



# Biodiversity Observations

<http://bo.adu.org.za>

biodiversity  
observations



An electronic journal published by the Animal Demography Unit at the University of Cape Town

The scope of Biodiversity Observations consists of papers describing observations about biodiversity in general, including animals, plants, algae and fungi. This includes observations of behaviour, breeding and flowering patterns, distributions and range extensions, foraging, food, movement, measurements, habitat and colouration/plumage variations. Biotic interactions such as pollination, fruit dispersal, herbivory and predation fall within the scope, as well as the use of indigenous and exotic species by humans. Observations of naturalised plants and animals will also be considered. Biodiversity Observations will also publish a variety of other interesting or relevant biodiversity material: reports of projects and conferences, annotated checklists for a site or region, specialist bibliographies, book reviews and any other appropriate material. Further details and guidelines to authors are on this website.

Lead Editor: Arnold van der Westhuizen

---

## A CELEBRATION OF LONG-TERM INVOLVEMENT IN CITIZEN SCIENCE: THE ANIMAL DEMOGRAPHY UNIT'S BIODIVERSITY OBSERVER AWARDS

**Les Underhill, H Dieter Oschadleus, Michael Brooks, Rene Navarro and Sue Kuyper**

Recommended citation format:

**Underhill LG, Oschadleus HD, Brooks M, Navarro R, Kuyper S** 2016. A celebration of long-term involvement in citizen science: the Animal Demography Unit's Biodiversity Observer awards. *Biodiversity Observations* 7.85: 1–9

URL: <http://bo.adu.org.za/content.php?id=278>

Published online: 1 December 2016

## BIODIVERSITY OBSERVER AWARDS

### A CELEBRATION OF LONG-TERM INVOLVEMENT IN CITIZEN SCIENCE: THE ANIMAL DEMOGRAPHY UNIT'S BIODIVERSITY OBSERVER AWARDS

*Les G Underhill, H Dieter Oschadleus, Michael Brooks, Rene Navarro and Sue Kuyper*

Animal Demography Unit, Department of Biological Sciences,  
University of Cape Town, Rondebosch, 7701

Email for correspondence: [les.underhill@uct.ac.za](mailto:les.underhill@uct.ac.za)

#### INTRODUCTION

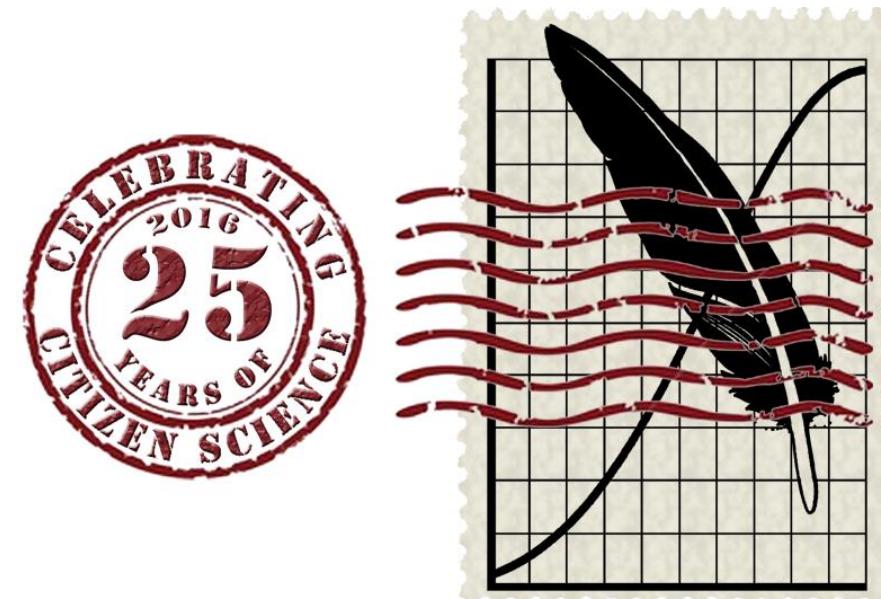
The contributions of every citizen scientist to the life of the Animal Demography Unit are celebrated. On 1 December 2016, the ADU had been in existence for 25 years. There is one area in which we have seriously failed. We have never thought to make any special mention of the citizen scientists who have made an especially amazing contribution to our projects. We have a list of at least one hundred people who have been the lifeblood of our projects. Here, we are celebrating the contributions of a subset of this longer list. We are making “Biodiversity Observer” awards to 31 citizen scientists for whom the phrases “long term contribution to projects” and “deep involvement in projects” have been the watchwords.

We will continue doing Biodiversity Observer awards over the next few months, until we have worked through the backlog. And then, the plan is to make awards in smaller numbers, at longer intervals, probably annually.

Inevitably, we will overlook people. If you would like to nominate someone to be a Biodiversity Observer, please send the person's name and short motivation (like the ones below) to explain why you think a Biodiversity Observer award is appropriate. Right now, if you feel we really ought to have given an award to someone whose contribution to the ADU is large, and extends over two decades or more, please send an email to [les.underhill@uct.ac.za](mailto:les.underhill@uct.ac.za).

We based these awards on qualitative rather than on any quantitative criteria. The bird ringers listed here have all been ringing for two decades, and have ringed at least 20,000 birds. We did not consider any staff of the Animal Demography Unit, past or present.

Thank you to everyone who has contributed information to the projects of the Animal Demography Unit over the past 25 years. Every piece of data helps our understanding of the jigsaw puzzle describing the patterns of biodiversity and how this is changing through time.



## BIODIVERSITY OBSERVERS

**Andre Marx:** Andre has been an advocate for ADU projects for many years. He has thought deeply about the projects from the perspective of the citizen scientist, and has made many helpful suggestions. He was involved as an atlaser during SABAP1, and has submitted 930 SABAP2 checklists. Together with Andy Featherstone he organized the first atlas “bash” to the Kuruman district of the Northern Cape in April 2010, an event which laid the foundation for dozens of similar events in subsequent years. He was involved in many of these. For SABAP2, he processes the Out of Range records for Gauteng and North West, and his knowledge of the birds of northern South Africa, and how their distributions are changing, has been harnessed for the bird atlas. He has also been involved in the CWAC project.

**Barry Taylor:** Barry has ringed and retrapped more than 34,000 birds in southern Africa, starting in 1988, and contributing a huge number of invaluable records to the SAFRING database. He has specialized in gathering data on the difficult-to-catch rails and crakes. Barry wrote a series of species texts for SABAP1, notably for the rails, crakes, flufftails, moorhens and the Red-knobbed Coot *Fulica cristata* (Harrison et al. 1997). He was lead author for the CWAC report, writing the texts for every waterbird species and every wetland (Taylor et al. 1999).

**Brian Colahan:** Brian has been deeply involved in fieldwork for both the first and the second bird atlases. He served on the Regional Atlas Committee for the Free State during SABAP1, and wrote species texts for several of the weavers and sparrows in SABAP1 (Harrison et al. 1997). He has submitted about 700 SABAP2 checklists, and it is largely due to Brian’s systematic and diligent fieldwork that coverage of the Free State’s 1850 pentads is at 100%. He has driven the CAR project in the three Free State Precinct ever since this started there in 1997, and he helped develop an intensive network of routes. He was a co-author of the CAR report, entitled *Big Birds on Farms* (Young et

al. 2003). He has also coordinated the CWAC project for decades. His passion for these projects has gone way beyond the call of duty.

**Brian Vanderwalt:** Brian has been a stalwart of the ADU for decades. He was an atlaser for SABAP1; he has continued into SABAP2 and has done 1,000 checklists for the new project. He has been involved in CWAC and CAR. He has been part of the large and difficult count at Langebaan Lagoon right back to the earliest survey in 1975. He has been a ringer, working hard as part of the ringing team of the Western Cape Wader Study Group for decades. He has encouraged participation in ADU projects at the Tygerberg Bird Club.

**Colin Summersgill:** Colin is one of a small handful of people who has been deeply involved in both SABAP1 and SABAP2. He was an active atlaser for both SABAP1 and SABAP2, he has submitted more than 900 checklists. He has served on the Regional Atlas Committee for KwaZulu-Natal for SABAP2, and is the person who verifies the Out of Range records for this province. He has contributed substantially to the ADU Virtual Museum. He has been a member of the expert panel for the BirdPix section of the ADU Virtual Museum, and has done the identifications of more than 12,000 records. He has been a great advocate for ADU projects in KwaZulu-Natal.

**Dave Johnson:** Dave has ringed more than 30,000 birds of 338 species, and started ringing in 1979. He was mostly active in KwaZulu-Natal. One of the places where he ringed systematically and regularly was at the Darvill Sewage Works in Pietermaritzburg, and these data have proved invaluable for studies of survival and



**COORDINATED AVIFAUNAL  
ROADCOUNT**

movement. He trained many ringers at this site. He was author of most of the flycatcher and batis texts in SABAP1 (Harrison et al. 1997).

**Dave Whitelaw:** Dave has been a key person in CAR in the Western Cape Precinct since the project started in 1993. He has participated in many CWAC surveys, and was one of the original team of counters for the Langebaan Lagoon CWAC, which began in 1975, and has participated in these surveys ever since. He has been a bird ringer, and focused mainly on ringing waders with the Western Cape Wader Study Group. He has played a big role in promoting ADU projects in the Cape Bird Club, especially through the club's Conservation Committee.

**Dawie de Swardt:** Dawie started bird ringing in 1986. He has ringed about 15,000 birds "only", largely because he has focused on catching "difficult" species. Sometimes a long hard day in the field, carrying his heavy ringing gear many kilometres up and down hill, was "rewarded" with a total catch of less than 10 birds. His ringing studies have, for example, contributed massively to our knowledge of the movements of Gurney's Sugarbird *Promerops gurneyi*. Besides contributing large numbers of checklists for SABAP1, he was chair of the Regional Atlas Committee for SABAP1 in the Free State (Harrison et al. 1997). He

wrote species text for Gurney's Sugarbird for SABAP1. His ongoing involvement in atlas studies has continued into SABAP2, with nearly 1,900 checklists submitted. He is currently involved in the processing of Out of Range records for both the Northern Cape and the Free State. In both provinces the ranges of many species are expanding, and this

vetting activity makes a massive contribution to SABAP2. He has been the most prolific author of papers in *Biodiversity Observations*, making 25 contributions, with papers in each of the seven volumes to date. His most recent paper demonstrates that the Common Peacock *Pavo cristatus* is not only feral on Robben Island, but also in Bloemfontein, in the Free State (de Swardt 2016). He has been an active participant in CAR in the Free State since the project started there in 1997. Dawie has submitted 1,441 records to the ADU Virtual Museum, with contributions to almost every section of the Virtual Museum, and 734 records to LepiMAP, the Atlas of African Lepidoptera.

**Dirk Heinrich:** Dirk has ringed and retrapped more than 40,000 birds since he started ringing in 1996, mainly in Namibia. Dirk has also publicised ringing and communicated its value and importance in the local media. He has ringed 348 species, the largest number of species within Namibia. His most ringed species is the Red-headed Finch *Amadina erythrocephala*, at 6,535 birds.

**Geoff Lockwood:** Geoff was a SABAP1 atlaser, and has also contributed nearly 1,000 checklists to SABAP2. He has served on the SABAP2 Steering Committee representing the citizen scientists. He has ringed about 6,000 birds, and has been active in ADU project promotion in many ways; examples are ringing demonstrations at the Delta Park Environmental Education Centre in Johannesburg, and active promotion of the bird atlas through a variety of media. He was a co-author of the SAFRING bird ringing manual (de Beer et al. 2000). He has recently started submitting photographs to the OrchidMAP section of the ADU Virtual Museum.

**Gerrie Grobler:** Gerrie has ringed and retrapped about 39,000 birds over several decades in southern Africa. He started ringing in the Free State in 1994, and he was involved in the large-scale ringing of Red-billed Queleas *Quelea quelea*. He has ringed 8,267 queleas. His species total is 346. Although he now lives in the UK, he visits South Africa regularly, and continues to contribute to the ringing effort in



different parts of the country. He has written articles about ringing, and the results of ringing, in the newsletters of bird clubs.

**Inès Cooke:** Based at the Somerset West Bird Club, Inès has played a key role in ADU project logistics on the Overberg side of the Western Cape. She participated in SABAP1, and was then involved in CAR right from the start of this project in the Overberg Precinct, in the early years as the “owner” of survey route she did every six months, and later on taking over the responsibility for being the coordinator for this pivotal precinct. She did many surveys of waterbirds for the CWAC project. Right from the launch of SABAP2 in 2007, Inès was a committed atlaser and did the first lists for many pentads in the Overberg district. She has done 507 SABAP2 checklists for 118 pentads,

**Japie Claassen:** Japie lives in Beaufort West and has made a disproportionate contribution to the projects of the Animal Demography Unit from there. He was deeply involved with SABAP1, and has contributed 1,900 checklists to SABAP2. He has encouraged a lot of people in the area to become birders and to participate in the atlas.

**John Robson:** John has ringed and retrapped more than 31,000 birds, starting in 1968. Initially he focused especially on ringing Barn Swallows *Hirundo rustica*. He has ringed an astonishing 25,251 Barn Swallows, mostly at Skimmerspruit in Pretoria. More recently his main interest has been in raptors. He has written papers in *Afring News*.

**Kevin Shaw:** Kevin has gone way beyond the call of official duties for, especially, the CWAC project. The record shows that he has been involved for 24 years, since the project started in 1992, and that he has been responsible for the submission of 211 wetland surveys to the CWAC database. He is also a bird ringer, and has atlased for both SABAP1 and SABAP2.

**Kobie Raijmakers:** Kobie has ringed 43,000 birds of 436 species and made 4,305 retraps since he started ringing in 1987. He has ringed 5,955 Red-headed Finches *Amadina erythrocephala*. Kobie has written many papers in *Afring News*, and trained many new ringers. He has co-authored, with his brother, a warbler identification guide (Raijmakers & Raijmakers no date). He was co-author of the SAFRING ringing manual (de Beer et al. 2000). Both publications have been immensely beneficial to ringers. He is currently working on an identification guide to the cisticolas. He was a large contributor of atlas checklists to SABAP1.

**Margaret McCall:** Margaret has ringed 33,000 birds of 174 species and retrapped 4,600 birds since she started ringing in 1994, mostly in the Swartland area of the Western Cape. Not surprisingly, her most ringed species is the Southern Red Bishop *Euplectes orix*. She established the ringing unit of the Tygerberg Bird Club. She has helped train new ringers and written regular ringing updates and reports in *The Kite*, the bird club’s newsletter.

**Mark Anderson:** Mark has been a major supporter of the ADU and its projects, both while he was the ornithologist based in Kimberley, and since his appointment as CEO of BirdLife South Africa. He wrote many



species texts for SABAP1, especially for the waterbirds. He was responsible for the initiation of both CWAC and CAR in the Northern Cape. He was co-author of the *Big Birds on Farms* report (Young et al. 2003). He has served on the Steering Committee of SABAP2 since this project's start in 2007, and has consistently promoted the project in presentations and talks, and especially radio interviews. He played a crucial role in initiating long-term ringing projects for the Sociable Weaver *Philetairus socius* and the White-backed Vulture *Gyps africanus*.

**Mark Boorman:** Starting in 1995, Mark has been ringing birds along the coastline of central Namibia. His SAFRING total is 23,000 birds, and he has targeted the ringing of terns in Namibia. His most ringed bird is the Common Tern *Sterna hirundo*, 9,426 of this species. He is a key and strategic contributor to the bird atlas in Namibia, having submitted 200 checklists mostly from the coastal region. Currently, he is helping SAFRING with data checking, especially for the terns and vultures.



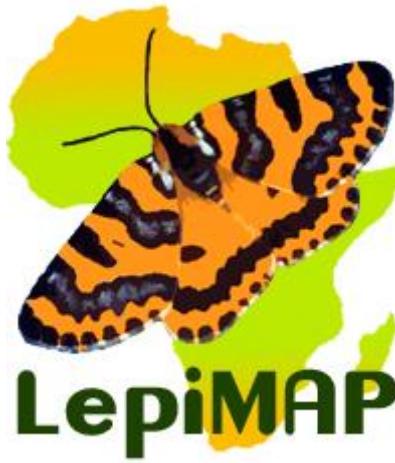
**Mark Brown:** Mark has ringed more than 25,000 birds of 376 species over nearly two decades in southern Africa. The fact that his most ringed species, Village Weaver *Ploceus cucullatus*, has only 1,578 ringed, points to the fact that he has handled a broad diversity of species, in multiple habitats. Before moving to Natures Valley, he played a leadership role in the regular ringing at the Darvill Sewage Works, Pietermaritzburg, and has helped train many new ringers.

He has written many papers related to the results of ringing. He contributes checklists to SABAP2.

**Peter Lawson:** Peter was deeply involved in data collection in SABAP1, especially for the Lowveld region. He has been one the major contributors of checklists to SABAP2 (1,400 cards), but his outstanding contribution to this project has been his leadership of the Turning Kruger Green initiative. This project was completed in November 2016, and resulted in every SABAP2 pentad within the Greater Kruger National Park having foundational coverage of at least four checklists. He was co-author of a paper in Biodiversity Observations which has become the first product emerging out of this database, an analysis of the impact of land-use legislation on birds comparing the bird communities of the former "homeland" of Gazankulu with the adjacent Kruger National Park (Underhill et al. 2016).

**Peter Nupen:** Peter has been involved for many years in a broad spectrum of ADU projects: the first bird atlas SABAP1, the waterbird surveys CWAC, the large birds in terrestrial landscapes project CAR and, especially, he has served on the Regional Atlas Committee for SABAP2 in the Western Cape. He has helped motivate birders to become atlasing, and enabled many people to get started with atlasing. He has coordinated several atlas bashes, including three to the Knarsvlakte in the northern end of the Western Cape, and one to the Murraysburg district, which targeted pentads in the Western, Eastern and Northern Cape Provinces. Peter is also a bird ringer.

**Rick Nuttall:** Rick has been deeply involved with ADU projects, since the ADU started. He was a SABAP1 atlaser. He was author of a substantial number of species texts for SABAP1: firefinches, mannikins and canaries. For SABAP2 he has been a member of the project's Steering Committee and an active atlaser. He helped Brian Colahan set up CAR routes in the Free State and has been an active participant in CAR since it started in the province in 1997. He has



Potchefstroom Ringing Group from Sam de Beer, and has helped train new ringers.

**Shonie Raimakers:** Shonie has ringed more than 30,000 birds of 399 species in southern Africa since he started ringing 1987, with 3,410 Southern Masked Weavers *Ploceus velatus* being his most ringed species. He co-authored the bird ringing manual (de Beer 2000), a guide which has been immensely useful to ringers, and has stood the test of time. He was co-author, with his brother, of the warbler identification guide (Raimakers & Raimakers no date).

**Stan Madden:** Within the ADU, the name Stan Madden is synonymous with waterbird surveys; in reality Stan has a deep passion for environmental conservation and has skills in communicating that passion. Stan has been a stalwart of CWAC, since the very beginning of the project in 1992. He took on the responsibility for organizing the waterbird surveys, summer and winter, at the most challenging series of wetlands of the Highveld, along the Blesbokspruit near Nigel and Springs in southwestern Gauteng. This is a Ramsar Wetland of International Importance, and one at which ongoing deterioration of

ringed 11,000 birds, and especially Barn Swallows at a roost near Bloemfontein. He has submitted 1,306 photographic records to the ADU Virtual Museum, focusing mainly on butterflies (803) and dragonflies and damselflies (388).

**Rita Marais:** Rita has ringed more than 33,000 birds since she started ringing in 1996. Her most-ringed species is Red-billed Quelea *Quelea quelea*, of which she has ringed 6,481 birds. She has taken over the leadership of the

wetland conditions has led to a decrease in the number of waterbirds. The surveys that Stan has coordinated have demonstrated this pattern, and have been influential in getting the issues heard and addressed in the corridors of power. The records show him to have collated and submitted 223 wetland surveys to the CWAC database.

**Tim Wood:** Tim was deeply involved in making checklists for SABAP1 and he is the top contributor to SABAP2, having submitted 3,144 checklists to the project, for 928 different pentads. Tim was also instrumental in helping set up the CAR routes in KwaZulu-Natal. He used the ADU projects as the platform to launch several bird clubs in the rural centres of this province. He has been a superb advocate for the projects of the ADU.

**Tony Tree:** Tony has ringed more than 45,000 birds over many decades in southern Africa, one of the largest one-person contributions to the database. The data from his decades in Zimbabwe are especially valuable. Tony specialised in ringing terns in recent decades, contributing to the knowledge of migration of these birds. In recent years he has teamed up with Dr Magda Remisiewicz, University of Gdańsk, Poland, and together they have unlocked important results out of this massive ringing effort (see, for example, Remisiewicz et al. 2014). Tony has written many papers for *Afring News* over many years. He was one of the editors of SABAP1, with special responsibility for making sure that the ornithological perspectives from Zimbabwe were embraced. He wrote species texts for the atlas, for many different families, and especially the waders and the sunbirds (Harrison et al. 1997). He was co-author of the review of waterbird ringing recoveries (Underhill et al. 1999). This was produced as part of South Africa's contribution to the Sixth Conference of the Parties of the Convention on the Conservation of Migratory Species of Wild Animals (popularly known as the "Bonn Convention") and the First Meeting of the Parties to the African-Eurasian Migratory Waterbird Agreement (usually called AEWA), meetings held in Cape Town.

**Vincent Parker:** Starting in 1985, Vincent atlased Swaziland almost single-handedly, covering much of the country on a bicycle (Parker 1994). This represented a major contribution to the SABAP1 database, turning Swaziland into the best atlased country of the six covered by that project. He then completed an MSc in the Animal Demography Unit, developing much of the statistical methods that were used to present data in SABAP1, for which he was one of the editors; he was also the author of many species texts, notably the shrikes (Parker 1995, Harrison et al. 1997). Under the auspices of the Endangered Wildlife Trust, but still linked onto the ADU for data support, he atlased, again almost single-handedly, southern and central Mozambique, producing baseline maps of bird distributions in that country at independence (Parker 1999, 2005). He is deeply involved in SABAP2, and for the past few years has been atlasing in the Northern Cape, self-supported. He has contributed 1,700 checklists to SABAP2. He has contributed a fascinating set of papers to *Biodiversity Observations*, the most recent of which deals with range changes of bird species in the Northern Cape (Parker 2016). He was also a co-author of the waterbird ringing review, discussed more fully in the paragraph for Tony Tree, above (Underhill et al. 1999).

**Ursula Franke-Bryson:** Ursula has ringed about 50,000 birds over nearly two decades in southern Africa, making an impressive contribution to the SAFRING database, especially generating data for Namibia. She has ringed 510 species, and her most ringed species is Lark-like Bunting *Emberiza impetuani*, with 11,336 birds ringed. She has written many interesting papers for both *Afring News* and *Biodiversity Observations*, including the remarkable first record of Pale-winged Starling *Onychognathus nabourou* building a nest in a tree rather than in a deep rock crevice (Franke 2013). She is contributor to the bird atlas project in Namibia, and has submitted 20 full-protocol checklists, and more than 900 ad hoc lists. For thinly populated countries such as Namibia, having a group of atlases who collect large numbers of ad hoc lists is extremely valuable, because it

enables the presence-absence distribution maps to be compiled rapidly (Underhill & Brooks 2016). Ursula is assisting with the checking of SAFRING data, also helps with the vetting of atlas records for Namibia.



#### Zephné Bernitz:

Together with her husband Hermann, Zephné has ringed more than 17,000 birds of 328 species. They started ringing in 1994. In particular, the primary focus has been on ringing raptors. Zephné has organised and undertaken the logistics at many national ringing workshops and conferences in South Africa, and served on the Steering Committee of SAFRING. She has also written papers which describe the results of ringing.

#### REFERENCES

**De Beer SJ, Lockwood GM, Raijmakers JHFA, Raijmakers JMH, Scott WA, Oschadleus HD, Underhill LG** 2000. SAFRING bird ringing manual. ADU Guide 5: 1–102. Animal Demography Unit, Cape Town.

**de Swardt DH** 2016. Feral population of Common Peacock *Pavo cristatus* breeding in Bloemfontein, Free State. *Biodiversity Observations* 7.56: 1–2. Available online at <http://bo.adu.org.za/content.php?id=249>

**Franke U** 2013. Pale-winged Starling *Onychognathus nabourou* building a nest in a Quiver Tree *Aloe dichotoma* in the Namibian

Plains. Ornithological Observations 4: 142–145. Available online at <http://bo.adu.org.za/content.php?id=100>

**Harrison JA, Allan DG, Underhill LG, Herremans M, Tree AJ, Parker V, Brown CJ** (eds) 1997. The atlas of southern African birds. Vol. 1: Non-passerines. Vol. 2: Passerines. Johannesburg: BirdLife South Africa

**Parker V** 1994. Swaziland bird atlas 1985–1991. Websters, Mbabane.

**Parker V** 1995. Statistical analysis of bird atlas data from Swaziland. MSc, University of Cape Town. Available online at [http://open.uct.ac.za/bitstream/handle/11427/20195/thesis\\_sci\\_1995\\_parker\\_vincent.pdf?sequence=1](http://open.uct.ac.za/bitstream/handle/11427/20195/thesis_sci_1995_parker_vincent.pdf?sequence=1)

**Parker V** 1999. The atlas of the birds of Sul do Save, southern Mozambique. Avian Demography Unit and Endangered Wildlife Trust, Cape Town and Johannesburg.

**Parker V** 2005. The atlas of the birds of central Mozambique. Endangered Wildlife Trust and Avian Demography Unit, Johannesburg and Cape Town.

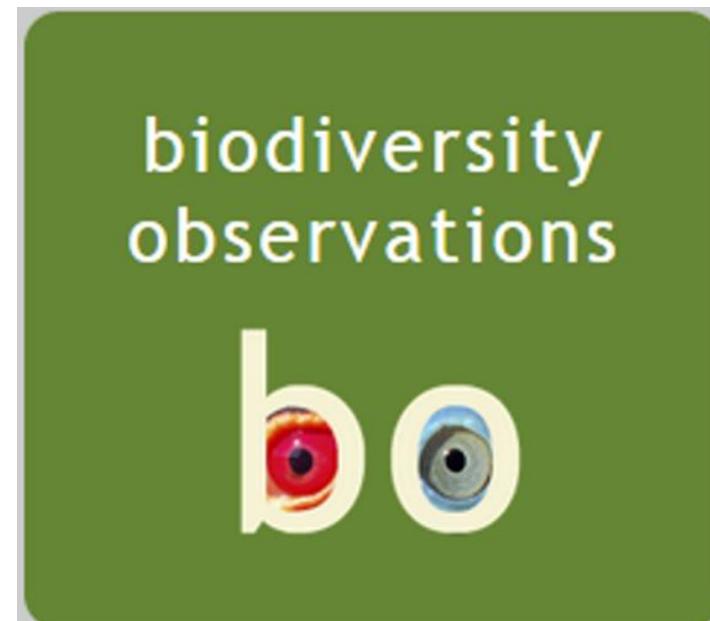
**Parker V** 2016. Range changes among bird species in the far Northern Cape. Biodiversity Observations 7.65: 1–13. Available online at <http://bo.adu.org.za/content.php?id=258>

**Raijmakers JMH, Raijmakers JHFA** no date. Identifying warblers in the hand. Available online at <http://safring.adu.org.za/downloads/raijmakerswarbleridver2.pdf>

**Remisiewicz M, Tree AJ, Underhill LG, Nowakowski JK** 2014. Geographical patterns in primary moult and body mass of Greenshank (*Tringa nebularia*) in southern Africa. Ardea 102: 31–46.

**Taylor PB, Navarro RA, Wren-Sargent M, Harrison JA, Kieswetter SL** 1999. TOTAL CWAC Report: Coordinated Waterbird Counts in South Africa, 1992–97. Avian Demography Unit, Cape Town.

**Underhill LG, Brooks M** 2016. The BirdMAP protocol: bird atlasing in Africa in regions where the observer network is thin. Biodiversity Observations 7.69: 1–5. Available online at <http://bo.adu.org.za/content.php?id=262>



**Underhill LG, Lawson P, Brooks M, da Cruz PR, Glasson A 2016.**  
The impact of political history on birds: A case study in north-eastern Mpumalanga, South Africa. *Biodiversity Observations* 7.68: 1–56.  
Available online at <http://bo.adu.org.za/content.php?id=261>

**Underhill LG, Tree AJ, Oschadleus HD, Parker V 1999.** Review of ring recoveries of waterbirds in southern Africa. Avian Demography Unit, Cape Town.

**Young DJ, Harrison JA, Navarro RA, Anderson MD, Colahan BD**  
2003. Big birds on farms: Mazda CAR report 1993–2001. Avian Demography Unit, Cape Town.

