 1 Melo, 1 Murgatroyd, 2 Ridley, 1 Ryan, 1 Thomson)
Peerage of Science (1 Amar, 1 Bolopo, 1 Murgatroyd, 1 Thomson)
Physiological and Biochemical Zoology (2 McKechnie)
Physiological Transactions B (1 Cunningham)
Physiological Transactions of the Royal Society (1 McKechnie)
Plant Biology (1 Coetzee)
PLoS ONE (1 Cunningham, 1 Maciejewski)
Polar Biology (1 Pistorius, 2 Ryan)
Proceedings of the Royal Society of London B (1 Flower, 1 Ridley)
Regional studies in marine studies (1 Cook, 1 Gaglio)
Science (1 Spottiswoode)
Scientific Advances (1 Ryan)
South African Journal of Botany (1 Coetzee)
South African Journal of Wildlife Research (1 Little)
Urban Ecosystems (1 Maciejewski)
Wetlands Ecology and Management (1 Little)
Wilson Journal of Ornithology (1 Gaglio)
Zoological Studies (1 Cunningham)

HUMAN RESOURCES

Prof. Peter Ryan was awarded NRF A-Rated Scientist status in December 2016. This is the first A-rating for a Fitz Director and the first for an ornithologist in South Africa. All CoE core members are now NRF rated, with Prof. Claire Spottiswoode being awarded B1 status.

The following people worked within or were students at the CoE during 2016:

Table 4. Core CoE team members for 2016

Title	Name	Citizen	Institution	Gender	Race	% time in CoE
Prof.	Paulette Bloomer	SA	U Pretoria	F	W	10
Dr	Jaqueline Bishop	SA	UCT	F	W	10
Dr	Susan Cunningham	NZ	UCT	F	W	100
Dr	Lorien Pichegru	France	NMMU	F	W	50
Dr	Claire Spottiswoode	SA	UCT	F	W	66
Dr	Arjun Amar	UK	UCT	M	W	100
A/Prof.	Rauri Bowie	SA	U Cal. Berkeley	M	W	10
Prof.	Derek Engelbrecht	SA	U Limpopo	M	W	10
Prof.	Andrew McKechnie	SA	U Pretoria	M	W	30
Dr	Pierre Pistorius	SA	NMMU	M	W	40
Prof.	Peter Ryan	SA	UCT	M	W	100
Dr	Ben Smit	SA	NMMU	M	W	20
Dr	Robert Thomson	SA	UCT	M	W	100

Table 5. Administrative and support staff at the CoE for 2016

Title	Name	Position	Gender	Race
Ms	Anthea Links	SAP Administrator	F	B
Ms*	Phelisa Hans	Library Assistant	F	B
Ms*	Denise Scheepers	CoE Senior Secretary	F	B
Ms	Susan Mvungi	Niven Librarian	F	B
Ms	Hilary Buchanan	Admin Assistant	F	W
Mr	Gonzalo Aguilar	Principal Technical Officer	M	W
Dr*	Rob Little	CoE Manager	M	W
Mr*	Chris Tobler <i>part time</i>	Principal Technical Officer	M	W

* CoE funded.

Table 6. PFIAO CoE Post-doctoral Fellows for 2016.

Title	Name	Citizen	Gender	Race	CoE support level	
					Bursary	Running
Dr	Diana Bolopo	Spain	F	W	Yes	Yes
Dr	Anina Coetzee	SA	F	W	Yes	Yes
Dr	Sophie Lardy	France	F	W	No	No
Dr	Megan Murgatroyd	UK	F	W	Yes	Yes
Dr	Chevonne Reynolds	SA	F	W	Yes	Yes
Dr	Margaux Rat	France	F	W	Yes	Yes
Dr	Petra Sumasgutner	Austria	F	W	Yes	Yes
Dr	Dayo Osinubi	Nigeria	M	B	Yes	Yes
Dr	Alan Lee	SA	M	W	Yes	Yes

Table 7. Honorary Professors and Research Associates for 2016.

Title	Name	Citizen	Institution	Gender	Race	% time in CoE
Dr	Phoebe Barnard *	UK	SANBI	F	W	10
Dr	Rita Covas *	Portugal	CEFE-CNRS	F	W	60
Dr	Claire Doutrelant	France	CEFE-CNRS	F	W	30
Dr	Kristi Maciejewski *	SA	OTS	F	W	20
Dr	Antje Steinfurth	Germany	UCT	F	W	100
A/Prof.	Mandy Ridley *	New Zealand	U Western Australia	F	W	50
Dr	Lizanne Roxburgh	SA	EWT	F	W	10
Dr	Steve Boyes	SA	Wild Bird Trust	M	W	30
Dr	Callan Cohen	SA	Birding Africa	M	W	5
Dr	Tim Cook	France				
Prof.	Graeme Cumming *	SA	James Cook U, Australia	M	W	10
Prof.	David Cumming *	Zimbabwe	U Zimbabwe	M	W	20
Dr	Tom Flower *	UK	U St Andrews, Can.	M	W	20
Dr	David Grémillet *	France	CNRS	M	W	20
Dr	Andrew Jenkins	SA	UCT	M	W	20
Dr	Ian Little	SA	EWT	M	W	20
Dr	Martim de Melo	Portugal	CIBIO	M	W	10
Dr	Antoni Milewski	Australia	Murdoch U, Australia	M	W	20
Dr	Rob Simmons *	UK	UCT	M	W	40
Dr	Ross Wanless *	SA	BirdLife SA	M	W	30

* Official UCT Honorary Professor or Honorary Research Associate

Table 8. PFAIO CoE Students registered for, or graduating, in 2016.

* = thesis students who graduated during 2016

** = MSc CB course students who graduated during 2016

Name	Citizen	Univ.	Gender	Race	Degree	1 st year	CoE support level	
							Bursary	Running
Ryklief, Rabi'a	SA	NMMU	F	B	PhD	2014	Yes	Yes
Baum, Julia *	Germany	UCT	F	W	PhD	2012	No	No
Bourne, Amanda	SA	UCT	F	W	PhD	2016	Yes	Yes
Calder, Jordan-Laine	SA	UCT	F	W	PhD	2016	Yes	Yes
Carstens, Kate	SA	UCT	F	W	PhD	2014	No	No
Clements, Hayley *	SA	UCT	F	W	PhD	2014	No	No
Garbett, Rebecca	UK	UCT	F	W	PhD	2015	Yes	Yes
Garcia-Heras, Sophie	Spain	UCT	F	W	PhD	2014	No	Yes
Reynolds, Chevonne *	SA	UCT	F	W	PhD	2013	No	No
Stevens, Kim	SA	UCT	F	W	PhD	2016	Yes	No
Traisnel, Gwendoline	France	NMMU	F	W	PhD	2016	Yes	Yes
Thompson, Michelle	SA	U. Pta	F	W	PhD	2014	Yes	Yes
van de Ven, Tanja	Netherlands	UCT	F	W	PhD	2012	Yes	No
Atkins, Alex	UK	UCT	M	W	PhD	2016	Yes	Yes
Cloete, Daniel	SA	UCT	M	W	PhD	2016	No	No
Dilley, Ben	SA	UCT	M	W	PhD	2015	Yes	No
Gaglio, Davide	Italy	UCT	M	W	PhD	2015	Yes	Yes
Henry, Dominic *	SA	UCT	M	W	PhD	2011	No	No
Lowney, Anthony	UK	UCT	M	W	PhD	2015	Yes	Yes
McInnes, Alistair *	SA	UCT	M	W	PhD	2012	No	No
Noakes, Matthew *	SA	U. Pta	M	W	PhD	2015	Yes	Yes
O'Connor, Ryan	USA	U. Pta	M	W	PhD	2013	Yes	Yes
Pietersen, Darren	SA	U. Pta	M	W	PhD	2013	Yes	No
Rollinson, Dominic	SA	UCT	M	W	PhD	2013	Yes	No
Tate, Gareth *	SA	UCT	M	W	PhD	2014	Yes	No
van Eeden, Rowen	SA	UCT	M	W	PhD	2013	Yes	No
Whitehead, Otto	SA	UCT	M	W	PhD	2014	No	No
Abbas, Huyam	Sudan	UCT	F	B	MSc CB	2016	No	No
Angoh, Jennifer **	Mauritius	UCT	F	B	MSc CB	2015	No	No
Chinho, Tendai	Zimbabwe	UCT	F	B	MSc CB	2016	No	No
Moloto, Ditiro	SA	UCT	F	B	MSc	2016	Yes	No
Nenzhelele, Elelwani	SA	UCT	F	B	MSc CB	2016	No	No
Suri, Jessleena **	India	UCT	F	B	MSc CB	2015	No	No

Blanckenberg, Michelle	SA	UCT	F	W	MSc CB	2016	No	No
Carpenter-Kling, Tegan *	SA	NMMU	F	W	MSc	2014	No	No
Casola, Sarah	USA	UCT	F	W	MSc CB	2016	No	No
Craig, Christie	SA	UCT	F	W	MSc CB	2016	No	Yes
Day, Belinda	SA	UCT	F	W	MSc CB	2016	No	No
Ferguson, Angela **	Zimbabwe	UCT	F	W	MSc CB	2015	No	No
Fleury, Gabriela **	USA	UCT	F	W	MSc CB	2015	No	No
Flores, Selena	USA	UCT	F	W	MSc	2015	Yes	Yes
Johnson, Laurie	SA	UCT	F	W	MSc	2016	Yes	Yes
Kyne, Amanda	USA	UCT	F	W	MSc	2014	No	No
Ly, Alicia	USA	UCT	F	W	MSc CB	2016	No	No
Parrish, Margaret	USA	UCT	F	W	MSc CB	2016	No	No
Pistorius, Penny **	SA	UCT	F	W	MSc CB	2015	No	No
Pretorius, Adele	SA	UCT	F	W	MSc CB	2015	No	No
Roberts, Jenni *	Namibia	UCT	F	W	MSc	2014	No	No
Tubbs, Noelle	USA	UCT	F	W	MSc	2013	No	No
van den Heever, Danielle	SA	NMMU	F	W	MSc	2016	Yes	Yes
van Velden, Julia **	SA	UCT	F	W	MSc CB	2015	No	No
Visser, Elke **	SA	UCT	F	W	MSc CB	2015	No	No
Matimele, Hermenegildo **	Madagascar	UCT	M	B	MSc CB	2015	No	No
Molepo, Jerry	SA	NMMU	M	B	MSc	2015	Yes	Yes
Tokura, Wataru **	Japan	UCT	M	B	MSc CB	2015	No	No
Botha, Johnathan	SA	NMMU	M	W	MSc	2015	Yes	Yes
Brink, Christiaan **	SA	NMMU	M	W	MSc	2015	No	No
de Blocq, Andrew	SA	UCT	M	W	MSc	2015	No	No
Dura, Carles	Spain	UCT	M	W	MSc CB	2016	No	No
Fleming, Campbell	SA	UCT	M	W	MSc	2016	Yes	Yes
Gush, Wesley	SA	UCT	M	W	MSc CB	2016	No	No
Jeal, Corey	Australia	UCT	M	W	MSc CB	2016	No	No
Lloyd, Kyle **	SA	UCT	M	W	MSc CB	2015	No	No
Macray, Matt	Zimbabwe	UCT	M	W	MSc CB	2016	No	No
McClellan, Luke	UK	UCT	M	W	MSc	2016	No	Yes
Olinger, Ryan	USA	UCT	M	W	MSc CB	2016	No	Yes
Pallett, John	Namibia	UCT	M	W	MSc	2013	No	No
Rodseth, Edmond	SA	UCT	M	W	MSc	2015	No	Yes
Malematja, Mpho *	SA	U. Pta	F	B	Hons	2016	Yes	Yes
Osborne, Alexis *	SA	UCT	M	B	Hons	2016	Yes	No
Kemp, Ryno *	SA	U. Pta	M	W	Hons	2016	Yes	Yes

Table 9. CoE Post-doctoral Fellow and Student demographics in 2016

	Black			White			Total
	Female	Male	Total	Female	Male	Total	
P-doc		1	1	7	1	8	9
PhD	1		1	12	14	26	27
MSc	6	3	9	19	13	32	41
BSc H	1	1	2		1	1	3
Total	8	5	13	38	29	67	80

Table 10. Proportion of Black students supported by the CoE during 2005-2016

	Year											
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Number of students	52	53	54	45	45	50	59	60	68	73	68	71
Black students	15	11	13	13	18	15	15	11	8	7	8	13
Proportion Black (%)	29	21	24	29	40	30	25	18	12	10	12	18

Table 11: Places of origin of CoE students supported in 2016

NRF Target		Number of students supported	%
SA	87%	41	58
SADC*	5%	6	9
African	4%	1	1
Other	4%	23	32
Total	100%	71	100

*Southern African Development Community countries include Angola, Botswana, Congo (DRC), Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, Swaziland, Tanzania, Zambia and Zimbabwe (South Africa is excluded here)

Table 12. Research assistants for 2016

Title	Name	Citizenship	Gender	Race	Based at
Ms	Migkayla Stofberg	SA	F	B	UCT
Ms	Jessleena Suri	India	F	B	UCT
Dr	Eleonore Hellard	France	F	W	UCT
Ms	Ana Leal	Spain	F	W	UCT
Dr	Lisa Nupen	SA	F	W	UCT
Ms	Lucy Smyth	SA	F	W	UCT
Ms	Eleanor Weideman	SA	F	W	UCT
Ms	Julia van Velden	SA	F	W	UCT
Mr	Kervin Prayag	India	M	B	UCT
Mr	Mark Cowen	SA	M	W	UCT
Mr	Christopher Jones	SA	M	W	UCT

FINANCES

The distribution of funding across the two focal research areas during 2016 and co-funding from other sources

Table 13 reflects the total funding (R13 172 100) for the 41 CoE projects during 2016, according to the approved and amended 2016 CoE budget and additional funds sourced elsewhere (Table 15). Table 14 reflects the overall distribution of funds across the three focal research areas during 2016. Research conducted by the CoE which is not funded at least in part by the CoE, and UCT remuneration of Fitz/CoE staff, are excluded from Tables 13 & 14.

Table 13. Distribution of 2016 research funds according to the source of funds

	DST-NRF		Other sources	
	bursary	running	bursary	running
	3 540 000	3 079 100	2 690 000	3 863 000
	53%	47%	41%	59%
Sub total	6 619 100*		6 553 000	
Proportion	50%		50%	

*the corporate operations funds reflected in the 2016 CoE budget are excluded from the DST-NRF grant here

Table 14. Distribution of 2016 research funds according to the fund source and the focal research areas

Fund source	Research area*	1	2	Proportion within source
DST-NRF	1	1 975 700	4 643 400	15%
	2			35%
Other funds	1	3 121 000	3 432 000	24%
	2			26%
Total		5 096 700	8 075 400	
Proportion within research area		39%	61%	100%

*1 = understanding biodiversity; 2 = maintaining biodiversity

Comments on the distribution of CoE and other funds during 2016:

The DST-NRF research grant was half of the total funds available for the CoE. The proportional distribution of research area funding favours conservation science (maintaining biodiversity), thus satisfying the recommendations of the 2009 review panel. However, sourcing external funds for research on understanding biodiversity remains more difficult.

Table 15. Funds secured from other sources for the 2016 CoE projects

Bursaries		Running costs		Total	
1*	2	1	2		
			200 000	200 000	Local Public 1 530 000
		70 000		70 000	NRF Blue Skies grant
	300 000			300 000	NRF incentives
	140 000			140 000	NRF innovation
			40 000	40 000	NRF free standing bursary
			90 000	90 000	NSF-McKechnie
	100 000			100 000	NRF Scarce Skills
40 000		220 000		260 000	NRF DAAD
	90 000		110 000	200 000	SANAP/DEA
	90 000		40 000	130 000	SANBI
					Cape Nature
					Local Private 2 823 000
	75 000		225 000	300 000	ABAX Foundation
	30 000			30 000	Ada & Bertie Levenstein
10 000		290 000		300 000	Clancey bequest
235 000				235 000	Claude Leon Foundation
	180 000			180 000	Harry Crossley Fund
	120 000	100 000	70 000	290 000	DOW Chemicals
	24 000			24 000	Gordon Sprigg Scholarship
			170 000	170 000	Hans Hoheisen Charitable Trust
			13 000	13 000	Klaserie Game Reserve
		30 000		30 000	Tswalu Foundation
			70 000	70 000	National Geographic Cons Trust
80 000		220 000		300 000	General donations
		40 000		40 000	NMMU
80 000		106 000		186 000	UCT URC individuals
			340 000	340 000	UCT URC CoE grant
	50 000			50 000	UCT MSc research
		40 000	30 000	70 000	UCT Launching Grant
	170 000			170 000	U Pretoria
	25 000			25 000	Wilderness Wildlife Trust
					International Public 497 000
125 000		92 000		217 000	Australian Research Council
			30 000	30 000	NSERC Brigham
		250 000		250 000	NRF Sweden bilateral
					International Private 1 703 000
	90 000		70 000	160 000	AZA -SAFE
		250 000	50 000	300 000	BBSRC Fellowship, Cambridge
396 000		117 000		513 000	Leverhulme Trust
			300 000	300 000	IUCN (Seals NMMU)
			90 000	90 000	M. Bin-Zayed Species Fund
240 000				240 000	Newton Trust, U. Cambridge
			100 000	100 000	Rufford Foundation
1 206 000	1 484 000	1 915 000	1 948 000	6 553 000	

*1 = understanding biodiversity; 2 = maintaining biodiversity

DST-NRF CoE
Birds as Keys to Biodiversity Conservation at the Percy FitzPatrick Institute
CASH FLOW ANALYSIS FOR THE 2016 FINANCIAL YEAR

<i>DESCRIPTION</i>	<i>Jan-16</i>	<i>Feb-16</i>	<i>Mar-16</i>	<i>Apr-16</i>	<i>May-16</i>	<i>Jun-16</i>	<i>Jul-16</i>	<i>Aug-16</i>	<i>Sep-16</i>	<i>Oct-16</i>	<i>Nov-16</i>	<i>Dec-16</i>	<i>TOTAL</i>	<i>Annual Budget</i>	<i>VARIANCE</i>
NRF		3 410 429						3 410 429					6 820 857	6 820 857	0
Interest	1 989												1 989	1 989	0
c/f from 2015	1 141 267												1 141 267	1 141 267	0
TOTAL INCOME	1 143 256	3 410 429	0	0	0	0	0	3 410 429	0	0	0	0	7 964 113	7 964 113	0
Salaries	-107 200	-115 663	-123 038	-126 037	-115 870	-116 366	-71 955	-71 987	-77 496	-70 926	-75 473	-81 820	-1 153 830	1 106 000	-47 830
Student costs	-560 000	-1 375 362	-190 000	-115 772	-90 000	0	-901 701	-90 000	60 000	0	0	0	-3 262 835	3 680 000	417 165
Conferences	0	-9 603	-79 195	-15 816	-11 520	-34 734	-60 024	-72 143	-28 345	-47 170	-28 567	-3 128	-390 243	184 500	-205 743
Equipment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Running	-110 518	-128 276	-169 034	-129 904	-201 292	-288 485	-186 256	-238 005	-65 320	-182 149	-561 867	-483 135	-2 744 242	2 749 600	5 358
TOTAL EXPENSES	-777 718	-1 628 904	-561 266	-387 529	-418 682	-439 585	-1 219 936	-472 134	-111 161	-300 245	-665 907	-568 083	-7 551 150	7 720 100	168 950
NET OUTCOME PROFIT/LOSS	365 538	2 147 062	1 585 796	1 198 267	779 585	340 000	-879 936	2 058 359	1 947 198	1 646 952	981 046	412 963	412 963		

Notes:

- 1 Balance brought forward matches previous year's Financial Statement
- 2 Shows actual expenditure only (excluding commitments) for all months
- 3 Reflects the entire costs of the CoE including satellite campuses
- 4 Regards income as positive cash flow and expenditure as negative cash flow

Audited Income and expenditure

A copy of the 2016 Income and Expenditure Statements shown below in Table 16 is attached to the *Ernst & Young* Audit Report.

Denise Scheepers made good progress in learning the systems so that there were limited queries posed or listed in the audit process and report regarding compliance, and those listed were of little material significance and were clarified to the auditor's satisfaction. Unfortunately since the NRF requested on 16 March 2017 that student identity documents were required when submitting a nomination the system was not finalised and thus the audit recorded it as non-compliance, although all nominations were otherwise complete.

For the past three years, the NRF has selected certain host institutions for financial review by their Internal Auditors. For 2016, UCT was one of three institutions selected for this audit, and the PFIACoE was included in the sample of grants chosen for audit. The audit was conducted during May 2016 and the outcome was a clean audit.

Table 16. Fitztitute CoE Financial Statement for January to December 2016

	Operating Fund	Invested Fund	All Funds
Brought forward from 2015	-1 141 267.01	-20 194.84	-1 161 461.85
Income	-6 820 857.00	-2 071.99	-6 822 928.99
NRF income	-6 820 857.00		
Other income			
Investment income		-2 071.99	
Net transfer value	0.00	-0.00	-
CR transfer	-0.00	-0.00	
DR transfer	0.00		
Expenditure	7 348 493.06		
Salaries total	1 167 440.61		
Bursaries	3 002 835.00		
Conferences	390 243.15		
Equipment			
Running costs	2 787 974.30		
Carry forward to 2017	-613 630.95	-22 266.83	-635 897.78
Reconciliation:			
SAP balance @ 31/12/2016	-574 869.50		
Advances in hand	-38 761.45		
	-613 630.95		

Notes:

- 1) No non-specific transfers to other collaborators were made in 2016.
- 2) All funds carried forward to 2017 include advances in hand.
- 3) Both funds reconcile to SAP

Appendix 1: PFAO CoE Publications for 2016

Papers in SCI-ranked journals (138)

IF score = Thomson Scientific Impact Factor score (2014 2-year impact factor)

- Abolnik, C., Olivier, A.J., Reynolds, C., Henry, D.A.W., Cumming, G.S., Rauff, D., Romito, M., Petty, D., and Falch, C. 2016. Susceptibility and status of avian influenza in ostriches. *Avian Diseases* 60: 286-295. <http://dx.doi.org/10.1637/11110-042815-Reg> IF 1.241
- Albright, T.P., Mutibwa, D., Gerson, A.R., Smith, E.K., Talbot, W.A., McKechnie, A.E., and Wolf, B.O. 2016. Mapping evaporative water loss in desert passerines reveals an expanding threat of lethal dehydration. *Proceedings of the National Academy of Science (PNAS)*. <http://dx.doi.org/> IF 9.674
- Allen, C.R., Angeler, D.G., Cumming, G.S., Folke, C., Twidwell, D., and Uden, D.R. 2016. Review: quantifying resilience. *Journal of Applied Ecology* 53: 625-635. <http://dx.doi.org/10.1111/1365-2664.12634> IF 4.564
- Amar, A. 2016. Using independent nest survey data to validate changes in reporting rates of Martial Eagles between the Southern African Bird Atlas Project 1 and 2. *Ostrich* 87: 1-5. <http://dx.doi.org/10.2989/00306525.2015.1089333> IF 0.414
- Amélineau, F., Bonnet, D., Heitz, O., Mortreux, V., Harding, A.M.A., Karnovsky, N., Walkusz, W., Fort, J., and Grémillet, D. 2016. Microplastic pollution in the Greenland Sea: background levels and selective contamination of planktivorous diving seabirds. *Environmental Pollution*. <http://dx.doi.org/10.1016/j.envpol.2016.09.017> IF 4.143
- Amélineau, F., Grémillet, D., Bonnet, D., Le Bot, T., and Fort, J. 2016. Where to forage in the absence of sea ice? Bathymetry as a key factor for an Arctic seabird. *PLoS ONE* 11: e0157764. <http://dx.doi.org/10.1371/journal.pone.0157764> IF 3.234
- Ament, J.M., Moore, C.A., Herbst, M., and Cumming, G.S. 2016. Cultural ecosystem services in protected areas: understanding bundles, trade-offs and synergies. *Conservation Letters*. <http://dx.doi.org/10.1111/conl.12283> IF 7.241
- Ament, J.M., and Cumming, G.S. 2016. Scale dependency in effectiveness, isolation, and social-ecological spillover of protected areas. *Conservation Biology* 30: 846-855. <http://dx.doi.org/10.1111/cobi.12673> IF 4.165
- Ball, A.D., van Dijk, R.E., Lloyd, P., Pogány, Á., Dawson, D.A., Dorus, S., Bowie, R.C.K., Burke, T., and Székely, T. 2016. Levels of extra-pair paternity are associated with parental care in penduline tits (Remizidae). *Ibis*. <http://dx.doi.org/10.1111/ibi.12446> IF 1.921
- Barnard, P., Altwegg, R., Ebrahim, I., and Underhill, L.G. 2016. Early warning systems for biodiversity in southern Africa – How much can citizen science mitigate imperfect data? *Biological Conservation*. <http://dx.doi.org/10.1016/j.biocon.2016.09.011> IF 3.762
- Becker, P.H., Goutner, V., Ryan, P.G., and González-Solís, J. 2016. Feathery mercury combinations in Southern Ocean seabirds: variation by species, site and time. *Environmental Pollution* 216: 253-263. <http://dx.doi.org/10.1016/j.envpol.2016.05.061> IF 4.143
- Benítez-López, A., Viñuela, J., Mougeot, F., and García, J.T. 2016. A multi-scale approach for identifying conservation needs of two threatened sympatric steppe birds. *Biodiversity Conservation*. <http://dx.doi.org/10.1007/s10531-016-1222-7> IF 2.365

- Bolopo, D., Canestrari, D., Martínez, J.G., Roldan, M., Macías-Sanchez, E., Vila, M., Soler, M., and Baglione, V. 2016. Flexible mating patterns in an obligate brood parasite. *Ibis* 159: 103-112. <http://dx.doi.org/10.1111/ibi.12429> IF 1.921
- Bond, A.L., McClelland, G.T.W., Ryan, P.G., and Glass, T. 2016. Using measurements to predict laying order in harvested Northern Rockhopper Penguin (*Eudyptes moseleyi*) eggs. *Emu*. <http://dx.doi.org/10.1071/MU16027> IF 1.107
- Bowie, R.C.K., Fjeldså, J., Kiure, J., and Kristensen, J.B. 2016. A new member of the greater double-collared sunbird complex (Passeriformes: Nectariniidae) from the Eastern Arc mountains of Africa. *Zootaxa* 4175: 023-042. <http://dx.doi.org/10.11646/zootaxa.4175.1.3> IF 0.906
- Bowker, J. 2016. Effectiveness of Africa's tropical protected areas for maintaining forest cover. *Conservation Biology*. <http://dx.doi.org/10.1111/cobi.12851> IF 4.165
- Cáceres, A., Melo, M., Barlow, J., and Mills, M.S.L. 2016. Radiotelemetry reveals key data for the conservation of *Sheppardia gabela* (Rand, 1957) in the Angolan Escarpment forest. *African Journal of Ecology*. <http://dx.doi.org/10.1111/aje.12283> IF 0.824
- Chambers, L.E., Barnard, P., Poloczanska, E.S., Hobday, A.J., Keatley, M.R., Allsopp, N., and Underhill, L.G. 2016. Southern Hemisphere biodiversity and global change: data gaps and strategies. *Austral Ecology*. <http://dx.doi.org/10.1111/aec.12391> IF 1.837
- Clay, T.A., Manica, A., Ryan, P.G., Silk, J.R.D., Croxall, J.P., Ireland, L., and Phillips, R.A. 2016. Proximate drivers of spatial segregation in non-breeding albatrosses. *Scientific Reports* 6: 29932. <http://dx.doi.org/10.1038/srep29932> IF 5.578
- Clements, H.S., and Cumming, G.S. 2016. Positives and pathologies of natural resource management on private land conservation areas. *Conservation Biology*. <http://dx.doi.org/10.1111/cobi.12864> IF 4.165
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