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SHORT HISTORY OF ORNITHOLOGY IN SOUTH AFRICA

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INTRODUCTION

The history of ornithology in the Afrotropical Region was recently sketched by Brooke (1986). This history of ornithology in South Africa is a more detailed subset of the first. Various authors have sketched aspects of the history of ornithology in South Africa from their points of view, theoretical and temporal, but there is no detailed treatment of the subject. The fullest is Ashton's (1980) history of the Southern African Ornithological Society (S.A.O.S.). This chapter does not provide a detailed treatment because a book is needed to cover the history of South African ornithology in detail.

Brooke (1986) divided the history of ornithology in the Afrotropical Region into three periods: the period of importing natural curiosities into Europe (1650-1780); the period of methodical collecting of specimens (1781-1906); the period of studying the biology of birds (1907-present). The dates given refer particularly to the South African situation. Of course, the activities of these periods, particularly the latter two, overlap but for the reasons given in Brooke (op. cit.) the dominant form of ornithological activity was different in each period.

THE PERIOD OF IMPORTING NATURAL CURIOSITIES INTO EUROPE

Various early writers drew attention to the birds found in South Africa, in fact the Cape Province, usually the western Cape, and of these Peter Kolb (1731) was the most comprehensive, if comprehensive can be used for a treatment in 20 pages. Various

travellers sent or brought back to Europe specimens and paintings of South African birds. It was these that enabled Carl von Linne (a.k.a. Linnaeus) (1752) to name and formally describe a number of South African birds, usually accompanied by the phrase habitat ad Caput Bonae Spei (= lives at the Cape of Good Hope) or habitat in Africa meridionale (= lives in southern Africa). The Swedish botanist, Anders Sparrman, who described the Greater Honeyguide Indicator indicator in 1777 as a result of his travels should be noted.

THE PERIOD OF METHODOICAL COLLECTING OF SPECIMENS

1781-1853

The Frenchman Francois Le Vaillant was the first traveller to another continent to make ornithological exploration by means of collected and properly preserved specimens, accompanied by paintings, the principal object of his journey (Stresemann 1975). He reached Cape Town in 1781 and spent four years in South Africa, including a short journey into southern Namibia. Within South Africa his travels were confined to the Cape Province. Nonetheless, he sampled quite thoroughly the birds of the fynbos, karoo, forest and savanna biomes, the last in the eastern Cape.

Owing to the outbreak of revolutionary troubles in France which spread over most of Europe, publication of his magnificently illustrated six volume Oiseaux d'Afrique was delayed, appearing between 1796 and 1808. Similarly, the troubles in Europe long prevented others from following in Le Vaillant's footsteps. It was not till the Napoleonic era had restored some semblance of stability that naturalists interested in birds returned to South Africa: the Englishman William John Burchell in 1810, the German Carl Heinrich Bergius in 1815, the German Georg Ludwig

Engelhardt Krebs in 1817, the Frenchman Pierre Antoine Delalande in 1818. In 1829 the brothers Jules and Edouard Verreaux, nephews of Delalande, returned to Cape Town and set up a business of dealing in natural history specimens and collecting materials. They were joined by their brother, Joseph Alexis, in 1832. Jules and Edouard moved their business to Paris in 1842 but Alexis stayed in Cape Town (ffolliott and Liversidge 1971). With the exception of Burchell these naturalists were collectors whose material was written up by European workers. All except Krebs are commemorated in the scientific names of South African birds. John Barrow who collected a few birds and discussed them in his 1801-1804 Account of travels into the interior of southern Africa was employed by the new British colonial administration to travel through the interior districts of the Cape Colony in 1797/9 and report thereon (Talbot 1977).

The Scotsman Andrew Smith who arrived in 1820 is in a different class to those mentioned above, even though he seems to have opted for a British Army medical posting to South Africa so as to pursue his zoological interests here. He was stationed first in Grahamstown, transferred to Cape Town in 1825 and returned to Britain in 1837 (Kirby 1965). The Cape Colonial Government used his strong interest in natural history (which then included ethnography and anthropology) as a cover for intelligence work. He thus had Government support for his collecting journeys, including the longest one, that to the western Transvaal in 1834/36 (Smith 1836). He was the principal mover in causing the Government to found the South African Museum in 1825 of which he was the first superintendent. In 1829 he broke the European stranglehold on describing new species of animals by doing so in

the South African Quarterly Journal published in Cape Town. Ultimately his descriptions were enlarged and reprinted in his Illustrations of the Zoology of South Africa published between 1839 and 1849 in England to which he had returned on promotion. Promotion interfered more and more with his zoological work and he had had to abandon it entirely by the time he became Director-General of the Army Medical Department, work for which he was knighted with the K.C.B. in 1858 after the Crimean War.

Smith had visited Natal on a political mission which had limited his ornithological work there but shortly after his return to England in 1837 met a young Swede, Johan August Wahlberg, whom he encouraged, as did Burchell, to visit the more tropical and humid parts of South Africa which were virtually unknown to ornithologists but which were clearly rich and worth exploring. As a result Wahlberg reached what is now Durban in 1839 and began to collect Natal birds. He later moved to the Transvaal before returning to Zululand which he left for Sweden in 1845. Wahlberg was a pertinacious and precise collector whose work made Natal birds and, to a lesser extent, Transvaal birds basically known (Gyldenstolpe 1934; Clancey 1964). His material went to C.J. Sundevall in Stockholm for description which led to Sundevall's longterm interest in South African birds, including a major attempt to sort fact from fiction in Le Vaillant's work.

Just before Wahlberg's arrival in Natal, the Frenchman Adulphe Delegorgue arrived there and also moved to the Transvaal. His perceptive book was published in France in 1847 and contains much of interest to biologists. His book was the first to provide a map of his journeys, noting where he got his major game trophies. Delegorgue seems to have been a quarrelsome man and, not believing that the French scientific establishment

would recognize his considerable efforts by naming any bird or other animal after him, named two birds, the Harlequin Quail Columba delegorguei and Delegorgue's Pigeon Columba delegorguei, after himself in an appendix to his book. This is bad practice but not illegal under the International Code of Zoological Nomenclature.

Many other travellers collected natural history specimens or mentioned birds in their travel books. The bird data has never been fully collated though John Cuthbert (a.k.a. Jack) Skead did much in a file held in the Niven Library of the Percy FitzPatrick Institute of African Ornithology.

1838-1845 was an ornithologically active period in Natal and the Transvaal but nothing significant happened in the Cape after Andrew Smith's departure in 1837 until the Swede, Johan Frederick Victorin, arrived for his health's sake in 1853 and spent two years. His collected material and field notes were reported by Johan Wilhelm Grill (1858) but the new species were described by Sundevall.

1854-1906

By 1854 when Edgar Leopold Layard arrived the majority of species occurring regularly in South Africa had been found and described and all the biomes had been visited by competent collectors. Layard had already practised ornithology in Sri Lanka, i.e. he had made a collection of birds and written it up. ^{there} It was decided to resuscitate the South African Museum and in 1855 Layard was appointed part-time curator: he was a civil servant who served in various capacities (Liversidge 1957), including Private Secretary to the Governor, his friend Sir George Grey. How busy Layard was officially is unknown but he successfully resuscitated the museum and enthusiastically built

up its collections by donations and exchanges and paying for small collecting trips by others. He was apparently able to travel little himself within South Africa and that only in the fynbos and forest biomes. However, he wrote and saw through the press the first bird book published in Africa, his 1867 Birds of South Africa published by Juta in Cape Town.

The existence of a book on the birds of a country is clearly a milestone in the development of its ornithology since it summarizes what is known and inspires those interested, and birds interest many people, to seek out and make known what is not known. Layard left South Africa in 1870 and decided to prepare a revised edition of his book based on what he had learnt from many correspondents in his last three years in Cape Town. However, he transferred to the British Consular Service which meant that he soon left London where revising his book was best done. Nonetheless, he interested Richard Bowdler Sharpe of the British Museum in the project and a revised and much augmented edition covering the region south of the Kwanza River in Angola on the west and the Zambezi River on the east appeared in parts between 1875 and 1884 in London.

The Austrian frigate Novara refitted at the Simonstown naval base between 23 September and 29 October 1857 while on a world voyage of exploration. While lying in Simonstown the zoologist, Johann Zelebor, hired an unknown local birder to collect birds, birds' nests and eggs for him. This was the first attempt to study South African nests and eggs. The results were reported by August von Pelzeln in 1865 (republished in 1869) in a work that was overlooked by Layard, Sharpe, Sclater and Reichenow.

Emil Holub and von Pelzeln published in Vienna in 1882 their

Beiträge zur Ornithologie Südafrikas based on Holub's travels and collections between Port Elizabeth and Barotseland, southern Zambia, between 1872 and 1879. John Henry Gurney reported in many papers in the Ibis on Thomas Ayres's collections, first from Natal and later from the Transvaal. Particularly from 1869 on, the major parts of these papers were written by Ayres, based on his field experience. Others also reported on their ornithological findings in the Ibis and elsewhere: see the list in Layard and Sharpe pp. xiii-xv.

The second bird book to be published in Africa (Pietermaritzburg) was the Woodward brothers' Natal birds which appeared in 1899 based on nearly 30 years intermittent study of the Province's birds.

The major discoverers of new species in South Africa and the books on South African birds produced during the second period of South African ornithological history have been mentioned. The end of the 19th century saw the preparation of two works of consolidation. Arthur Cowell Stark, a medical doctor, started to write a new Birds of South Africa. He essentially completed vol. 1 and had made extensive drafts for vol. 2 when he was killed in the siege of Ladysmith. The work was brought to completion in four volumes by William Lutley Sclater, then Director of the South African Museum, and was published in London in 1900-1906. Their work (vol. 1, pp. xi-xxii) also lists South African ornithological literature. At the same time Anton Reichenow of Berlin compiled and published his taxonomic and distributional three volume study Vögel Afrikas, appearing in 1900-1905. This latter work consolidated the taxonomic and distributional studies of a century and half on the birds of the Afrotropical Region and provided an acceptable basis for more

biologically orientated studies.

THE PERIOD OF STUDYING THE BIOLOGY OF BIRDS

The space available does not permit even the cursory chronicling of major workers and their books that has been given for the first two periods of South Africa's ornithological history: Appendix 1 lists books dealing wholly or substantially with South African birds. I will, rather, attempt to cover new developments with particular reference to studies of the biology and ecology of South African birds. By ecology I mean the quantified relationships of birds and their surroundings.

It must, of course, be recognized that South African ornithology is largely derivative in that it is the local application of interests, ideas and techniques developed, first in Europe and more recently in the United States, and that the majority of workers in South Africa have been foreign born. However, many of them spent most of their lives in the country and were supported in one way or another by the South African born. This has led to the naturalization of ornithology in southern Africa in a way not yet seen elsewhere in Africa. One of the results of this process is the number of firsts for Africa mentioned in this chapter. That South Africa was more often and earlier chosen for serious studies than other parts of the Afrotropical Region is due to its greater infrastructure and, usually, greater social stability.

Economic and historical factors have long ensured that what is done in South Africa laps over into and affects the activities of the neighbouring countries to the north (Namibia, Botswana, Zimbabwe and Mozambique) and, to a lesser extent, Zambia and Malaŵi. These effects within ornithology merit a separate study and are not pursued here. Nonetheless, its importance for those

countries is great and retroflection on the progress of South African ornithology is considerable. In addition to this writer whose formative experience was in Zimbabwe, one may note Phillip Alexander Clancey's (1971) work on southern Mozambique, John Miall (a.k.a. Jack) Winterbottom's (1971) work on South West Africa/Namibia and the title of Gordon Lindsay Maclean's (1985) work, Roberts' birds of southern Africa.

South African Ornithologists' Union

The South African Ornithologists' Union, the first African ornithological society, was established in 1904 and the first issue of its Journal appeared the next year. By 1906 one may consider that the Journal's managers were into their stride and publishing interesting material. Table 1 analyses the contributions that appeared in 1906 by major themes: breeding biology and distribution/faunistics were the major concerns and ecology and conservation were not dealt with at all. Table 1 also analyses the contributions that appeared in the Ostrich in 1936 and at ten-year intervals thereafter to show the changing interests of ornithologists working in southern Africa, the rise of ecology and the slower rise of conservation. 1916 and 1926 are omitted since the Journal had ceased publication with its 1915 issue due to problems caused by the First World War. In 1926 there was no ornithological journal in South Africa and what little writing there was appeared in the already dying South African Journal of Natural History. Its 64 pages for 1926 contained four bird papers, two on breeding biology and two on distribution/faunistics, the principal fields covered in 1906.

The first issue of the Journal saw the first ornithological contribution by the first South African born ornithologist of international reputation, Austin Roberts, who dominated South

African ornithology in the first half of this century. Like many other naturalists of distinction, he started his biological career as a collector of birds' eggs. However his ability and enthusiasm got him a position in 1910 in the Transvaal Museum where he worked until his death in 1948. Most of his work appeared in the Annals of the Transvaal Museum and, later, the Ostrich and was summarized in his 1940 Birds of South Africa. In his last years there was a marked shift in taxonomic practice away from the use of small genera, an approach which he did not accept. Many who have used his book with its plethora of generic names but have not studied his taxonomic work have greatly undervalued his abilities and contributions to South African ornithology. Nonetheless, accepting that his taxonomic philosophy is not very practical, the great majority of the divisions which he recognized represent biological realities.

South (later Southern) African Ornithological Society

In 1929 or 1930 (Ashton 1980) Austin Roberts and P.J. Urquhart, a businessman, founded the South African Ornithological Society, the oldest surviving ornithological society in Africa. Roberts immediately began producing the Ostrich, the Society's principal journal which has survived to the present and now flourishes as the principal medium for publication of biological studies of South African birds. Another businessman, John Voelcker, put much time and money into the survival of the S.A.O.S., particularly during the difficult period caused by the Second World War (1939-1945). He and Roberts were primarily responsible for the Society surviving the war, unlike the former Union which was a casualty of the First World War (1914-1918).

Books

It was Voelcker who formed the Board of Trustees for the South

African Bird Book Fund in the early 1930s to raise money to produce a modern bird book which would be accessible in price and size to most people interested in birds. The book was written by Roberts and appeared in 1940. Everyone concerned was astonished by how often it had to be reprinted to meet the public demand for it. The Board of Trustees still exists but the trust is now called the John Voelcker Bird Book Fund to commemorate Voelcker's efforts. The Fund's principal activity is to cause the revision and publishing of a Birds of South Africa. Geoffrey Roy McLachlan and Richard Liversidge produced revisions in 1957, 1970 and 1978 under the title Roberts birds of South Africa. The 1957 revision was of world class in its category of a one volume summary of what was known about the birds covered by it. Maclean produced in 1985 a thorough revision covering identification in its broadest sense under the title Roberts' birds of southern Africa.

The various editions have sold more copies in South Africa than any other book in English except the Bible. These sales have both caused and been the fruit of an immense upsurge in interest in South African birds, displayed in Boshoff et al.'s (1983) figure 3 which shows the dramatic increase in records of raptors in the Cape Province starting about 1950. There is a very widespread interest in birds in South Africa, with a long gradient from the casual to the intense. The number of popular bird books issued by commercial publishers, particularly after 1950, listed in Appendix 1 and summarized in Table 2, is evidence of this. Without the work of Roberts and Voelcker South African ornithology would not be nearly as far advanced as it is.

The Trustees of the Bird Book Fund realised that no one volume

work could cover comprehensively what was known about southern African birds by 1950 and accepted in the 1950s the desirability of publishing a series of comprehensive books covering major groups of birds. Everybody agrees with this approach but the practical problems of finding people competent to compile comprehensive books and to support them for the years of work required have so far proved insuperable sooner or later. Three books have appeared though they can hardly be called parts of a series: Skead's 1960 Canaries, seedeaters and buntings of southern Africa, his 1967 Sunbirds of southern Africa, also the sugarbirds, white-eyes and the Spotted Creeper and Mary Katherine (a.k.a. Bunty) Rowan's 1983 Doves, parrots, louries and cuckoos of southern Africa. Independent of the Bird Book Fund is the similar work, Peter Roy Barry Steyn's 1982 Birds of prey of southern Africa.

Field guides in the Roger Tory Peterson mould made a late appearance on the Afrotropical scene, in part because of the great number of species to be covered. Furthermore, all the earlier ones had such serious deficiencies that they hardly merited the name of field guides. This applies to Otlef Paul Martin Prozesky's 1970 effort. It was not till 1983 that a good field guide appeared, Kenneth Bernard Newman's Newman's birds of southern Africa. This work is traditional in that each bird is painted, summarizing the painter/author's knowledge of the species or form depicted. In 1984 a different type of field guide based on coloured photographs appeared, John Coffey (a.k.a. Ian) Sinclair's Ian Sinclair's field guide to the birds of southern Africa. While the writer finds the former approach much more efficient, and indeed philosophical, he has met many who prefer the latter. Clearly there is a demand for field

guides based on both paintings and coloured photographs.

In 1969 the Council of the S.A.O.S. established the Gill Memorial Medal (after Edwin Leonard Gill, Director of the South African Museum and author of the 1936 First guide to South African birds) to be awarded every three years to a major contributor to South African ornithology, usually by way of a recently published book. The first four addresses to the Society by medallists were published together in 1974 in Bokmakierie 26: 41-51.

Museums

Up to 1960 virtually all professional ornithologists in South Africa were museum workers and most of their work appeared in museum serials, principally the Annals of the Transvaal Museum in the 1920s and 30s and the Durban Museum Novitates, resuscitated by Clancey, from 1952 onwards. The Annals of the Cape Provincial Museums, the Natal and South African Museums and the Navorsinge van die Nasionale Museum, Bloemfontein, have also carried ornithological publications from time to time.

The largest collection of bird specimens in South Africa is in the Transvaal Museum, Pretoria, the result primarily of Roberts's work. The South African Museum, Cape Town, has a large collection built up by various workers but is in need of better curation. The Durban Museum of Natural History has a large collection built up by Clancey, primarily for subspecific analysis, and is beautifully curated. Clancey encouraged Marjory Courtenay-Latimer to build up the bird collection of the East London Museum and rationalization of the holdings of the Cape Provincial Museums has added the bird collections of the Kaffrarian Museum, King William's Town, and the Port Elizabeth Museum to it. In the same way the Transvaal Museum has recently

acquired the bird collection of the Natal Museum, Pietermaritzburg, in exchange for a marine molluscan collection. There are small bird collections at the Nasionale Museum, Bloemfontein, the Albany Museum, Grahamstown, and the Alexander McGregor Museum, Kimberley.

The largest overseas collection of South African birds is in the British Museum (Natural History), Tring, though nearly all their material was collected before 1910. Most of the older natural history museums of Europe hold South African material from the last century but it often lacks precise date and locality data. It must be remembered that the early travellers and collectors did not always know precisely where they were, there were no effective maps of the interior and the practice of the day did not always demand precise dates and localities for specimens. United States museums hold little South African material, and that usually old, though the U.S. National Museum, Washington, has a recent collection of Natal birds made by Mark Vincent, a nom de guerre of Monty O.E. Baddeley.

Conferences

In 1954 Cecily Kathleen Niven, just before she became President of the S.A.O.S., invited the International Ornithological Congress to hold its next meeting in South Africa. The invitation was not accepted but on becoming President the next year she set in train the first Pan-African Ornithological Congress which was held in Livingstone, Zambia, in 1957. Thirty years later the seventh is due to be held in Nairobi, Kenya.

The problem with Pan-African Ornithological Congresses (and International Ornithological Congresses) is that they cover too wide a field: hence the rise of sections within the I.O.C. and

of specialist meetings. In the 1970s the problem was tackled by convening more specialized interest meetings beginning with the S.A.O.S. arranging meetings on desert adaptations at Hardap Dam, Namibia, in 1973 and on migration at Hwange National Park, Zimbabwe, in 1975. Thereafter, specialist meetings have usually been organized by a constituent bird club: African Predatory Birds, Pretoria 1977, Northern Transvaal Ornithological Society; Birds of the Sea and Shore, Cape Town 1979, African Seabird Group with support from the Cape Bird Club; Birds and Man, Johannesburg 1983, Witwatersrand Bird Club; African Predatory Birds, Golden Gate Highlands National Park 1983, Natal Bird Club; Birds of Evergreen Forest, Wilderness 1987, Eastern Cape Wild Bird Society. The proceedings of meetings from 1977 onwards have usually been published as a special book listed in Appendix 1.

University research

Also in the second half of the 1950s Mrs Niven set in train the establishment of an ornithological research institute, still the only one in the southern hemisphere. The institute was founded in 1959 and established at the University of Cape Town in 1960 under the title of the Percy FitzPatrick Institute of African Ornithology, the title being chosen to commemorate the name of her father whose three sons died childless. The Institute's terms of reference were, and still are to study the living bird in Africa and to curate ornithological records. Its Niven Library is probably the best ornithological library in the southern hemisphere. The first Director was Winterbottom who retired at the end of 1971 when the present Director, Walter Roy Siegfried, took office. By late 1987 the Institute's members had contributed over 1 400 titles to the scientific literature as well as many semipopular articles to bring the results of

modern ornithological research to the notice of a wide interested public. Winterbottom's main interests were in distribution/faunistics and habitat ecology. Siegfried's main interests are in behavioural ecology and the functioning of ecosystems. The work of the Institute has tended to follow their successive interests, as implied in Table 1. The Institute is now moving into conservation biology as its principal research theme.

Siegfried has done more than anyone else to bring overseas workers on visits to South Africa to work with young researchers to improve their skills and to make them familiar with the latest techniques of study developed overseas. As a result, modern South African academic research in ornithology is of full international standard, evidenced by the number of papers published in international journals of the first rank and invited contributions to world-scope books. The principal deficiency is the relative lack of contributions modifying or developing biological theory (Frost 1981). But this probably depends on a particular and rare cast of mind, unlikely to be thrown up in small communities.

Summary?

The University of Cape Town is not the only South African university to permit or encourage its staff and students to pursue ornithology as a subset of zoology, though it was the first. The Universities of Natal, Port Elizabeth, Potchefstroom, Pretoria, Rhodes and the Witwatersrand have all done so to a greater or less extent. Another aspect of the university input into South African ornithology is the way ornithology entered mainstream zoological conferences in the 1970s. It is now accepted by the zoological and ecological communities that birds must always be considered in broader

pictures.

Specialist groups

A feature of the recent past has been the establishment of specialist groups devoted to the study of a small group of species, perhaps of conservation importance. The first of these was the Western Cape Wader Study Group which coalesced in 1972 (Underhill 1979). It has published ^{a number of} several reports on its counts of ^{waders} waders around the coast and on the results of its ringing activities, principally at Langebaan Lagoon. The next to be established was the African Seabird Group founded by John Cooper in 1976 which publishes the Cormorant. Thereafter the Vulture Study Group was founded by John Alexander Ledger in 1978 and publishes Vulture News. In 1986 Robert Simmons produced the first issue of Gabar, in part an acronym for growth and biology of African raptors. In 1988 Roy A. Earle produced the first issue of a swallow group newsletter.

Avocational ornithology

Originally, most workers in zoology did so as an avocation, being paid to do something else. This has been particularly true of conchologists, lepidopterists and ornithologists. Few nineteenth century ornithological workers in South Africa were professionals even if their training in medicine had predisposed them to zoological studies. In the twentieth century the published input of avocational ornithologists in South Africa has been of great importance though a decrease in the relative amount published set in in the 1950s (Table 3). The rationale for Table 3 is the same as for Table 1 explained above. In 1926 all four papers were written by avocational ornithologists.

However, the decrease in the amount published by avocational

ornithologists in South Africa in the leading ornithological journal of the country does not mean an absolute decrease in their work or writing. Contributors to the Bokmakierie, the general interest magazine of the S.A.O.S. originally established by the Witwatersrand Bird Club in 1948, are predominantly avocational. Each bird club (normally a branch of the S.A.O.S.) has its own newsletter, contributed to by its members, nearly all avocational. The standard of newsletters varies but has risen greatly over the years and some are now printed: the details may be found in Ledger (1987). Much of the content of bird club publications is of scientific value, i.e. should be cited in scientific papers dealing with the topic covered, but are not themselves scientific publications since they are hardly ever refereed. The lack of an index to this literature is a handicap in its use.

The S.A.O.S. has started various schemes (usually firsts for Africa) involving predominantly avocational participation. The most successful has been the ringing scheme started in 1948 with Hugh Edmund Ashton as its first Organizer. This has since grown into the South African Bird Ringing Unit SAFRING, an element in the Subdepartment of Ornithology (the FitzPatrick Institute being the main element) in the Department of Zoology at U.C.T. In 1955 a nest record card scheme was started which then incorporated the similar scheme started by the Rhodesian Ornithological Society (now the Ornithological Association of Zimbabwe) in 1952. This is now housed by SAFRING. Various less long-lasting schemes, including the African Wildfowl Enquiry, are covered by Ashton (1980). More recently a national White Stork census was organized by David George Allan in January 1985 and a crane census by Gordon Holtshausen in 1986. A moult record card scheme was revitalized by Robert P. Prÿs-Jones in

1986 which is housed by SAFRING since much of the data comes from ringers.

The increasing number of skilled and enthusiastic observers and the increasing tendency to 'twitch' birds (to chase after rarities, particularly those one has never seen in South Africa before) made it necessary for the S.A.O.S. to set up a Rarities Committee in 1981 to vet the increasing number of sight records of vagrants and other rarities. The Committee has shown commendable caution in accepting first or second records for South Africa.

The first bird atlas in Africa was organized by the Witwatersrand Bird Club to summarize their accumulated field card data, chiefly of the 1950s, and Warwick Rowe Tarboton's Check list of the birds of the south central Transvaal appeared in 1968. The Natal Bird Club organized a provincial atlas in the 1970s and Digby P. Cyrus and Nigel Robson's Bird atlas of Natal appeared in 1980. In 1987 appeared another atlas, Tarboton, Maragret I. Kemp and Alan Charles Kemp's Birds of the Transvaal. The atlas for the southwestern Cape Province is complete in respect of data processing and atlases have been started in the eastern Cape Province and the Orange Free State. Stimulated in part by the successful Australian atlas (Blakers et al. 1984), an atlas for the whole of southern Africa (Africa south of the Kunene and Zambezi Rivers) was started in 1987, designed to incorporate the data from the completed and previously started atlases as well as to cover previously unstudied areas. Data collection will run to the end of 1991. A feature of the Transvaal and southern African atlases is the number of contributors who are not members of the S.A.O.S.

Conservation

Conservation of nature in South Africa began with perception of the loss of the great herds of large ungulates and their predators that occurred in most parts of the country in the late 19th century. Ornithologists have played relatively little part directly in rousing the public and politicians to the need for conservation. What they have done has usually been on a local scale. However, the International Council for Bird Preservation was established in 1922 and a South African section was formed ^{by?} in 1931 by Gill and Roberts (Cooper et al. in press). Ornithologists have often worked through other groupings such as the Wildlife Society of Southern Africa and the Endangered Wildlife Trust. However, Siegfried et al. produced a preliminary red data book for South African birds in 1976 and Richard Kendall Brooke produced an updated and expanded version after sifting nearly all the available information in 1984.

While some South African birds have undergone range diminutions, only three have become locally extinct: the formerly widespread Egyptian Vulture Neophron percnopterus (Ledger 1985); a colony of African Skimmers Rynchops flavirostris breeding at an untypical site at Lake St Lucia, Natal; the Yellowbilled Oxpecker Buphagus africanus. The local extinction of the latter was studied by Stutterheim and Brooke (1981) but it has recently reinvaded the Kruger National Park from Zimbabwe (Hall-Martin 1987) and has been translocated from the Caprivi Strip, Namibia, to the Hluhluwe-Umfolozi Game Reserve complex, Natal. Its new South African future seems assured.

The 1984 South African red data book formally designated the Wattled Crane Bugeranus carunculatus as endangered in South Africa. Its situation had already attracted the attention of

the Endangered Wildlife Trust (Ledger), the Natal Parks, Game & Fish Preservation Board (David N. Johnson) and the Transvaal Nature Conservation Division (Tarboton). As a result two nature reserves have been established to help conserve the Wattled Crane, Umgeni Vlei in Natal and Steenkopberg in the Transvaal.

Long before this, the Transvaal Nature Conservation Division established the Barberspan Nature Reserve in 1952 on the largest pan in the southwestern Transvaal and built an ornithological research station there in 1955, primarily as a base for ringing waterfowl. Other wetlands have been proclaimed nature reserves by various authorities, largely because of their importance for birds. Obviously, ornithologists have been leading actors in the establishment of these reserves.

RESEARCH IN THE BIOMES

As noted above, the exploratory work of the 19th century covered all the terrestrial biomes of South Africa. Le Vaillant, the first scientific explorer, worked in parts of the forest, fynbos, karoo (both nama and succulent) and savanna (moist) biomes: see the study of his journeys by Forbes (1973). He avoided coastal and marine birds of set policy. The first major collector to visit the grassland biome was Krebs (ffolliott and Liversidge 1971) and the savanna (arid) was Burchell (McKay 1943; Davies and Hull 1983). Further exploratory work in the terrestrial biomes continued throughout the 19th century. Smith was the first worker to take much interest in coastal and marine birds.

The Prince Edward Islands were annexed to South Africa in 1947 and 1948 though they had been visited by European naturalists before that. After annexation two Meteorological Service officers, J.A. Bennets and Alan Crawford, reported on the birds

of Marion Island. The first professional vertebrate biologist to visit Marion Island was Robert Willoughby (a.k.a. Bob) Rand of the Sea Fisheries Service in 1951/52. Thereafter, little was done until Eduard Meine van Zinderen Bakker Jnr worked on its birds as part of his father's scientific expedition in 1965/66. Since 1974 when Anthony J. (a.k.a. Tony) Williams first went to Marion Island ornithological work has been continuous at one level or another there.

A little work on pelagic seabirds, as opposed to beached specimens, around South Africa was undertaken in the 1950s but it was not until 1979 that Andrew Martin Griffiths began methodical studies on pelagic birds. Pelagic birds were the last to attract attention from South African ornithologists.

Biological work within biomes proceeded during this century but little attempt was made to synthesize results or to look at the birds of a biome as such. The principal exception was Winterbottom whose many papers on the fynbos and karoo biome bird communities were summarized, along with data on other biomes, in his 1972 monograph. Note should also be taken of the 1981 monograph on the bird communities of the false upper karoo by Winterbottom's student, Tibor Farkas.

Scientific work with its requirement for backup services is normally based in the larger towns. In a dry country the larger towns occur in the wetter areas since water supplies are better assured there. Hence the distribution of population in South Africa is highly skewed towards the wetter areas. The result for ornithology has been that most biological work on birds has been done in the wetter areas and near the major towns. Alternatively, one may say that biological, including ecological

work was relatively seldom undertaken in the karoo biome with its lower diversity of species and difficulties of travel despite its occupying half the country. Table 4 framed on the same basis as Tables 1 and 3 shows that savanna birds have always been studied this century. It shows the rise of coastal bird studies. Interest in biomes such as the fynbos and wetlands has fluctuated and the forest biome has attracted little interest. Three of the 1926 papers can be allocated to biomes, viz. savanna, grassland and coastal.

CONCLUSION

In 300 years South Africa has progressed from a source of curiosities for the cabinets of the naturalists of Europe to an active research into its own birds by its own people. Table 2 illustrates this point by showing the rise in the number of books on the birds of South Africa in this century. Most of the books were published in South Africa, particularly after 1950 (Appendix 1). South Africa has achieved a level of sophistication in ornithology only just behind that of the leading countries in the field, particularly the United States of America. This is chiefly the result of the work of the people named above and those who helped them at all levels, many of whom would have been named in a longer chapter or book. To all of them I want to express gratitude for their enthusiasm, vision and achievements. We hope to raise further the edifice they have so magnificently started.

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but only 2 are asterisked as authoritative

APPENDIX 1

List of books in chronological order dealing wholly or substantially with South African birds: not complete at the more popular end of the spectrum. Stencilled (a.k.a mimeographed) texts and unbound folios of prints are omitted. Full names of authors are given on first mention when known to me, cf. Brooke (1984) and this list for the Woodward brothers. More authoritative and scientific books are marked with an asterisk.

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TABLE 1

Contributions in the leading South African ornithological journal in selected years grouped by the major theme of each contribution. All numbers above the total line are percentages.

	1906	1936	1946	1956	1966	1976	1986
Behaviour	8	13	26	8	23	36	36
Breeding	38	13	31	26	17	15	16
Conservation	-	17	1	-	3	4	4
Distribution/ Faunistics	31	31	22	32	27	11	11
Ecology	-	13	7	8	10	15	16
Migration	15	4	10	14	5	6	4
Taxonomy	8	9	3	13	15	13	13
Total no. of contributions	13	23	69	38	102	53	45

TABLE 2

Book titles dealing wholly or substantially with the birds of South Africa published in different periods: based on Appendix 1.

Period	Authoritative	Popular	Total
Before 1900	5	2	7
1900-1929	4	6	10
1930-1939	1	11	12
1940-1949	4	7	11
1950-1959	6	16	22
1960-1969	15	25	40
1970-1979	21	41	62
1980-1987	28	41	69
Total	84	149	233

TABLE 3

Contributions in the leading South African ornithological journal in selected years grouped by whether the writers were professional ornithologists (including students) or not. All numbers above the total line are percentages.

	1906	1936	1946	1956	1966	1976	1986
Professional	24	23	11	51	55	49	76
Avocational	76	89	89	49	45	51	24
Total no. of writers/ contributions	17	26	74	41	124	71	67

N.B. Some contributions were coauthored.

TABLE 4

Contributions in the leading South African ornithological journal in selected years grouped by the biome dealt with. All numbers above the total line are percentages.

	1906	1936	1946	1956	1966	1976	1986
Savanna	17	57	35	19	30	25	27
Forest	-	-	3	13	-	-	8
Grassland	83	-	21	-	7	4	19
Karoo	-	14	18	13	4	4	-
Fynbos	-	-	6	30	25	-	-
Wetlands	-	29	12	-	14	48	8
Coastal	-	-	6	19	20	15	27
Pelagic	-	-	-	-	-	4	4
Southern Ocean	-	-	-	6	-	-	8
Total no. of contributions/ biomes	6	7	34	16	69	27	26