

## GULLS AND PLOVERS: THE ECOLOGY AND BEHAVIOUR OF MIXED - SPECIES

### FEEDING FLOCKS

Barnard C.J. & Thompson, D.B.A. 1985. London: Croom Helm  
302 pp. 25,00 hardcover.

This study of mixed-species feeding flocks, carried out in England, is unquestionably something of a classic. The study was completed in 1984, and its productivity is testified to by the fact that the same authors have published no less than nine scientific papers stemming from the study. The junior author also completed his PhD on the subject in 1984 (presumably under the supervision of the senior author). Most of the contents of the book therefore are published elsewhere.

Do not labour under any illusion that the book is bringing high-flown science to the layman - a lot of data and analyses are presented (most of the 65-odd figures are published elsewhere), and it is not easy reading. I had to read some passages several times before I understood what the authors were getting at. In essence, the book presents the results of this one study, and does not pretend to be a comprehensive review of the whole field, although there is a fairly extensive introduction to flock feeding. The final chapter states "... the results and interrelationships between chapters are sufficiently complex to merit a brief synthesis ...." - this is an accurate reflection of the state which I found myself in after ploughing through the previous nine chapters.

I do not question for a minute the excellence of the research undertaken by the authors, it is comprehensive and scientifically stimulating. The published papers emanating from the study are of a high standard. I do, however, question the need for the book. It is aimed at a specialized market (hence the rather high cost) but most of the market will have access to the original papers which will constitute the prime reference source. If the book had presented a review, incorporating the gull-plover data where relevant, it would have been of much greater value. No matter how good your cheese, there is a limit to the amount of water you can squeeze out of it.

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## BIRDS OF HEARD ISLAND: A REVIEW OF RECENT LITERATURE

Keage, P.L. 1982. (Revised edition). The conservation status of Heard and the McDonald Islands. Univ. Tasman. Environ. Stud. Occ. Pap. 13:1-100.

Manning, J. 1982. The environmental management of Heard and McDonald Islands. Master of Environmental Science Thesis: Monash University, Melbourne. ix + 173 pp.

Veenstra, C. & Manning, J. (Eds.) 1982. Expedition to the Australian Territory of Heard and McDonald Islands 1980. Division of National Mapping, Commonwealth of Australia, Tech. Rpt 31:1-69 plus 5 annexes.

Vining, R. (Ed.) [1983]. Heard Island expedition 1983 scientific reports. Sydney: Garvan Institute of Medical Research. 55 pp.

Heard Island is a rarity among Subantarctic islands: it is free of alien species of plants and animals. It is part of the Australian External Territory of Heard Island and the McDonald Islands and is situated just south of the Antarctic Polar Front in the southern Indian Ocean at 53°S, 73°E, midway between South Africa and Australia. The Island is approximately 45 km long by 20 km wide, is dominated by an active volcanic cone which rises to 2 745 m, and is heavily glaciated.

The distribution and abundance of seabirds at Heard Island was described by Max Downes, Tim Ealey and colleagues (Downes et al. 1959). They worked there from the Australian National Antarctic Research Expeditions (ANARE) station, which was occupied year-round between 1948 and 1955. Early attempts to ring penguins were made during that period by Max Downes and Arthur Gwynn (1955). Since 1955, the island has been visited occasionally by ANARE and by other expeditions. As a result, the increase in numbers of the King Penguin *Aptenodytes patagonicus* has been documented by Graeme Budd (1973). A recent synthesis of the threats to birds on Subantarctic islands included Heard and the McDonald Islands (Johnstone 1985).

Three expeditions visited Heard Island in the early 1980s. Two of them produced reports (Veenstra & Manning 1982, Vining 1983) which include sections on seabirds. In addition, two theses (Keage 1982, Manning 1982) presented to Australian universities for Masters degrees in environmental studies summarize, *inter alia*, knowledge of the avifauna, its management and conservation. Since these four documents are unlikely to be readily available to readers of *Cormorant*, we review here their sections on seabirds and conservation.

Both Master's degree theses outline the current political, environmental and conservation status of the islands, which are administered under the Heard Island and McDonald Islands Act 1953 of the Australian Commonwealth Government. Neither island has any type of reserve status, and nature conservation matters fall under the jurisdiction of the wildlife ordinance of the Australian Capital Territory. Both authors argue that this is inappropriate for these Subantarctic islands and suggest alternative means of administering them.

An expedition conducted by the Division of National Mapping (Veenstra & Manning 1982) had as its primary aim improvement of the map of Heard Island and the bathymetry of the surrounding seas. The lighthouse supply vessel *Cape Pillar* chartered for the expedition was at the islands during March 1980. The report of the expedition contains a section on seabirds by Dr Gavin Johnstone of the Antarctic Division, Department of Science, entitled *Zoology* (pp. 33-39). His observations on both Heard and the McDonald Islands included the first general biological survey of the latter. An exciting discovery on Heard Island was a Wandering Albatross *Diomedea exulans* incubating a chick; this species had not been recorded previously at Heard Island.

The Heard Island Expedition 1983 sailed from Fremantle aboard the maxi-yacht *Anaconda II* and was at the island during January and February 1983. This privately funded expedition was led jointly by Dr Ross Vining (scientific coordinator and editor of the scientific reports) and William Blunt (convenor). A variety of scientific work was done by expedition members, most of it on a voluntary basis for researchers in Australia who initiated programmes. Ornithological work is reported by S. Tremont & R. Vining (Penguins - abundance and distribution pp. 19-20) and by R. Vining (Birds - abundance and distribution pp. 23-24). A highlight of their discoveries on Heard Island was a group of 215 of the endemic subspecies of the Imperial Cormorant *Phalacrocorax atriceps nivalis* with two chicks. The group was near the snout of Stephenson Glacier on the north-east coast; it contained more birds than had been recorded on the whole island previously. The expedition made the first recorded landing on Shag Island, 13 km north of Heard Island. There Macaroni Penguins *Eudyptes chrysolophus* were found breeding. The only other species recorded on Shag Island were the Lesser Sheathbill *Chionis minor* and Subantarctic Skua *Catharacta antarctica*.

The Heard Island DX Association (HIDXA) organized a second expedition to Heard Island in the summer of 1982/83. It departed from Hobart and returned to Albany aboard the former whale-chaser *Cheynes II*. This expedition was instigated by ham-radio enthusiasts and included several scientists. Smith (1986) has provided an overview of the expedition and anecdotal accounts of birds seen at the island.

Increases in numbers of King Penguins and in the localities they occupy received attention by both Johnstone and by Tremont & Vining. The latter counted over 1 300 chicks or eggs, 1 200 of them at Spit Bay, which is a considerable increase on the 103 counted there by Graeme Budd in 1969. King Penguins were originally very abundant at Spit Bay according to Captain J.W. Robinson, who worked the island in 1858-59 (Crowther 1970).

Both reports noted Southern Giant Petrels *Macronectes giganteus* nesting on Heard Island, as did the early ANARE workers. The breeding status of the Northern Giant Petrel *M. halli* at the island "remains enigmatic" (Johnstone in Veenstra & Manning 1982). The three recent expeditions visited the island after events in this species' breeding cycle that would serve to identify it, namely the laying and guard stages, which occur from August to November. The Northern Giant Petrel nests solitarily rather than colonially, and several weeks ahead of the Southern Giant Petrel. The "enigma" could be resolved by a visit in the spring or early summer, which might also turn up other interesting records. ANARE expeditions were at Heard Island in the summers of 1985/86 and 1986/87. We await with interest their ornithological reports.

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- JOHNSTONE, G.W. 1985. Threats to birds on Subantarctic islands. *Internatn. Council Bird Preserv. Tech. Publ.* 3:101-121.
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## TROPICAL SEABIRD BIOLOGY

Schreiber, R.W. (Ed.) 1984. Studies in Avian Biology No. 8. Cooper Ornithological Society. 114 pp. U.S. \$12.00 softcover, inc. post and packing. (Order from publishers at Allen Press Inc., P.O. Box 368, Lawrence, Kansas 66044, U.S.A.)

This volume contains six papers presented at an international symposium of the Pacific Seabird Group held in Hawaii in December 1982. The first, by D.G. Ainley & R.J. Boekelheide, draws on standardized census data collected during ocean cruises to provide an ecological comparison of oceanic seabird communities in the southern Pacific. This study nicely complements previous work in the Indian Ocean by Pocklington (Mar. Biol. 51:9-21, 1979) and points towards similar conclusions regarding the manner in which temperature and salinity gradients may correlate with observed degrees of avifaunal change. In the next paper, A.W. Diamond compares feeding overlap in seabird communities, based largely on his own Seychelles data. Information adequate to understand seasonal, annual and, most important, individual variation in diet among all species of any seabird community is still lacking, but Diamond's paper, together with that of Duffy & Jackson (Colonial Waterbirds 9:1-17, 1986), provides useful pointers as to how such studies should be approached. A couple of text errors result in Aldabra's annual rainfall being given as 941 cm instead of 94 (p.29) and the White Tern population on Aldabra as 10 000 pairs instead of 300 (Table 1, p.32).

In the third contribution, G.C. Whittow reviews a mass of information on the incubation physiology of seabirds, attempting to disentangle influences of latitude, taxonomy and size. The most clear-cut trends are related to the prolonged incubation of the smaller Procellariiformes in particular, but limited information on non-tropical seabirds and lack of discussion of intraspecific variation in incubation parameters limit the scope of most conclusions. Following this, N.P. Langham compares growth patterns of four species of temperate and four species of subtropical terns. The temperate species exhibit notably more homogenous growth curves, and all but one of the sub-tropical species have markedly slower developmental rates. R.E. Ricklefs then puts forward a model of the reproductive energetics of pelagic seabirds. He suggests that problems involved in transporting food over long distances may limit reproductive output and that seabird biologists should focus more attention on diet quality, meal size and feeding frequency in order to improve understanding of breeding adaptations of different species. Finally, J.B. Nelson is on familiar ground in drawing on information from marine Pelecaniformes to present a somewhat diffuse contrast (not a single figure or table) of breeding strategies in tropical and temperate seabirds.

The volume contains a number of editorial infelicities (e.g. each paper dated 1983 but the volume as a whole 1984, occasional use of uncapitalized family names, etc.) but overall is a useful informative contribution to the literature.

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## BREEDING BIOLOGY OF THE ADELIE PENGUIN

Ainley, D.G., LeResche, R.E. & Sladen, W.J.L., 1983. Berkeley: University of California Press, 240 pp.

The breeding biology of the Adélie Penguin *Pygoscelis adeliae* is not bedtime reading material, It is much more a scientific monograph than it is a Pulitzer Prize contender. As a monograph, it is part literature review, part reiteration of the authors' previously published work, and part receptacle for hitherto unpublished information based on the authors' observations of Adélie Penguins during the 1961/62 - 1969/70 and 1974/75 - 1975/76 breeding seasons at Cape Crozier, Ross Island, Antarctica. Emphasis is approximately equally apportioned between the three parts.

The main strength of the book is that it serves to collate data from a long-term study on an Adélie Penguin population, including data from nearly 4 500 individually marked, known-age birds. Hence the book contains no fewer than 103 tables and 30 figures. It is rare to have a study of this dimension and with the thoroughness of presentation evidenced in this book.

The individual chapters cover a range of topics, including the techniques and methods employed in the study, the pattern of colony occupation, the behaviour of prebreeders (although I see their logic, I do not like their definition of a prebreeder as "a bird unknown ever to have bred"), and demography of the Cape Crozier population. But for the most part, the authors concentrate on factors associated with breeding and breeding success.

Little emerges from their results that is not already in the literature in one form or another (an exception being the high divorce rate between partners of all ages). What the authors do, and they do it well, is to synthesize a considerable literature on penguins together with their detailed results.

Personally I would like to have seen the authors make even greater use of their data, to test hypotheses of concern to avian biologists generally, in areas such as mate choice and the like. However, that was clearly not their purpose. They have produced a summary of some of the most detailed data available on the breeding biology of any bird. It is up to us to use it as we will. This is a book that belongs on the desk, not the shelf, of any serious student of ornithology. If not by the bed.

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## THE PUFFIN

Harris, M.P. 1984. Calton, Staffs. U.K.: T. & A.D. Poyser. 224 pages, 20 tables, 24 black and white photographs, 40 maps and diagrams, an introduction and 15 chapters, eight pages of references, illustrations by Keith Brockie. UK £12,60.

The Puffin *Fratercula arctica* is a distinctive, "comical" and so highly popular, species first monographed by Lockley in 1953. It is now again the sole subject of a book, this time by Mike Harris who has spent ten years of concentrated work on the species: witness his 17 scientific publications on the bird from 1970 onwards.

The introduction states clearly what is so often true of seabird studies: that the Puffin is well known on land and above ground but we still know little of its life underground and even less of its life at sea.

The fifteen chapters cover; the Puffin as an auk; its morphology; distribution and populations (three chapters); general breeding biology; behaviour, activities at colonies; food and feeding; growth of the young; predators, pirates and competitors; man and puffins; pollution; migration and survival at sea; and factors influencing the population.

In preparing this review I asked myself of what use, other than of general seabird interest, would this book be to southern hemisphere seabirders? Its prime interest in this context is the comparison possible between the Puffin, by far the most comprehensively studied northern hemisphere burrowing charadriiform seabird, and our varied procellariiform burrowing species. Few charadriiform species breed in burrows and it is a pity that Harris hasn't given more attention in this book to a consideration of the possible ways in which breeding in a hole or burrow affects the breeding biology of this species. That would have made the book longer, and possibly less popular in the prime British birder market, but would have had added a great deal to the world relevance of the book. Pertinent for southern hemisphere readers are the sections on diet, and especially the potential variation in the quality of different prey species, and on the marine pollution which our transequatorial migrants face in their northern hemisphere interbreeding quarters. Also relevant, as indicating methods of approach and references on the topics, are the chapters on how to monitor numbers of burrow-nesting birds and the survival of seabirds at sea.

Mike Harris has here provided a mass of scientific information in an entirely readable form with an excellent guide to the literature. The publishers, Poyser, have as usual provided a nicely printed book at an affordable price. Would that other publishers could do so! In all this is a book I can confidently recommend to any seabirder.

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