BIBBY, C.J., BURGESS, N.D. & HILL, D.A. 1992. *Bird Census Techniques*. Published for the British Trust for Ornithology and the Royal Society for the Protection of Birds by Academic Press, London. 257 pages.

One might expect that 257 pages for a practical book on bird census techniques was gross overkill. Counting birds is easy: you start, "One, two, three, four, ... ," and end " ..., one hundred and twenty-six, one hundred and twenty-seven!" However, as Colin Bibby and his co-authors show in this book, it is not that simple. In the end, 257 pages is not enough to do the subject justice.

The book has ten chapters, the first two theoretical and the remainder practical. The first chapter considers the objectives of bird census studies, and makes the point that the accuracy and precision of the method chosen is appropriate to the questions being asked. The second chapter discusses the sources of bias that can distort the results, and provides helpful suggestions on how to prevent, or at least minimise them.

The next four chapters cover the most commonly applied census methods: territory mapping methods, a technique which has formed the backbone of the British bird monitoring scheme, the Common Birds Census, for thirty years and which, to my knowledge, has only been seriously used once in southern Africa (Tarboton 1980); line transects, counting the birds along a route; point counts, counting the birds from single vantage point; catching and marking, *i.e.* estimates of population size from bird ringing studies, the chapter likely to be of most interest to readers of *Safring News*, and therefor considered in a little more detail.

This 25-page chapter provides descriptions of some of the kinds of marks that can be used in addition to metal rings in ringing studies that aim to estimate population size. For example, individual colour ring combinations avoid the necessity of retrapping birds to establish a bird's identity. Some of the simpler statistical methods for estimating population size from resighting (or recapture) data are outlined, along with their assumptions, and ways of reducing the problems of violation of these assumptions. Methods based on catch per unit effort, which provide an index of population size, are discussed. SAFRING's "measured effort site scheme" falls into this category (Oatley and Underhill 1989). The material in the chapter could easily form the basis of a book in its own right!

The next chapter gives advice on how to count breeding populations of individual species. For example, if you need to count the breeding population of a colonial species of heron in an area over a period of years, you are told that the most appropriate counting unit is the Apparently Occupied Nest, and are given criteria on how to decide if a nest is occupied. You are told that the sizes of individual heronries increase and decrease, and that new colonies are sometimes set up, so that it is important to find all the heronries in the area each year. Most of the advice is a blend of common sense and hard-won field experience. There is a chapter on counting birds in flocks and roosts, which will be of interest to those working in seabird colonies, and to waterbird counters.

The final two chapters cover distribution studies and the description and measurement of bird habitat. There is a brief section on atlas methods, with a useful summary of the design procedure for an atlas study. There is

an all-too-short section on well-designed methods of estimating population sizes, using randomized plots on which birds are counted and habitat descriptions made. The future of bird census techniques lies in these methods, and it is a pity that this section is so short as only to be an entrée. The chapter on methods of habitat mapping is particularly valuable, and, although it is directed mainly at British habitat types, the principles have broader application. They are readily applicable to southern African conditions, and this is particularly true of the descriptions of potential variables to measure habitat structure in grassland and woodland. The use of radio-telemetry to discover how individual birds utilise their habitats is briefly mentioned.

The book is written in an easy-to-follow style, and makes extensive use of one page "displays" to present step-by-step arguments or to summarise more complex procedures. It will be valuable to anyone who needs to census birds; however, it is not sufficiently comprehensive to become the indispensable reference book on bird census techniques. But it does achieve its goals of providing guidance and in making researchers aware of the problems and pitfalls involved in the counting of birds.

REFERENCES

TARBOTON, W.R. 1980. Avian populations in Transvaal savanna. *Proc. VI Pan-Afr. Orn. Congr.* 113-124.

UNDERHILL, L.G. & OATLEY, T.B. 1989. Measured effort sites – a potential SAFRING project. *Safring News* 18: 47-48.

Les Underhill

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