Reviews

Biology of marine birds. Schreiber, E.A. & Burger, J. (Eds). 2002. Boca Raton, Florida: CRC Press. Drawings (19) by J.P. Busby. In text: 61 tables, 156 photos/illustrations, 89 graphs/maps, 3 appendices. 722 pp. (hard cover). ISBN 0-8493-9882-7. US$ 79.95.

This book deserves a place on the bookshelf of all serious seabird researchers; or, better, deserves to become coffee-stained and worn by use. Regardless of the publisher's come-ons on the back cover and the editors' introductory statements (p. 1) the book will not directly '. . . be useful to land managers, public policy-makers, and conservationists (who must knowledgeably manage our quickly disappearing wetlands and estuaries)'. Hopefully, though, the information contained in the book will find its way to the latter through biologists' efforts.

The other caveat I'd like to speak to at the outset, and which belies my biases, is that the book is clearly written by non-seafaring folk, an irony in a summary volume about organisms, the large proportion of which spend 90% of their life and most (or all) of their multiple prebreeding years elsewhere than land. Missing is much serious integration between colony patterns and the marine biology of seabirds, other than Chapter 5 (H. Weimerskirch), which relates demographics to food resource exploitation. The fine chapter on foraging behaviour (6, by D.A. Shealer) is a bit on its own; as is that of seabirds and fisheries (16, by W.A. Montevecchi). This omission is serious, but pervasive in seabird research and, ultimately, seabird resource management. For example, in attempting to understand seabird life-history patterns and colony dynamics, certainly goals of this volume (and a tool of management), the editors mistakenly (pp. 4–6, especially 6) dismiss the central importance, I believe, of the eye-opening analysis by R.W. Furness & T. Birkhead (1984, *Nature* 311: 655–656), supported by a slowly growing body of literature, that through intraspecific competition for food seabird colonies are not independent of one another (increasingly supported, in turn, by genetic data). Moreover, the very interesting chapters on prehistoric seabird fauna (K.I. Warheit, Chapter 2) and systematics/distribution (M. de L. Brooke, Chapter 3) point tellingly to regional faunas dominated (or once dominated) by species or ecological types (especially subsurface foragers) that apparently exclude(d) others from occurring, even if the dominants bred elsewhere. The implication is that some sort of away-from-colony resource competition is central to seabird ecology, the key concept here being 'away-from-colony'. Along these lines, largely missing, too, is attention to the extensive literature on seabird population changes affected by alteration of food webs (especially, North Sea and the eastern boundary currents; touched on, at least from the anthropogenic aspects, in Chapter 16) or by climate (in spite of the title to Chapter 7). Summarizing this diatribe, then, the statement by J. Bried & P. Jouventin (Chapter 8, p. 269) should be an integrating theme for the next seabird biology summary volume: '. . . the key factor in the evolution of [seabird] life history traits: they exclusively rely on marine resources for feeding and yet they need to come ashore for breeding'. It's not the other way around (except for gulls and cormorants).

In trying to rectify Chapter 2 with Chapter 3, I wonder, in regard to systematics, if the anatomists and geneticists will ever find important common ground below the higher taxonomic groupings? It's an important question for those making phylogenetic comparisons (e.g. energetics p. 361). Currently, the geneticists are holding sway supported by conservationists finding that species in jeopardy (after a genetically based taxonomic split) bring increased funding for research (a cynicism). Chapter 4 by J.C. Coulson on the seeming well-beaten subject of coloniality is thoughtful; his questioning of breeding synchrony as a result (or characteristic) of coloniality should turn some heads. Chapter 5 on seabird demographics obviously took some special effort and is an important advance, brought by a detailed collation and secondary-level analysis of an increasing (but still comparatively sparse) literature on the subject. What about those seeming, demographically disparate sub-surface foraging species (the ones that strongly influence faunal compositions, above); might they exploit a similar *volume* of ocean habitat, at a greater energetic cost, as do most of those surface foragers? It appears that the strategy of energy acquisition (through use of wind and food; cf. Chapters 6, 11, 12) in the context of energy limitation ultimately will bring unity to understanding seabird demographics (and, perhaps, life history patterns, Chapters 2, 3; a question posed by the editors in Chapter 1). Such a finding, too, may inspire greater integration of marine- with colony-based biology in our future writings.

Chapter 8 (K.C. Hamer *et al*.) is a tour-de-force of knowledge on seabird life-history patterns. It is a platform from which future research and discussion of the subject should be launched. Surprisingly, given that the two editors are co-authors, portions duplicate Chapters 5–9. Chapter 7 (by E.A. Schreiber) will have to be cited by every future paper that discusses effects of ENSO and weather (but not climate) on seabirds, it being the most complete distillation yet of these subjects. The summary and integration of research results on mating systems of seabirds (Chapter 9, by J. Bried & P. Jouventin) is mind-boggling. It's a complete review of monogamy (as practiced by seabirds) which, as the authors point out, has been too ordinary to attract as much attention as given to discussions of the more quirky mating systems in wild vertebrates. The subject of how seabirds select mates and nest sites is definitely a challenging one to understand, but ultimately is key to devising seabird colony management.

Chapter 10 (by J.B. Nelson & P.H. Baird) provides a fresh summary of seabird social behaviour, the study of which in the past was important in development of ethology, but which has been given much less attention in recent years. Our understanding of avian energetics is also being clarified by research on marine birds (Chapter 11, by H.I. Ellis & G.W. Gabrielsen), and here is still another thorough review. As noted to me by my thesis advisor (W.J.L. Sladen), why waste time studying organisms difficult to see and hard to catch/observe repeatedly in the wild? Given all that we know about seabird behaviour and energetics, others have had the same view. Seabird physiology has been surprisingly well-

researched, probably for the same reason, and the subjects of reproductive physiology (Chapter 12, by G.C. Whittow), development (Chapter 13, by G.H. Visser), and the all-important (to seabirds) water and salt balance are here well reviewed.

The final chapters related to seabirds, I suppose, are necessary in the modern summary of seabird science: all have to do with anthropogenic influences on seabirds. After all, such influences provide much of the support for research on marine birds and probably these are the chapters that seabird managers more likely will read. Chapter 15 (by J. Burger & M. Gochfeld) summarizes effects of pollution and Chapter 16 (by W.A. Montevecchi) effects of fisheries. Table 16.1, comparing consumption of capelin by various predators, including man, in the north-west Atlantic is a sobering one in a world whose resources are ever shrinking owing to the expansion of human numbers. This table alone argues, I think, for a more thorough integration of marine biology into future summary volumes about seabirds. There is just not enough food for 'everyone', and those seabird biologists who believe that food resource depletion or alteration (by whatever cause: birds, humans, or climate) is not an important phenomenon should definitely read this chapter. Chapter 17 (by P.D. Boersma, J.A. Clark & N. Hillgarth), about seabird conservation, is the only cursory review in this book, but it does cover this well-beaten subject and refers often to other chapters that also cover the subject. It also makes the case that knowledge (through research) has an important role in conservation success.

Given that no chapters on seaducks or divers/loons exist, why Chapter 18 (shorebirds (charadriid waders), by N. Warnock, C. Elphick & M.A. Rubega) and Chapter 19 (wading birds (Ciconiiformes), by P.C. Frederick) were included is a bit of a mystery, in spite of the obvious effort put into them by respective authors. Insuring that these reviews will not be lost in the literature to the benefit of true wetland (tidal land) managers and management remains the task of bibliographers (and readers). Certainly volumes like the present (on 'true' seabirds), each addressing these other groups alone would be well worth the effort and would require an equivalent number of authors and pages to do justice. In my naivety as a seabird biologist, I have no idea whether such volumes exist in the past for these birds or are planned for the future.

In summary, if you want to learn about the biology of seabirds, do at least start with this volume. The fact that each chapter has its own extensive bibliography is an important attribute that increases the book's value, but is an attribute that publishers (with an eye to page costs) increasingly find hard to justify. Given what you get, this is a very cheap volume. The editors and authors should be commended by you, the reader, through the act of you purchasing and using a copy.

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Seabird monitoring handbook for Seychelles. Burger, A.E. & Lawrence, A.D. 2000. BirdLife Seychelles. 94 pp., illustrated with drawings, six appendices, a compact disc with small direction manual containing a data entry and report generator system (paper cover). ISBN 99931-53-02-8. *c.* US$ 40.

This publication is designed to provide government land managers, researchers and land owners in the Seychelles with some guidelines for monitoring the local seabird populations. Some basics on types of monitoring, reasons for monitoring and conservation needs are discussed. Individual species are described and a few notes on their breeding biology, timing of nesting and diet are provided. Census methods are described along with recommendations for which to use on each species. One chapter provides methods for monitoring diet. The six appendices provide sample field data sheets, species codes, a fish family identification guide and a sample census report. A compact disc is included, which contains data entry forms and generates reports using Microsoft Access.

The book is a good beginner's guide to monitoring for people who have not had a great deal of scientific training – something that has long been needed. It does still require that a person has some knowledge of monitoring, handling birds, banding and the effects of human disturbance on seabirds. The authors acknowledge this and suggest that for best use and understanding of sampling methodologies, researchers should refer to Walsh *et al*. (1995) and Bibby *et al*. (1992) among other publications. The continual reference to other publications as a source for more data on how to conduct a study might make it difficult for those in the Seychelles to carry out accurately a monitoring plan if they did not have all the literature recommended. It would be most useful if the manual was able to stand alone, particularly for use in remote areas that may not have easy access to a more complete literature.

Recommendations such as specific species codes and nest condition codes are suggested, and the authors describe the need for careful consistency to have comparable data from census to census. Census methods are well described, but could use a further discussion on which methods to use with which species or under which conditions, and what the accuracy level of each is expected to be. For instance, flush counts are suggested as a nest number determination method, but even I, with over 30 years of experience in counting birds, have a hard time making counts of swirling birds that are flushed up into the air, and then coming up with a nest number figure from this.

Chapter 6 gives some methods for monitoring breeding performance (hatching and fledging success). A checklist of the types of data that can be collected is provided, but is not explained: does a researcher have to do all these things, and how do you do them? For instance, determining the number of eggs lost is suggested in the checklist. Do you check nests every day to determine this, or is once a month enough? If you check only once a month, how do you account for eggs laid and lost in between? Or if nests are counted once a week, how does the researcher differentiate eggs counted on the last visit from newly-laid eggs? Monitoring is not an easy task for a dedicated statistician, and for a potential amateur, some well-tested, greatly simplified monitoring plans are needed. Also, it is often not possible to devote a great amount of time to a monitoring programme and it would be good to give a range of suggestions that involve different levels of commitment to the effort.

The specifics given for monitoring each species in Chapter 8 are useful, particularly given the differences in habitats used, colonies densities, etc. One thing I have noticed over the years, is that whereas birds may behave toward researchers in a particular way in the colony where I study them, behaviour can be very different in other colonies of the same species. For instance, the authors say that frigatebirds and boobies are very sensitive to human disturbance, yet where I work with these species in the Pacific, I have no problems with human disturbance in monitoring these species. This again points out the necessity of having trained personnel undertaking monitoring programmes. Someone must be knowledgeable enough about bird behaviour to recognize if they are causing a problem. The authors suggest re-feeding regurgitated food to chicks that are disturbed. I have found that re-feeding a chick prolongs my stay in the colony and that the birds are much better off if I work quickly and get away from them, than try to spend time re-feeding many chicks. Also, most chicks I have re-fed regurgitate the food again as soon as I leave them. If the colony is disturbed only once a month to once a week, a lost meal is not significant to the chick and is better off left where, in fact, the adult may re-swallow it.

The manual is nicely illustrated with drawings of birds, habitat and fish. At about US$ 40 the cost is fairly high, apparently owing to high printing costs in the Seychelles. It does have many blank spaces, which could have been well used in more detailed descriptions of some of the procedures rather than referring readers to other publications.

The compact disc and accompanying manual provide a data entry system for the monitoring data collected. If one has access to Microsoft Access and knows how to use it, this program facilitates keeping track of the data collected and also generates reports. I had never used Access and could not figure out how to use the system without the help of a more computer literate person. For those who cannot determine how to use the Access system, or those who do not have access to a computer, an alternate system of how to examine the monitoring data collected would be good to have.

There is a definite need for more monitoring and protection of seabirds, as colonies are still being lost to human disturbance and destruction at an unknown rate worldwide (Croxall *et al*. 1984, Croxall 1991, Schreiber 2000a,b). Monitoring and conservation of seabirds is not an easy task. I remember learning at the ICBP XVIII World Conference on seabird conservation in 1982 that, ultimately, the only way to protect seabirds was through education programmes which taught people to appreciate (and thus want to save) their natural resources (Croxall *et al*. 1984). More of us should be spending time, as Alan Burger and Andrea Lawrence have, designing detailed monitoring plans, designing education programmes for schools, and working to protect the birds we study.

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Cormorant harassment to protect juvenile salmonids in Tillamook County, Oregon. Bayer, R.D. 2000. *Studies in Oregon Ornithology* No. 9. Newport, Oregon: Gahmken Press. Available for free at http://www.orednet.org/~rbayer/salmon/salmon.htm

The goal of the Oregon Coastal Salmon Restoration Initiative is to recover populations of wild salmonids. Among the actions proposed to achieve this goal is cormorant harassment (hazing). This document reviews effects of such hazing. Hazing was not correlated with increases in spawning ground counts of wild salmonids, or with consistently improved hatchery returns. Changes in fisheries catch subsequent to hazing were mixed, with increases detected only for some species or at some sites. The general conclusion of this report is that cormorant harassment does not appear to be a panacea for salmonid recovery.

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