

## CURRICULUM VITAE

NAME: Leslie Gordon Underhill  
DATE OF BIRTH: 22 November 1946  
PLACE OF BIRTH: Cape Town, South Africa  
NATIONALITY: South African  
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University of Cape Town  
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ORCID ID 0000-0002-8758-1527

MARITAL STATUS: Widower; married 1978–2016, two daughters, born 1981 and 1983

EDUCATION: 1953–1959 Pinelands Primary School, Pinelands, Cape Town  
1960–1964 South African College High School, Newlands, Cape Town

1966–1973 University of Cape Town, degrees as follows:

1966–1968 BSc with distinctions in Mathematical Statistics and Mathematics, and the degree with distinction

1969 BSc (Hons) first class, in Mathematics

1971 MSc with distinction, in Operations Research

1973 PhD, in Mathematical Statistics

AWARDS: 1966–1968 UCT Entrance Scholarship  
1969 University Council Scholarship  
1971 Queen Victoria Scholarship  
1989 Vera Davies Scholarship  
\*1999 Herschell Gold Medal of Royal Society of South Africa

1999 Endangered Wildlife Trust Top Ten Conservationist Award for 1999

2000 Mazda Wildlife Fund Top Ten Conservationist of the Decade Award

2001 SANCOR Marine and Coastal Communicator of the Year Award

\*2002 SANCOR Gilchrist Memorial Medal for contributions to marine science

2003 Fellow of the University of Cape Town

2003 Owl Award, BirdLife South Africa

2003 Fellow of the Royal Society of South Africa

2004 Presidents' Special Award, Wildlife and Environment Society of South Africa

2006 Honorary Fellow of the American Ornithologists' Union

\*2012 Oppenheimer Memorial Fellowship

2014 Individual Award, Wildlife and Environment Society of South Africa

\*2017 Gill Memorial Medal for a lifetime of outstanding service to ornithology, BirdLife South Africa

\*2019 Molteno Gold Medal of the Cape 300 Foundation for lifetime services to statistics and ornithology.

\* awards with gold medals.

EXPERIENCE: Posts in the Department of Mathematical Statistics/Statistical Sciences at the University of Cape Town:

1970 Temporary Lecturer

1972–1977 Lecturer

1977–1982 Senior Lecturer (*ad hominem* promotion)

1982–1992 Associate Professor

1992– 2011 Professor of Avian Demography in the Department of Statistical Sciences (*ad hominem* promotion), transferred to Department of Zoology in 2008, which become Department of Biological Sciences in 2013

2012– Senior Research Scholar, Department of Biological Sciences (four three-year appointments)

Managerial positions at the University of Cape Town

1985–1991 Head of Department of Mathematical Statistics/Statistical Sciences

1991–2020 Director, Animal Demography Unit (which was known as the Avian Demography Unit until the end of 2007)

July–December 1993 Acting Head of Department of Statistical Sciences

Research experience at institutions abroad:

January–December 1975 Used Queen Victoria Scholarship awarded in 1971 to visit University of Adelaide, Australia, and University of Auckland, New Zealand

July 1979–June 1980 Study and research leave at University of Sheffield, England

December 1984–July 1985 Study and research leave at Rothamsted Experimental Station, Harpenden, England

January–December 1989 Study and research leave at the Institute for Arable Crops Research, Rothamsted Experimental Station, Harpenden, England

January–December 1992 Statistical consultant, Schweizerische Vogelwarte (Swiss Ornithological Institute), Sempach, Luzern, Switzerland

RESEARCH INTERESTS:

My formal training is in statistics, and my PhD in 1973 was in abstract multivariate analysis. It is more than four decades since I graduated – and solved a problem that no one has ever had, or is ever likely to have. I rebelled against abstract mathematical statistics within two years of completing my PhD, and retrained myself as an applied statistician, with the objective of solving some of the quantitative problems of the real world. I focused on graphical display techniques for data matrices and on developing statistical models for specific problems for which existing methods were inadequate. I steadily narrowed the field of interest to applications of statistics in ornithology and ecology. Mainly through working with biologists, I developed a research interest in ornithology, especially the population dynamics and life histories of seabirds and shorebirds. In general, applied statisticians are prisoners to the datasets collected by others; I have discovered that I can motivate the fieldwork to collect the types of data which I take an interest in analyzing.

Although I remain firmly rooted in my quantitative base in statistics, I now regard myself as an interdisciplinary scientist, and I particularly enjoy working at the interfaces between disciplines. The theatre in which much of this research takes place is

zoology/ecology, and primarily involves birds. My main interest lies in the interface between statistics and ornithology, but I also work at establishing and extending links between disciplines: some examples are between polymer physics and ornithology (rubber bands were field-tested on Robben Island's penguins, in collaboration with Professor Peter Barham, Department of Physics, University of Bristol); between stable isotopes and ornithology (the chick and family energetics research on shorebirds and gannets with doubly labelled water).

The overall red thread which runs through the overwhelming majority of my research is the concept of developing algorithms which enable other researchers to visualize the patterns in their data.

## POSTGRADUATE SUPERVISION:

### Completed postgraduate students

#### *Postdoctoral fellows*

**de Villiers, Marienne** 2001–2003. (PhD, University of Pretoria); supported by NRF

**Mukherjee, Aeshita** 2003–2004. (PhD, University of Gujarat, India); supported by UCT

**Mecenero, Silvia** 2005–2006. (PhD, University of Cape Town); supported by SAEON

**Bruinzeel, Leo** 2005–2006. (PhD, University of Groningen, the Netherlands); supported by UCT and the NRF

**Crane, Jonathan** 2006. (PhD, University of Glasgow, Scotland); supported by NRF

**Altwegg, Res** 2005–2008. (PhD, University of Zürich, Switzerland); supported by NRF, and the Swiss Science Research Foundation

**Parsons, Nola** 2007–2008 (PhD, University of Cape Town); supported by NRF

**Remisiewicz, Magda** 2008–2010 (PhD, University of Gdansk, Poland); supported by Claude Leon Foundation

**Bled, Florent** 2011–12 (PhD, University of Toulouse III, France); supported by NRF

**Ludynia, Katrin** 2008–13 (PhD, University of Kiel, Germany); supported by DAAD 2008, Claude Leon Foundation, 2009–11

**Steinfurth, Antje** 2009–13 (PhD, University of Kiel, Germany); supported by NRF, Leiden Conservation Trust, and the Earthwatch Institute  
**Gebresalassie, Fitsum** 2010–12 (PhD, Leon Foundation, 2011–2013 University of Berne, Switzerland); supported by BirdLife South Africa, 2010, Claude Leon Foundation  
**Hoffman, Tali** 2012–14 (PhD, University of Cape Town); supported by MammalMAP funding and the Mammal Research Institute, University of Pretoria  
**Sherley, Richard** 2011–14 (PhD, Bristol University, UK); supported by Marine Research Institute, UCT, and the Earthwatch Institute  
**Kohler, Sophie** 2012–14 (PhD, University of Reunion, France); supported by Claude Leon Foundation  
**Barshep, Yahkat** 2012–15 (PhD, University of Cape Town), supported by ACCESS  
**Hofmeyr, Sally** 2013–15 (PhD, University of Cape Town); supported by the University of Cape Town Research Committee, and entitled *Translational Research Communication*  
**Laver, Pete** 2017–18. (PhD, Virginia Polytechnic Institute and State University); Supported by the Claude Leon Foundation.

## PhDs

**Brandao, Anabela** 1998. A comparative study of stochastic models in biology. PhD, University of Cape Town

Let  $\hat{y}_i = \hat{\alpha} + \hat{\beta}t_i$  for birds that have not started moult. Then the first partial derivative of  $\ell_4$  with respect to  $\mu$  is given by

$$\begin{aligned} \frac{\partial \ell_4}{\partial \mu} &= \sum_{i=1}^I \left( \frac{-\phi\left(\frac{\alpha + \beta t_i}{\sigma_\epsilon}\right)}{\sigma_\epsilon \left(1 - \Phi\left(\frac{\alpha + \beta t_i}{\sigma_\epsilon}\right)\right)} + \frac{\phi\left(\frac{1 - (\alpha + \beta t_i)}{\sigma_\epsilon}\right)}{\sigma_\epsilon \Phi\left(\frac{1 - (\alpha + \beta t_i)}{\sigma_\epsilon}\right)} \right) \\ &\quad + \sum_{j=1}^J \left( \frac{y_j - (\alpha + \beta u_j)}{\sigma_\epsilon^2} + \frac{\phi\left(\frac{1 - (\alpha + \beta u_j)}{\sigma_\epsilon}\right)}{\sigma_\epsilon \Phi\left(\frac{1 - (\alpha + \beta u_j)}{\sigma_\epsilon}\right)} \right) \\ &= \sum_{i=1}^I \left( \frac{-1}{\sigma_\epsilon} h\left(\frac{\mu_i}{\sigma_\epsilon}\right) + \frac{1}{\sigma_\epsilon} f\left(\frac{1 - \mu_i}{\sigma_\epsilon}\right) \right) + \sum_{j=1}^J \left( \frac{y_j - (\alpha + \beta u_j)}{\sigma_\epsilon^2} + \frac{1}{\sigma_\epsilon} f\left(\frac{1 - \mu_j}{\sigma_\epsilon}\right) \right). \end{aligned}$$

Therefore

$$E\left[(y_i^* - \hat{y}_i) \mid y_i = 0; \hat{\alpha}, \hat{\beta}, \hat{\sigma}_\epsilon\right] = -\hat{\sigma}_\epsilon h\left(\frac{\hat{y}_i}{\hat{\sigma}_\epsilon}\right),$$

which implies that

$$E\left[y_i^* \mid y_i = 0; \hat{\alpha}, \hat{\beta}, \hat{\sigma}_\epsilon\right] = \hat{y}_i - \hat{\sigma}_\epsilon h\left(\frac{\hat{y}_i}{\hat{\sigma}_\epsilon}\right), \quad i = 1, 2, \dots, I.$$

The partial derivative of  $\ell_4$  with respect to  $\sigma_\epsilon$  is

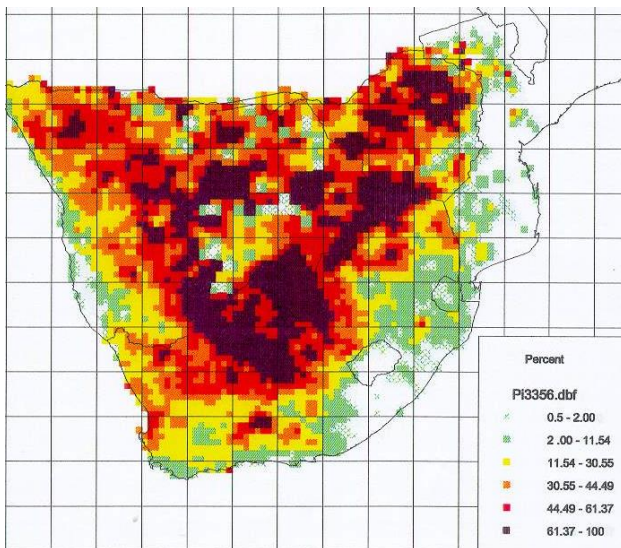
$$\begin{aligned} \frac{\partial \ell_4}{\partial \sigma_\epsilon} &= \sum_{i=1}^I \left( \frac{\alpha + \beta t_i}{\sigma_\epsilon^2} h\left(\frac{\mu_i}{\sigma_\epsilon}\right) + \frac{1 - (\alpha + \beta t_i)}{\sigma_\epsilon^2} f\left(\frac{1 - \mu_i}{\sigma_\epsilon}\right) \right) \\ &\quad + \sum_{j=1}^J \left( \frac{(y_j - (\alpha + \beta u_j))^2}{\sigma_\epsilon^3} + \frac{1 - (\alpha + \beta u_j)}{\sigma_\epsilon^2} f\left(\frac{1 - \mu_j}{\sigma_\epsilon}\right) - \frac{1}{\sigma_\epsilon} \right). \end{aligned}$$



**Serra, Lorenzo** 2002. Cold winters vs. long journeys: adaptations of primary moult and body mass to migration and wintering in the Grey Plover *Pluvialis squatarola*. PhD, University of Cape Town



**Whittington, Phil A** 2002. Survival and movements of African Penguins, especially after oiling. PhD, University of Cape Town



**Little, Francesca** 2003. The smooth is better than the rough: an exploitation of reporting rate information in southern African bird atlas data. PhD, University of Cape Town

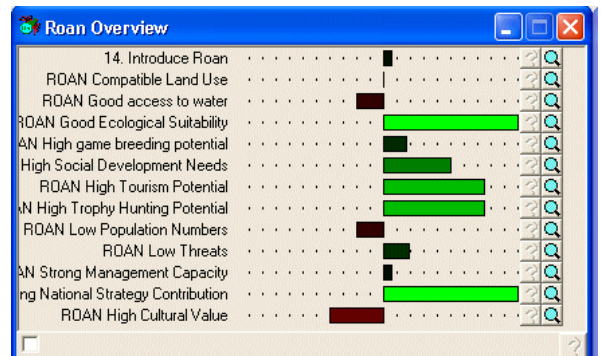


**Mecenero, Silvia** 2005. The diet of the Cape Fur Seal *Arctocephalus pusillus pusillus* in Namibia: variability and fisheries interaction. PhD, University of Cape Town



**Oschadleus, H Dieter** 2005. Patterns of primary moult in the weavers, Ploceidae. PhD, University of Cape Town

**Paterson, Barbara** 2005. A transdisciplinary study on developing knowledge based software tools for wildlife management in Namibia. PhD, University of Cape Town



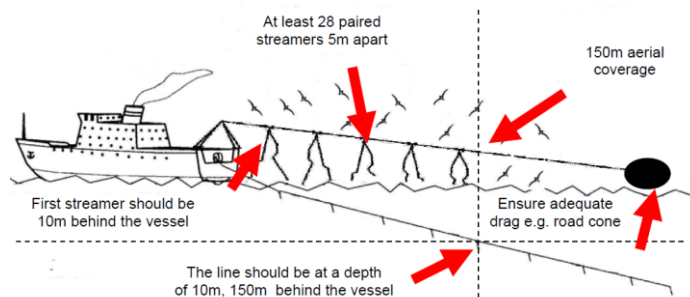
**Kemper, Jessica** 2006. Heading towards extinction? Demography of the African Penguin in Namibia. PhD, University of Cape Town

**Parsons, Nola J** 2006. Quantifying abundance, breeding and behaviour of the African Black Oystercatcher *Haematopus moquini*. PhD, University of Cape Town



**Tjørve, Kathy MC** 2006. From an egg to a fledgling: perspectives on shorebird breeding ecology and chick energetics. PhD, University of Groningen

**Wolfaardt, Anton C** 2007. The effects of oiling and rehabilitation on the breeding productivity and annual moult and breeding cycles of African Penguins. PhD, University of Cape Town



**Petersen, Samantha L** 2008. Long-line fishing interactions with seabirds, turtles and sharks: evaluation, mitigation and recommendations. PhD, University of Cape Town

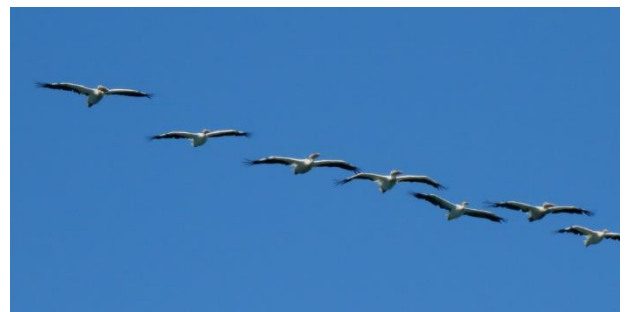


**Makhado, Newi** 2009. Investigation of the impact of fur seals on the conservation status of seabirds at islands off South Africa and at the Prince Edward Islands. PhD, University of Cape Town



**Wheeler, Mari ette** 2009. Effects of human disturbance on the seabirds and seals at sub-Antarctic Marion Island. PhD, University of Cape Town

**de Ponte Machado, Marta** 2010. Study of Great White Pelicans in southern Africa: feeding ecology, predation, migration and conservation. PhD, University of Cape Town



**Kirkman, Stephen P** 2010. The Cape Fur Seal: monitoring and management in the Benguela Current Ecosystem. PhD, University of Cape Town

**Navarro, Rene A** 2010. Energy budget and foraging behaviour of the Cape Gannet *Morus capensis* during the breeding season. PhD, University of Cape Town



$$\hat{\beta} = (\mathbf{X}^T \mathbf{X})^{-1} \mathbf{X}^T \mathbf{y} = \mathbf{V} \mathbf{D}_\alpha^{-1} \mathbf{U}^T \mathbf{y}$$

We can express the  $j$ th regression coefficient as

$$\begin{aligned} \hat{\beta}_j &= \sum_{i=1}^n \sum_{k=1}^m \frac{v_{jk} u_{ik} y_i}{\alpha_k} \\ &= \sum_{k=1}^m \frac{v_{jk}}{\alpha_k} \left[ \sum_{i=1}^n u_{ik} y_i \right] \\ &= \sum_{i=1}^n y_i \left[ \sum_{k=1}^m \frac{v_{jk} u_{ik}}{\alpha_k} \right] \end{aligned}$$

**Sherley, Richard** 2010. Factors influencing the demography of endangered seabirds at Robben Island, South Africa: Implications and approaches for management and conservation. PhD, University of Bristol



**Ramaboa, Kutlwano KKM** 2010. Contributions to linear regression diagnostics using the singular value decomposition: measures to identify outlying observations, influential observations and collinearity in multivariate data. PhD, University of Cape Town



**Barshep, Yahkat** 2011. Migration and moult strategies of the Curlew Sandpiper. PhD, University of Cape Town

**Braby, Justine** 2011. The biology and conservation of the Damara Tern in Namibia. PhD, University of Cape Town



**Waller, Lauren J** 2011. The African Penguin *Spheniscus demersus*: conservation and management issues. PhD, University of Cape Town

**Harebottle, Doug M** 2012. Seasonality and abundance of waterbirds in the winter rainfall region of South Africa. PhD, University of Cape Town







**Hofmeyr, Sally** 2012. Conservation impacts of environmental change on populations of threatened large terrestrial bird species in South Africa. PhD, University of Cape Town

**Boast, Lorraine** 2014. Human-cheetah conflict on game ranches in Botswana: Exploring causes and mitigation options – Is coexistence possible? PhD, University of Cape Town



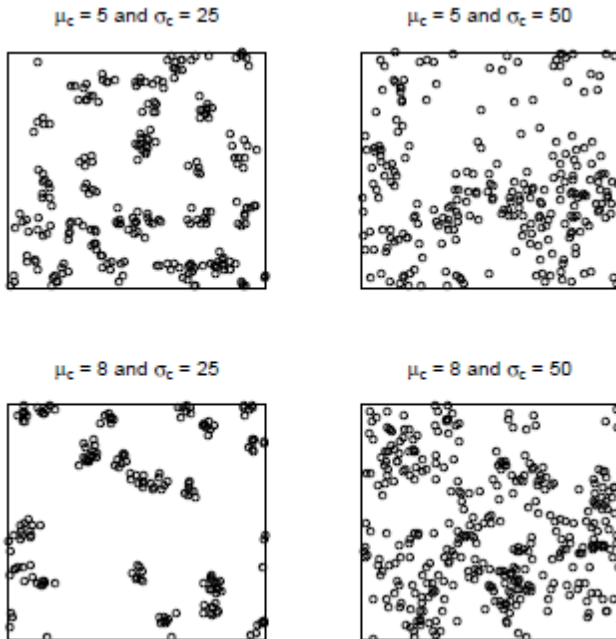
**Maphisa, David** 2015. Towards adaptive management of high altitude grasslands: Ingula as a case study. PhD, University of Cape Town





**Burman, Marc** 2016. Citizen science reveals complex changes in Barn Swallow phenology in South Africa over three decades. PhD, University of Cape Town

**Campbell, Kate** 2016. Factors influencing the foraging behaviour of African Penguins *Spheniscus demersus* provisioning chicks at Robben Island, South Africa. PhD, University of Cape Town



**Distiller, Greg** 2016. A continuous time formulation for spatial capture-recapture models. PhD, University of Cape Town



**Murgatroyd, Meg** 2016. The effects of land-use on the diet and hunting habits of the Verreaux's Eagle *Aquila verreauxii*. PhD, University of Cape Town

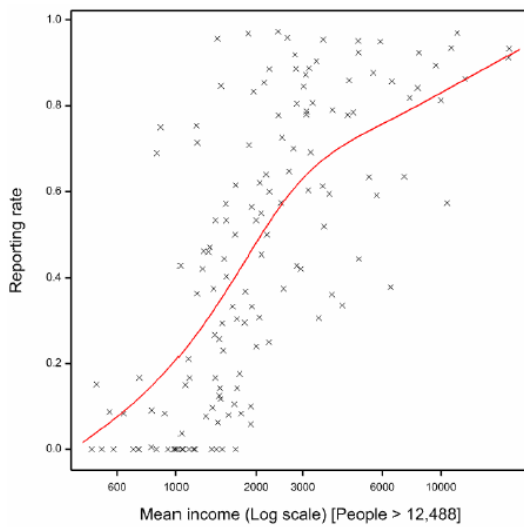


**Jackson, Colin** 2018. The moult and migration strategies of Lesser Sand Plover, Greater Sand Plover and Terek Sandpiper. PhD, University of Cape Town

**Loftie-Eaton, Megan** 2018. Woody cover and birds. PhD, University of Cape Town



**Nickless, Alecia** 2018. Regional CO<sub>2</sub> flux estimates for South Africa through inverse modelling. PhD, University of Cape Town



**Fig. 7.2:** Relationship between reporting rate of the Karoo Thrush and log of mean income of the human population in Greater Gauteng from pentads with people greater than 12,488.

**Wala, Zingfa** 2018. Birds and people: Studies based on citizen science and census data of Greater Gauteng, South Africa. PhD, University of Cape Town

**Bussiere, Elsa** 2019. Camera traps as sensor networks for space-time exploration of terrestrial mammal communities. PhD, University of Cape Town





**Brom, Peta** 2022. Monkey beetles on the beat: Urban monkey beetles reveal opportunities for pollinator habitat management in a South African city. PhD, University of Cape Town

*MSc by thesis*

**Mimmack, Gill M** 1979. An investigation into aspects of nonmetric multidimensional scaling. MSc, with distinction, University of Cape Town

**Basson, Marinelle** 1983. A simulation study of the effect of target motion on sighting estimates of Minke Whale population density. MSc, University of Cape Town

**Iloni, Karen** 1992. Biplot graphical display techniques. MSc, University of Cape Town

**Parker, Vincent** 1995. Statistical analysis of bird atlas data from Swaziland. MSc, University of Cape Town

**Erni, Birgit** 2000. Analysis of distribution maps from bird atlas data: dissimilarities between species, continuity within ranges and smoothing of distribution maps. MSc, University of Cape Town

**Anday, Tekie** 2005. Consistency of spatial and temporal size differences of gobies consumed by seals in the Benguela ecosystem. Dissertation component of MSc in Statistical Sciences, University of Cape Town

**le Roux, Janine** 2006. The Swift Tern *Sterna bergii* in southern Africa: growth and movement. MSc, University of Cape Town

**Staveres, Linda** 2006. Breeding productivity of Cape Gannets *Morus capensis* in relation to age. MSc, University of Cape Town

**McInnes, Alistair** 2007. Biology of the Grey-headed Gull *Larus cirrocephalus* in southern Africa. MSc, *cum laude*, University of KwaZulu-Natal

**Schultz, Albert** 2007. Patterns of avian haemosporidia in birds within the greater Cape Town area. MSc, University of Cape Town

**Hampton, Shannon** 2008. A preliminary investigation into effects of flipper banding on African Penguins *Spheniscus demersus*. MSc, University of Cape Town

- Houniet, Darren** 2008. Present and future distribution ranges of the Cape Dwarf Chameleon *Bradypodion pumilum*. MSc, University of Cape Town
- Ntirampeba, Dismas** 2008. Modelling growth patterns of bird species using non-linear mixed effects models. Dissertation component of MSc in Statistical Sciences, University of Cape Town
- Southey, Diane** 2009. Wildfires in the Cape Floristic Region: exploring vegetation and weather as drivers of fire frequency. MSc, with distinction, University of Cape Town
- Rousset, Thierry** 2011. 'Might is Right': A study of the Cape Town/Crozets Elephant Seal oil trade (1832–1869). MA, with distinction, University of Cape Town
- Duckworth, Greg** 2011. Population demography of the Hadedda Ibis on the edge of its expanding range. MSc, with distinction, University of Cape Town
- Mostert, Esther A** 2012. Prioritising bird species of special concern for monitoring and conservation action in protected areas. MSc, University of Cape Town
- Towner, Alison** 2012. The influence of environmental parameters on the fine scale movements of Great White Sharks *Carcharodon carcharias* in Gansbaai. MSc, University of Cape Town
- Wcisel, Michelle** 2013. The effects of White Shark presence on the behaviour of Cape Fur Seals at Geyser Rock, Gansbaai, South Africa. MSc, University of Cape Town
- Loftie-Eaton, Megan** 2014. Geographic range dynamics of South Africa's bird species. MSc, University of Cape Town
- Botha, Philna** 2014. The effects of prey availability on the endangered Bank Cormorant *Phalacrocorax neglectus*. MSc, University of Cape Town
- Meyer, Corlia** 2014. The endangered Bank Cormorant *Phalacrocorax neglectus*: the heat is on: Understanding the effect of climate change and associated environmental variable changes on the breeding biology and population dynamics of the Bank Cormorant in the Western Cape, South Africa. MSc, University of Cape Town
- Tol, Leanne** 2015. Factors impacting the breeding success of African Penguins *Spheniscus demersus* on Robben Island. MSc thesis, University of Cape Town
- Essig, Erica** 2016. Long-term population trends and habitat preferences of waders at Strandfontein Wastewater Treatment Works. MSc, University of Cape Town
- Brom, Peta** 2017. There might be a frog in McElligot's Pool: a study of the habitat characteristics and social factors associated with amphibian presence in urban residential gardens in a suburb in Cape Town. MPhil, University of Cape Town
- Scott, Tanya** 2018. Birds along a transect across KwaZulu-Natal: altitudinal preference and altitudinal migration. MSc, University of Cape Town.

**Waller, Lauren** 2000. The influence of landscape structure on species' distribution and abundance. MSc, University of Cape Town

**Hemming, Matthew** 2001. The *Treasure* oil spill and its influence on moulting African Penguins *Spheniscus demersus* at Robben Island. MSc, University of Cape Town

**Kabelo, Senyatso** 2004. Applicability of the IUCN Red List criteria at a regional level: A case study of birds in Botswana. MSc, University of Cape Town

**Schultz, Philippa** 2007. A foraging ecology study of the critically endangered Cape Vulture population of Namibia. MSc, with distinction, University of Cape Town

**Wright, Dale** 2011. Evaluating a citizen science research programme: understanding the people who make it possible. MSc, with distinction, University of Cape Town.

*Honours projects* (since 1996, Department of Statistical Sciences, unless otherwise stated)

**Erni, Birgit** 1996. Predicting the occurrence of bird species in southern African vegetation types, using logistic regression. BSc(Hons), University of Cape Town

**Maughan-Brown, Brendon** 1999. The distribution of birds in the south western Cape. BSc(Hons) Environmental and Geographical Science, University of Cape Town

**Pentz, Audrey** 2000. Seeking patterns of seasonality in seabird mortality. BBusSc, University of Cape Town

**Hlatswayo, Fikile** 2001. Estimating the stage of incubation of the African Penguin *Spheniscus demersus* eggs and breeding productivity. BCom(Hons), University of Cape Town

**Leverton, Bronwyn** 2002. The relationship between incubation period and chick growth rate in Kelp Gulls *Larus dominicanus*. BSc(Hons) Zoology, University of Cape Town

**Matanyaire, Sandra** 2002. Extrapolation and generation of the density function of egg laying days of the African Black Oystercatcher *Haematopus moquini*. BCom(Hons), University of Cape Town

**Ntirampeba, Dismas** 2003. The statistical calibration of electronic data logger scales. BSc(Hons), University of Cape Town

**Petersen, Samantha L** 2003. Population dynamics of the Northern Giant Petrel *Macronectes halli* and the Southern Giant Petrel *M. giganteus* on sub-Antarctic Marion Island. BSc(Hons) Zoology, University of Cape Town

**Edwards, Janet** 2004. Impacts of feral cat predation on nest success of Hartlaub's Gulls *Larus hartlaubii* on Robben Island. BSc(Hons) Zoology



**Shaw, Tracy R** 2005. The highways and byways of the African Penguin *Spheniscus demersus* on Robben Island. BSc(Hons) Zoology, University of Pretoria

**Lubbe, Alwyn** 2008. Condition indices for African Penguins. BSc(Hons) Zoology

**De Abreu, Petra** 2009. African Penguin (*Spheniscus demersus*) foraging complexities associated with chick food demand and growth at the coastal islands of Algoa Bay, South Africa. BSc(Hons) Zoology

**Galada, Yolokazi** 2011. A comparative investigation of annual cycles of four penguin species on sub-Antarctic Marion Island in 2010/11. BSc(Hons) Zoology

**Calder, Jordan-Laine** 2012. Long-term impacts of oiling. BSc(Hons) Zoology

**Roberts, Jennifer** 2012. Bank Cormorant conservation research: measurement of operative temperature. BSc(Hons) Zoology

**Spiby, Jacky** 2012. Long-term trends in African Black Oystercatcher biology on Robben Island. BSc(Hons) Zoology

**Opperman, Megan** 2015. Animal Demography Unit on Facebook. Fourth year project, Statistics specialization, BBusSc.

#### *MSc students from European universities*

These students do one or more substantive projects as part of their MSc studies. The duration of each project is six months to one year. In each case, I cosupervised the second project. At the University of Groningen, this was done in collaboration with the late Professor Henk Visser, who had a chair of behavioural energetics in the Biological Institute. At the University of Wageningen, the collaboration is with Dr Fred de Boer.

**Bakker, Trineke** 2003–2004. Prefledging energetics of Kelp Gull *Larus dominicanus* chicks. MSc, University of Groningen, The Netherlands

**Mullers, Ralf** 2003–2004. Growth of Cape Gannet *Morus capensis* chicks on Malgas Island, Western Cape. MSc, University of Groningen, The Netherlands

**Bouwhuis, Sandra** 2004–2005. Prefledging energetics of the African Penguin *Spheniscus demersus*. MSc, University of Groningen, The Netherlands

**Perk, Martijn** 2004–2005. Feeding behaviour and chick growth in Cape Gannets, using the deuterium method. MSc, University of Groningen, The Netherlands

**Bijleveld, Allert** 2005–2006. Foraging decisions made by gannets using the diet sampling data. MSc, University of Groningen, The Netherlands

**van Schaik, Hanneke** 2008–2009. Impact of Elephants (*Loxodonta africana*) on bird diversity in southern Africa. MSc, University of Wageningen, The Netherlands

**Voorbergen, Anne** 2009–2010. Kelp Gull and Cape Fur Seal predation at Cape Cormorant colonies on Dyer Island, South Africa. MSc, University of Wageningen, The Netherlands

**Bussiere, Elsa** 2011. Analyses of SABAP2 data. MSc, University of Nancy, France

**Bekker, Steven** 2015. Nest attendance of Verreaux's Eagles *Aquila verreauxii* breeding in contrasting habitats. MSc, University of Amsterdam, The Netherlands.

### **Current postgraduates**

#### *Postdoctoral fellows*

None in 2021

#### *PhD*

**Cottrant, Emy** Abundance, distribution, seasonality and conservation of the smaller sharks of the Western Cape. PhD, University of Cape Town (started 2021)

**Daniel, Karis** The scientific and socio-cultural value of citizen science. PhD, University of Cape Town (upgraded 2021, MSc started 2019)

**Scott, Tanya** Primary moult strategies of birds globally. PhD, University of Cape Town (started 2020)

#### *MSc by thesis*

**Risi, Taylyn** Moult strategies of oystercatchers Haematopidae. MSc, University of Cape Town (started 2020)

**Seakamela Mdu** Colonisation of Vondeling Island, South Africa, by Cape Fur Seals *Arctocephalus pusillus pusillus*: its conservation and management implications. MSc, University of Cape Town (restarted 2021 after a lapse of more than a decade)

#### *Honours projects*

None in 2021

In addition, I have made major inputs into many other postgraduate projects in a variety of disciplines through providing statistical consultation

### PROFESSIONAL ACTIVITIES:

South African Statistical Association:

Member 1972–

Served on Executive Committee: 1986–1987 and 1987–1988

Elected Fellow of the Association: 1990

Fellow of Royal Statistical Society: 1985–1990

Royal Society of South Africa:

Member 1990–

Elected Fellow of the Society: 2003

Member of the British Ornithological Union: 1994–

BirdLife South Africa, formerly the Southern African Ornithological Society (SAOS), and its branch in Cape Town, the Cape Bird Club (CBC):

Member 1956–

Member of CBC Committee: 1976–1977

CBC Bird Ringing Organizer: 1976–1998

Member of CBC Atlas Committee: 1984–1989

Member of CBC Conservation Committee: 1988

Member of BirdLife South Africa Research Committee: 1989–2000

Member of BirdLife South Africa Publications Committee: 1993–1999

Member of Council of BirdLife South Africa: 1993–2015

Co-organiser, Eighth SAOS Thematic Symposium, Migration, Dispersal and Nomadism, Langebaan, September 1993: 1990–1993

Member, BirdLife South Africa Conservation Working Group: 1995–1998

Vice-Chairman, Council of BirdLife South Africa: 1997–2001

President, BirdLife South Africa: 2004–2007

Member, BirdLife South Africa Conservation Advisory Committee: 2009–2011

Project Director, (First) Southern African Bird Atlas Project (SABAP): 1989–1997

Project Director, South African Bird Ringing Unit (SAFRING): 1990–2017

Project Director, Coordinated Waterbird Counts (CWAC): 1991–2017

Project Director, Coordinated Avifaunal Roadcounts (CAR): 1992–2017

Member of Executive Committee, South African Section of BirdLife International (formerly International Council for Bird Preservation): 1993–1994

Project Director, Southern African Frog Atlas Project (SAFAP): 1995–2004

Project Director, Southern African Reptile Conservation Assessment (SARCA): 2005–2011

Project Director, Second Southern African Bird Atlas Project (SABAP2): 2007–2017

Project Director, Southern African Butterfly Conservation Assessment (SABCA): 2007–2011

Member, Advisory Board of the Percy FitzPatrick Institute of African Ornithology: 1999–2008

Department of Environmental Affairs and Tourism:

Member of the South African Ramsar Convention Working Group: 1991–1995

Member of the South African Bonn Convention Working Group: 1996  
Marine and Coastal Management Evaluation Committee: Consideration of candidates for possible translation to the Specialist Scientist Dispensation and for possible promotion within this dispensation: 1994, 2001

International Wader Study Group:

Member: 1980–2013

Member of Advisory Panel: 1989–1996

Organiser, Special Meeting of the International Wader Study Group, Cape Town, August 1998: 1996–1998

Member of Executive Committee: 1999–2013

Co-convenor, Oystercatcher Workshop, October 2007: 2006–2007

Founder member, Western Cape Wader Study Group: 1971–

Coordinator, midsummer and midwinter Langebaan Lagoon waterbird censuses: 1985–2000, 2013–2017

Project evaluation panel, Human Sciences Research Council: 1990–1999

Researcher evaluations, Foundation for Research Development: 1992–1999

Researcher evaluations, National Research Foundation: 2000–2010

Invited participant, European Science Foundation Scientific Network on European-African Songbird Migration, Technical Workshop on Field Methodology, first workshop, Bologna, Italy, February 1994, and third workshop, Sempach, Switzerland: February 1997

Advisor, South African Delegation to the Fourth Meeting of the Conference of the Parties to the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), Nairobi, Kenya: June 1994

International Ornithological Congress:

Co-convenor (with Dr Pertti Saurola, Finland) of Round Table Discussion, The changing role of bird ringing. 21st International Ornithological Congress, Vienna: August 1994

Member of National Committee for 22nd International Ornithological Congress, Durban, South Africa: 1993–1998

Member of Scientific Programme Committee for 22nd International Ornithological Congress, August 1998, Durban: 1994–1998

Plenary speaker, 22nd International Ornithological Congress. Durban: August 1998

Co-convenor (with Dr Luc Lens, Belgium) of Round Table Discussion, An inventory of ornithological research in Africa. 22nd International Ornithological Congress, Durban: August 1998

Elected to International Ornithological Committee: August 1998

Co-convenor (with Dr Lorenzo Serra, Italy) of Symposium, New directions in avian moult ecology. 23rd International Ornithological Congress, Beijing: August 2002

Co-convenor (with Dr Barbara Helm, Germany) of Symposium, Coping with seasonal challenges: the role and regulation of moult. 24th International Ornithological Congress, Hamburg, Germany: August 2006

Elected Vice-President of International Ornithological Committee: 2006–2010

Project evaluations, The Green Trust: 1995, 2000

Co-manager (with Rene Navarro) of WADERS-L listserver: 1996–

Pan-African Ornithological Congress:

Elected member for southern Africa, Committee of the Pan-African Ornithological Congress: 1996–2004

Member of Scientific Programme Committee for 10th Pan-African Ornithological Congress, September 2000, Kampala, Uganda: 1996–2000

Member of Scientific Programme Committee for 11th Pan-African Ornithological Congress, November 2004, Tunisia: 2000–2004

Chair, Local Organising Committee for 12th Pan-African Ornithological Congress, September 2008, Goudini Spa, South Africa: 2007–2008

Invited Plenary Speaker 13th Pan-African Ornithological Congress, August 2012, Arusha, Tanzania

Invited participant. Willem Barents Memorial Arctic Conservation Symposium, Moscow: March 1998

Co-convenor (with Dr David Thomson, the Netherlands) of Symposium on Survival Studies. International Conference, Bird Ringing at 100 Years: Results and Perspectives of Bird Ringing. Helgoland, Germany: October 1999

Chairman of the Scientific Symposium. Sixth Meeting of the Conference of the Parties to the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), Somerset West, Cape Town: November 1999

Plenary speaker. 14th International Conference of the European Bird Census Council, Hungary: March 2001



Principal Investigator. Earthwatch Institute Project, South African Penguins: 2001–

External Examiner. Department of Statistics, University of Namibia, Windhoek: 2001–2004

Trustee. Middelpunt Wetland Trust: 2001–2012

Member of Board of Directors. Southern African Foundation for the Conservation of Coastal Birds (SANCCOB): 2001–2010

Member. Technical Steering Committee of the Global Gap Analysis Project of Conservation International, “Building Comprehensive Protected Area Systems”, in preparation for the World Parks Congress, Durban, held at National Center for Ecological Analysis and Synthesis, University of California, Santa Barbara, USA: March 2003

Convenor of Symposium, The energetics of breeding in precocial waders. Fourth Conference of the European Ornithologists’ Union, Chemnitz, Germany: August 2003

Chair, Scientific and Programme Committee. Waterbirds around the World Conference, Edinburgh, Scotland: April 2004

Member. Dyer Island Committee, CapeNature: 2004–2006

Member. Steering Committee, Benguela Current Large Marine Ecosystem (BCLME) Project, “Top Predators as Biological Indicators of Ecosystem Change in the BCLME”: 2004–2007

Evaluation Panel, Northern Cape. Consideration of candidate for translation to the Specialist Scientist Dispensation: 2004

Co-convenor of Symposium, Using trace element analysis of feathers to determine migration patterns. Fifth Conference of the European Ornithologists’ Union, Strasbourg, France: August 2005

Trustee. Dyer Island Conservation Trust: 2005–2015

Co-recipient, with Dr Magda Remisiewicz, University of Gdańsk, Poland, of a grant in terms of the South Africa-Poland Science Agreement, award by the NRF in South Africa and the Ministry of Science and Higher Education in Poland: 2007

Co-recipient, with Professor Wlodek Meissner, University of Gdańsk, Poland, of a grant in terms of the South Africa-Poland Science Agreement, award by the NRF in South Africa and the Ministry of Science and Higher Education in Poland: 2009–2011

Trustee, Cape Leopard Trust: 2011–2013

Co-recipient, with Professor Fernanda Lages, Instituto Superior de Ciências de Educação da Huíla, Lubango, Angola, of a grant in terms of the South Africa-Angola Science Agreement, award by the NRF in South Africa and the Ministry of Science in Angola: 2013–2014

Co-recipient, with Dr Magda Remisiewicz, Bird Migration Research Station, University of Gdańsk, Poland, of a grant in terms of the South Africa-Poland

Science Agreement, award by the NRF in South Africa and the Ministry of Science and Higher Education in Poland: 2017–2019

Director, Biodiversity and Development Institute: 2018–

#### EDITORIAL ACTIVITIES:

Editor, *BLSA Guides*, formerly *Southern Birds*: 1993–1999

Editor, *The Atlas of Southern African Birds*: 1990–1997

Associate Editor, *Ibis*: 1998–1999

Editorial board, *Journal of Applied Ecology*: 1996–2000

Editorial board, *Waterbirds*: 1999–2000

Editor, *Bright Continent Guides*: 1999–2002

Editorial board, *African Journal of Marine Science*: 2001–

Editorial board, *Journal of Ornithology*, 2003–2010

Representative for Africa, *Wader Study Group Bulletin*: 2002–2008

Editorial board, *Wader Study Group Bulletin: the Journal of Shorebird Research*: 2008–

Editor, *The Annual Cycle of the Curlew Sandpiper* *Calidris ferruginea*.  
*International Wader Studies* 1998–2006

Editor, *Endangered Species Research*: 2008–

Editor, *Conservation Assessments of the World's Oystercatchers*. *International Wader Studies* 2007–2011

Referee for

*African Journal of Marine Science/South African Journal of Marine Science*

*African Zoology*

*Animal Conservation*

*Ardea*

*Auk*

*Biological Conservation*

*Biological Journal of the Linnaean Society*

*Biometrics*

*Biometrika*

*Bird Conservation International*

*Bird Study*

*Condor*

*Cormorant/Marine Ornithology*

*Cimbabesia*

*Diversity and Distributions*

*Emu*

*Environmental and Ecological Statistics*  
*European Journal of Operations Research*  
*Frontiers in Evolution and Ecology*  
*Gabar*  
*Ibis*  
*International Whaling Commission*  
*Journal of Agricultural, Biological and Environmental Statistics*  
*Journal of Agricultural Science*  
*Journal of Applied Ecology*  
*Journal of Applied Statistics*  
*Journal of Avian Biology*  
*Journal of Cetacean Research and Management*  
*Journal für Ornithologie/Journal of Ornithology*  
*Journal of Zoology, London*  
*Madoqua*  
*Marine Ecology Progress Series*  
*Ostrich*  
*Physiological Zoology*  
*Polar Biology*  
*Psychometrika*  
*Safring News/Afring News*  
*South African Journal of Science*  
*South African Journal of Wildlife Research*  
*South African Medical Journal*  
*South African Statistical Journal*  
*Wader Study Group Bulletin*  
*Water SA*  
*Wildfowl*  
*Wilson Bulletin*

#### EXPEDITIONS:

- 1976–1977 and 1978, Western Cape Wader Study Group Namibia Expeditions
- 1978–1979, Western Cape Wader Study Group Eastern Cape Expedition  
(Organiser)
- 1980–1981, Western Cape Wader Study Group Western and Southern Cape Expedition (Co-organiser)
- 1985, Tay Ringing Group Shetland Expedition: wader survey for BTO Winter Shorebird Count, UK
- 1991, Russian Academy of Sciences International Arctic Expedition to Taimyr Peninsula, Siberia, Russia

- 1995–1996, Avian Demography Unit Northwestern South Africa Expedition (Co-organiser)
- 2001, Prince Edward Islands Millennium Expedition (Scientist-in-Charge, Prince Edward Island)
- 2002, Pristine Wilderness? Unravelling the Riddles of the Siberian High Arctic Tundra Ecosystem with Special Reference to Reserve Management, Local Awareness and Ecotourism. Pilot Expedition, Piasina Delta, Taimyr Peninsula, Russia

#### OTHER RELEVANT ACTIVITIES:

- Student advisor, Faculty of Science: 1981–1985
- Author of introductory textbooks (*IntroSTAT* and *ComMATH*)
- Extensive involvement in statistical consultation
- Consultant, UCT Statistical Consultation Service
- Statistical consultant, Benguela Ecology Programme: 1988–1991
- Statistical consultant, Island Liaison Research Committee: 1990
- Statistical consultant, Marine and Coastal Management: 1993–1998
- Member, Academic Support Programme Admissions Committee, Faculty of Commerce: 1988
- Member, Academic Planning Committee, University of Cape Town: 1991
- Member, Stony Point Advisory Committee, Kleinmond-Hangklip Municipality (dealt with Stony Point African Penguin colony issues): 1994–1999
- Expert witness for Cape Town City Council in Supreme Court case: Daniel Muller vs Stadsraad van Kaapstad: 1994–1995
- Member, UCT Faculty of Science *Ad hominem* Promotions Committee: 1994–1996
- Coordinator, SAFRING Ringers' Training Course, Witsand Nature Reserve, Northern Cape: 2000
- Co-leader, SAFRING Ringers' Training Course, Lamberts Bay, Western Cape: 2001
- Member, Review Panel, Dyer Island Ecotourism Outsourcing Proposal Review, Western Cape Nature Conservation Board: 2002

#### PUBLICATIONS

See separate list.