

Book reviews

Edited by P. DANN

Atlas of Wintering North American Birds — An Analysis of Christmas Bird Counts, by Terry Root, 1989. University of Chicago Press: Chicago and London. Pp xxiv + 312, b & w maps 364, transparent overlays 11. 281 × 215 mm. \$US68.95 (cloth), \$US40.25 (paper).

This book presents a thorough analysis of the Christmas Bird Count data from North America. The Counts originated in 1900 and have continued up to the present, with little significant change in methodology. Counters are asked to record the numbers of all the birds that they contact in 12 km radius of a site during at least eight hours within the fortnight around Christmas Day. The analysis, by Terry Root, involving modern computer graphics, provides maps which show distribution and abundance. For each of the 250 species studied in detail, two maps are presented; one with abundance plotted as contours and one with abundance shown as peaks on a fish-net matrix. In generating the maps the author used the data collected between 1962 and 1972, but the accompanying text comments on results from other years. For another 96 species, Root presents contour maps of distribution and abundance in an appendix. She considers the maps of these species misleading in some respect and gives clear comment indicating in what respect their interpretation has to be undertaken cautiously; in most cases too few records were collected for detailed analysis. A further 162 are discussed in the text, without an accompanying map.

The author is to be congratulated on the care with which she has handled this enormous data set, collected by a diversity of people over more than eighty-five years. She has shown that the initial problems of analysis and synthesis are not insuperable and that a useful and interesting publication can be created from the enthusiastic work of many thousands of amateur ornithologists. The contour and fish-net maps do not allow precise quantitative abstractions of the data. The various normalizing and smoothing processes to which the data have been subjected provide satisfying visual presentations but prevent detailed and critical comparison between species and between locations which would in any case not be justified bearing in mind the way the data were collected. But the comments in the text are made advisedly and will be helpful to those engaged in the daunting task of preserving North American avifauna.

For Australian readers most interest will centre on the cosmopolitan species, waterbirds, seabirds (there are few) and waders, where familiar names will be encountered. The book is an essential reference for those interested in North American species and provides much food for thought for those concerned with the methodology of atlasing or with the execution of successful cooperative ornithological research.

S.J.J.F. Davies

Evolutionary Dynamics of a Natural Population: the Large Cactus Finch of the Galapagos, by B. Rosemary Grant & Peter R. Grant, 1989. Chicago: University of Chicago Press. Pp 350, col. ill 12, b & w ill 35, 71 tables. 238 × 153 mm. \$US28.75 (paper), \$US74.75 (cloth).

Few detailed studies of the biology of birds span eleven years but this volume addresses such a study of the Large Cactus Finch *Geospiza conirostris* on Isla Genovesa in the Galapagos. The book focuses on the causes and significance of morphological variation, bill shape and size in particular, in order to understand the process of evolutionary change. The particular population of Large Cactus Finch was chosen because it is small, one of the most variable in bill dimensions and well isolated.

The first chapter introduces the framework, scope and organization of the study as well as the organization of the book. This chapter, and others, have summaries which leads to some repetition in the summary of the final chapter.

Chapter two describes the physical environment, climate, plants and animals on Isla Genovesa. It includes eleven black and white photographs which, while interesting, are not necessary because the accompanying text can stand alone. Little would be lost if the summary of this chapter had been expanded and included in the first chapter.

Chapters three, four and five deal with survival, reproduction and the relationship between the two. The survival data will provide a very useful basis for comparisons with studies of other species. The twelve colour plates situated in chapter 3 are unnecessary trimmings, not of good quality and there would have been a price advantage in reducing the number or excluding them. The figure of plumage categories is identical, except for the shape of the bill, with Fig. 10 in Grant 1986, *Ecology and evolution of Darwin's Finches* and has apparently been taken from Grant and Grant 1983, *Oikos* 41: 530-547. There is also some unnecessary duplication within the book, for example figs 2.2 and 3.1 could have been combined.

Types of songs of fathers and sons, the role of song in mate choice and establishment of territories is dealt with well in chapter six. Chapter seven describes mate choice, fitness and the costs and benefits of changing mates. In these chapters the benefits of a long-term study are indicated by the quantity and scope of data that have been collected and the syntheses made.

Chapters eight, nine and ten deal with the phenotypic and genetic variation of the species, hybridization and selection, and sympatric speciation. Morphological characteristics, in particular, bill dimensions in terms of their heritability, evidence of hybridization, ecological and behavioural relationships form the bases of these chapters.

Chapter eleven deals with the place of the Large Cactus Finch in its community. Again most of the nine black and white photographs could have been left out. It is an informative and useful chapter that discusses the species in the wider framework of Darwin's finches. The final chapter is a summary and synthesis. They suggest that hybridization between closely-related sympatric congeners provides added genetic variation that can facilitate adaptation to the environment by natural selection.

This book contains unique data that can only be obtained from a long-term study such as this. It will be essential reading for anyone involved in the long-term study of a single species. It could no doubt serve as a student's text because of the detailed

explanations of methods and how conclusions were reached. If the editor had been more critical in the choice of photographs the book could have been more affordable, particularly in Australia. As it is expected to retail here at about double its American price, most will probably utilize the library copy.

Sonia C. Tidemann

Behavioural Ecology of the Galah *Eolophus roseicapillus* in the Wheatbelt of Western Australia, by Ian Rowley, 1990. Chipping Norton: Surrey Beatty & Sons in association with the Commonwealth Scientific and Industrial Research Organization, Division of Wildlife and Ecology and the Royal Australasian Ornithologists Union. Pp xii + 188, col. pl 15, b & w pl 18, numerous line drawings and tables, 160 × 230 mm. \$40.00

Australian ornithologists have often lamented the dearth of detailed studies of the natural history and ecology of the continent's birds. From time to time major studies and their component smaller projects are published, usually as papers but sometimes as books, that help rectify this situation. The present work on the Galah *Eolophus roseicapillus* is certainly another example.

At the request of the Department of Agriculture of Western Australia, CSIRO embarked in 1969 on a programme of research on the Galah to reduce the conflict between the birds and human interests. This research took place near Manmanning in the wheatbelt of Western Australia mainly from 1970 to 1977. That part of the research dealing with the behavioural ecology of the Galah is presented in this book, which is essentially an extended research paper. Some comparative data were also obtained from Mileura Station, a semi-arid zone site in mulga *Acacia aneura* woodland typical of the birds' habitat prior to European colonization of Australia, and Coomallo Creek on the Western Australian coastal plain. To give some idea of the scale of the work, approximately 100 nesting pairs were monitored each year from 1970-1975 and *ca* 50 in 1976 and 1977; 532 birds were individually marked by wing-tagging; and crop contents of 250 birds collected throughout 1972 in the wheatbelt were examined and compared with 149 from the mulga zone.

Despite three versions of the title being offered before we reach the Table of Contents, the book is written and organized well so that the reader can quickly and easily check points after an initial reading. Introductory chapters describe the nomenclatural history of the Galah and its overall distribution. Next, the study areas and methods are described. The 'Results' chapters deal with feeding ecology, elements of behaviour (individual behaviour, social behaviour and behaviour of the breeding pair), vocalizations, social organization of breeding pairs and flocks, breeding biology (nest hollows, eggs to hatching, nestlings), productivity and survival. A Discussion chapter and 57 point Summary conclude the main text, which lastly is followed by appendices (details of distribution limits of the two subspecies of the Galah, survival data for male and female Galahs), cited literature and an index.

There is some repetition of material between chapters. I viewed this sympathetically, finding that it did no harm to have some points repeated to help me through the text (though I suspect that it was caused in part by the protracted period of writing up between completion of the field work and its eventual publication — 13 years!!).

Eight chapters finish on a right-hand page and are followed by

a numbered blank page, presumably so that the next chapter can start on a right-hand page. Such waste annoys me no end and is an unfortunate feature of the fine books being published by Surrey Beatty & Sons. I found some figures and tables at first very hard to follow, particularly in the chapters on breeding biology. Usually, the problem arose from the amount of information being presented and in some instances could have been avoided with a little more editorial effort (e.g. Figure 44 — very difficult to untangle the data; Figure 53 — curves for male and female should be labelled as such rather than forcing the reader back to the text; Table 24 — F and H ought to be defined despite their meaning being reasonably clear). Generally, though, a little persistence paid off and I do not think this too much to ask of a reader when looking at data from a project done over some eight years.

The chapters on breeding biology, productivity and survival were for me the most important part of the book, not just in terms of quantity (50% of the text) but also in terms of the biology of an Australian bird. If we really want to conserve our fauna by getting to know it (while not forgetting the great importance of habitat conservation and community education), then sooner or later we have to do what these chapters achieve: careful dissection of the components of a Life Table and the related aspects of a species' biology. Such components addressed by this study include: number of eggs laid, egg fertility, causes of nesting failure, percentage of eggs that hatch, fledging rates, rates and importance of predation of eggs, nestlings and adults, distances dispersed by juveniles, number of hatchlings that survive to fledge and then to independence.

The book indicates what long-term research on a particular species can and can't achieve. For example, it is perhaps easy to look at the abundance of Galahs and forget the importance of understanding individual variation in productivity. Long term data show that some females are simply more productive than others; higher coefficients of variation between productivity of females in climatically poor years reflect this. On the other hand, discrepancies arose in estimating survival. A pair of Galahs would have to raise about two young per year for nine years simply to replace themselves but data from wing-tagged birds suggest mean longevity considerably less than this. The discrepancy stems largely or entirely from shooting, a form of predation resulting from the increased conspicuousness of wing-tagged birds.

Some other general comments. The author has largely restricted the scope of the book, most particularly its Discussion chapter, to the Galah in Western Australia's wheatbelt. Although he has by no means skimped on making comparisons with other cockatoos, I often felt that there must be room for more detailed comparisons. For example, in terms of agricultural environments how does the Galah's expansion and ecology compare with species that have undergone similar expansions elsewhere in the world? That these more extensive comparisons might have been made but weren't is perhaps a little more regrettable when one again considers the 13 year delay between completion of the work and publication.

A few points were of special interest to me. These include: the extent to which Galahs line their nests with leaves (up to one metre); consistent westward dispersal of juveniles (how might this affect the species' genetic structure and how might the genetic structure thus compare with that of other vagile species?); the scarring of nest trees by the attendant pair especially the male; and promiscuous mating and egg-dumping by females in the nests of others. Though the latter phenomenon usually results in no birds being fledged, these observations add to the growing recognition of promiscuity in ornithology.

The book could have more forcefully highlighted the problems of conservation in southern Australian agricultural environments. The author co-wrote one of the few available studies that quantitatively demonstrates the reality and severity of the loss of nesting hollows in these areas and more detailed reference to that work would have been appropriate (Saunders *et al.* 1982. *Aust. Wildl. Res.* 9, 541-556). Surely, it is even worth the attention-seeking device of a separate short chapter purely to emphasize the gravity and finality of the problem if nothing is done about it.

With the way book prices are these days I am not going to say that everyone should buy this book or should have it on their shelves (as reviewers delight in doing). It is important reading for anyone interested in Australian bird ecology and I hope that Australian undergraduates studying vertebrate ecology will be exposed to it somewhere along the line. Ornithological societies would frequently have a copy on loan. I learnt a lot from reading it and now have a better appreciation of the Galah's social and evolutionary uniqueness among the cockatoos. It also prompted me to consider how research from other disciplines might be brought to the study of the species' biology. I don't think one can ask much more of a book.

Leo Joseph

The Birds of Java and Bali by Derek Holmes, illustrated by Stephen Nash, 1989, Oxford University Press, Singapore (Images of Asia series). Pp xii + 109, col. pl. 25, 135 × 200 mm. NPG.

Birds of Bali by Victor Mason, illustrated by Frank Jarvis, with photos by Morten Strange & endpaper art by I Made Budi & I Made Moja, 1989, Periplus Editions, Singapore & Berkeley, California, USA. Pp 80, col. pl. (large and small) 58, col. photos 5, col. endpapers 2, 160 × 235 mm. NPG.

In the wake of a decade of international conservation activity in Indonesia, the need to update and review its rich and diverse bird fauna (over 1600 species) led, in 1985, to the beginnings of a new period of activity. Until then, apart from a trickle of papers and reports, Kalimantan also benefitted from its association with East Malaysia and Brunei, and Irian Jaya from that of Papua New Guinea. The Indonesian Ornithological Society (IOS), particularly through the support and influence of Derek Holmes, a long-time resident based in Jakarta, relaunched its journal *Kukila* in 1985 and it goes from strength to strength. Books soon followed, covering all regions of Indonesia by 1988. The next step is well represented by the books of Holmes and Mason — a more popular approach intended for a wider readership, and starting with the two best known islands of Java and Bali.

Holmes and Nash have produced a well-balanced review of the commoner birds of Java and Bali, without compromising too much on the less familiar or rarer members of the bird fauna. The more dedicated birders may insist on the recent field guide of John MacKinnon (see review in *Emu* 90, 62), but this does not mean there is not useful information given by Holmes. There are general

descriptions of the types of birds, usually at family level, with the more familiar or commoner representatives highlighted, while allied forms are grouped under the main species account(s). Local names are only provided for the featured and illustrated species. In all cases, the emphasis is on behaviour, with comparative descriptive information on the supplementary species, complemented by Nash's illustrations.

Concentrating solely on Bali, Victor Mason, likewise a long-time resident has taken a different but no less informative approach. With fewer species to cover, more space could be devoted to the commoner birds, yet with 122 illustrated in colour by Frank Jarvis (who had previously illustrated Chris Hails's *Birds of Singapore*), the number surpasses Holmes & Nash with 112, and in the larger plates Jarvis captures the atmosphere of Bali in appropriate background vignettes accompanying the birds illustrated. But Mason does not discuss the rarer members of the bird fauna of Bali.

The feeling of the Mason and Jarvis book is, through the delightful asides in the text, plus the views in the plates, that of the ambience of the island (at least, away from the major tourist sites). The emphasis of the commoner and more obvious species is ideal for the birder who can't quite bring himself to put his binoculars away. Should you seek a more active day out, Mason has provided some possible itineraries in his preface, with photos revealing the variety of Bali (Holmes provides a more conventional and instructive introduction). A notable variation by Mason is that the species are not shown in any kind of systematic order, but with an alphabetised list of contents this does not matter and serves to symbolise the diversity of birds, while keeping similar types in proximity, just as we may encounter them. The endpaper art by a father and son team of Balinese artists enhances the character of Bali and the book.

Neither of the books neglect the dedicated birder or keen ornithologist. In both one will find a complete checklist (with status codes) of all species covered by Java and Bali or Bali alone. To inspire birders on Bali, Mason has added a 'List of Probables' (34 species — all with unconfirmed sightings) and since the book was published, he has helped establish the Bali Bird Club (c/- PO Box 400, Denpasar, Bali 80001, Indonesia), with the emphasis on conservation, local education and the popularisation of bird-watching on Bali. The Holmes and Nash book will also appear in an Indonesian language edition and a companion volume on Sumatra is in active preparation. The IOS also supports conservation issues and is currently assessing the status of Java's birds using an atlasing method not unlike that of the RAOU for Australia, although with fewer opportunities for volunteers to submit records (if anyone has any, send to The Editors, *Kukila*, PO Box 287/JKSMG, Jakarta Selatan 12710A, Indonesia). Both books are highly recommended for enjoying a birding holiday in an affordable destination (from Australia); they also enhance an expanding range of titles for a country now ranked by bird conservationists as No. 1, in terms of the high number of rare, endangered or poorly known species unique to its islands.

Murray D. Bruce