



Bird Migration: A General Survey

Source: The Auk, 119(3) : 874-875

Published By: American Ornithological Society

URL: [https://doi.org/10.1642/0004-8038\(2002\)119\[0874:BMAGS\]2.0.CO;2](https://doi.org/10.1642/0004-8038(2002)119[0874:BMAGS]2.0.CO;2)

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newly published information through 31 December 1998. A short glossary has been added, the index expanded, and the overall length of the book increased slightly. In the more active research areas, significant new information has appeared during the decade since the first edition appeared in German, so there is justification for publishing and for purchasing the new edition even though much material is repeated.

As the title accurately states, this is a general survey. The coverage is very broad, spanning the origin and evolution of migration, methods used in migration studies, a long, mostly descriptive chapter on the phenomena of migration, a lengthy chapter on the physiological bases and control of bird migration, orientation and navigation mechanisms, and conservation issues and the future outlook for migratory birds. Several of those subject areas have received book-length treatment, so the inclusion of all of them in one book of modest size necessarily means that the treatment sacrifices depth for breadth. Nonetheless, it is a synthetic analysis that manages to include a great deal of relevant detail. Not surprisingly, the bulk of the examples are European. Whereas that might seem a disadvantage for a North American audience, the European bias does present interesting opportunities for the reader to compare and contrast New World examples with those from the generally better-known Old World. There are many new sections throughout the book. Perhaps the most important is the inclusion in Chapter 2 of Berthold's ideas about the evolution of migration and the central importance of partial migration as the basic pattern from which the entire spectrum of behavior from sedentary to fully migratory may evolve. Based on his own studies and those of others, he emphasizes the rapidity with which migratory behavior may appear, disappear, and change within populations, making a search for the deep phylogenetic roots of bird migration probably a misguided enterprise.

If there is a significant criticism of the book, it is the uneven citation of sources and the heavy reliance on review articles and other secondary sources. That results in two problems for the reader. First, one frequently comes across statements of fact made without attribution. The person desiring more information about the matter will find little help here. Second, because secondary sources are so frequently cited, it is often not only impossible to determine the originators of ideas or the discoverers of phenomena, the naive reader may come away with an erroneous idea of the source (e.g. on p. 156, Berthold [1996] is cited as the source for the fact that vultures and tubenoses can locate food sources by odor). Because of Berthold's own research background, it is not surprising that genetic determinism of many features of migration is emphasized: this does not detract from the book so long as one is aware, *a priori*, of the bias.

The Auk 119(3):874–875, 2002

Bird Migration: A General Survey, 2nd edition.—Peter Berthold. 2001. Oxford University Press. New York. xi + 253 pp., 59 text figures. ISBN 0-19-850787-9. Paperback, \$45.00.—The literature of a number of areas in the study of bird migration has grown so dramatically in both volume and complexity in recent years that few individuals in the world have a sufficient grasp of the field to attempt an inclusive treatment. In the past two decades, only Alerstam (1990) and Berthold (1993 and this book) have attempted comprehensive treatises, both translated into English. This book is a revised and updated edition of the same title published in 1993. The new edition follows the same basic plan as the first. The 12 chapters are the same. Much of the text is identical to the first edition, but some new sections have been added and all areas have been updated in light of

Actual misstatements are few and some of those may result from the vagaries of translation. In the subject matter with which I am most familiar, he repeats the unfounded statement that polarized-light vision in birds is confined to the ultraviolet and is mediated via double cones (p. 156). The Lohmann's experiments on magnetic position-fixing in sea turtles are said to provide an example of magnetic navigation (*sensu stricto*, as Berthold defines it) (p. 160); they do not. Sunset orientation mechanisms are said to require magnetic information for their development (p. 173), but in fact develop independently of magnetic input. Finally, the description of Emlen's stellar rotation experiments (p. 153) is so abbreviated as to be unintelligible to one not already familiar with the story.

The translation by Hans-Günther Bauer (who translated the first edition) and Valerie Westhead is generally good and almost universally adequate. It is obvious to the English-speaking reader that the work is a translation and the presentation is sometimes awkward, but effective communication of the facts and ideas is nearly always achieved.

The book ends with some relatively short chapters on the conservation of migrants and an attempt is made to take an evolutionary look at the future of bird migration systems. They make for depressing reading. After spending two pages enumerating various national and international agreements, conventions, and programs, he concludes that in essence they are little more than window dressing. Add to that the fact that the predicted direction of climate change in the near term should increasingly favor resident species to some degree at the expense of migrants, and he concludes (p. 192) that "[e]ven with the most optimistic assessment, the future of migratory birds—including in Europe . . . —looks gloomy." Whereas one might draw the same general conclusion from a New World perspective, the relative magnitudes of the threats vary somewhat between North America and Europe. Whereas habitat loss looms large as the most significant threat on both sides of the Atlantic, the toll on European migrants as a result of direct human harvest is stunning by New World standards. In the Mediterranean region alone, several hundred million migrants (a large proportion of which are passerines) are shot, trapped, killed, or traded annually. With so little progress having been made in controlling that unacceptable slaughter (and one of the least complicated threats facing migratory birds), it is little wonder that Professor Berthold finds the prognosis "gloomy."

This is an excellent book overall. With Alerstam's book now significantly dated, Berthold's volume is without peers. It would be an appropriate acquisition for both university and public libraries. Written for the professional scientist, the book contains considerable technical material and density of detail, but

I believe it could also be read profitably by the interested layperson.—KENNETH P. ABLE, *Department of Biological Sciences, State University of New York-Albany, New York 12222, USA. E-mail: kpa@csc.albany.edu*

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