



## Effects of Climate Change on Birds

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## BOOK REVIEWS

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**Effects of Climate Change on Birds.**—Anders Pape Møller, Wolfgang Fieldler, and Peter Berthold, editors. 2010. Oxford University Press, New York. 321 pp. + 9 color plates. ISBN-978-0-19-956975-5. \$117.00 (hard cover).

Certainly timely in light of present climatic trends, this book sets out to assemble useful summaries of the full breadth of climate-change implications for birds in a single volume. It is organized into sections treating the basics of climate, methods for studying climate-change effects, and biological consequences of climate change for birds. Indeed, this breadth is the book's chief virtue—the diversity of overviews of such diverse dimensions of climate-change implications for birds is impressive and highly useful in a single volume, circumventing the tracking down of individual overviews or research articles.

This volume, nonetheless, is irregular and unbalanced in its quality and depth. The climate introduction is thorough, written in terms that are useful and accessible to biologists, yet without sacrificing detail and rigor. The methods chapters, however, are much less comprehensive, being for the most part partial overviews rather than useful summaries of methods that can be applied to questions of climate change. For instance, the chapter on long-term data sets is weak, providing no new climate-change-related insights and being very Europe-centered in its outlook. Moreover, the vast resources held in scientific (museum) collections are undervalued, as are the large-scale efforts underway to organize, integrate, improve, and provide access to these data resources led by VertNet (<http://vertnet.org>) and the Global Biodiversity Information Facility (<http://www.gbif.org>). The capture–mark–recapture chapter provides only a very general overview and would have benefited greatly from a simple case study to illustrate its points. The chapters on quantitative genetics, time-series analysis, and population modeling all emphasize general explanations of the methods but fail to bring alive their direct applicability to climate-change questions. The chapter on habitat-suitability modeling (usually referred to as ecological-niche modeling) is comprehensive and more effective, and it makes the tie to climate-change inferences much more clearly, although a conceptual framework identifying the specific distributional areas and niche types being estimated would have made it still more effective. Overall, then, the methods section of the book is largely underdeveloped and not very helpful for those seeking to gain insight into avenues toward deeper understanding of climate change's consequences for birds.

The section on biological consequences, however, is quite a bit more useful. Chapters treat changes in the timing and direction of migration, phenology, and success of breeding, food availability, genetics, sexual selection, populations, interactions with parasites, interactions with predators and prey, range margins, and communities. A final chapter reviews conservation implications. These chapters cover much of the range of potential consequences

and present some very effective examples; my particular favorites were the examples in the chapter on food availability. The chapter on sexual selection was daringly speculative yet cast appropriately in the end, thus providing a useful overview of a nascent field.

In summary, this book has both high highs and low lows. The challenge of assembling a book-format summary of such a fast-evolving field is not trivial, and the editors are much to be congratulated for taking up this challenge. The book succeeds in providing an effective overview of the consequences of climate change and the state of knowledge across a suite of quite diverse fields, yet it comes up short in presenting methods effectively and accessibly so as to encourage others to apply them. It is simultaneously more specific and applicable yet less comprehensive and authoritative than the previous major review in the field (T. E. Lovejoy and L. Hannah, eds., 2005, *Climate Change and Biodiversity*, Yale University Press, New Haven, CT). The price is a bit hefty for a relatively slender volume, though I suspect at least that many institutions will choose to purchase it.—A. TOWNSEND PETERSON, Biodiversity Institute, University of Kansas, Lawrence, KS 66045. E-mail: [town@ku.edu](mailto:town@ku.edu).

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**Feathers, The Evolution of a Natural Miracle.**—Thor Hanson. 2011. Basic Books, New York. 336 pp., 65 figures. ISBN- 978-0-465-02013-3. \$25.99 (hard cover); ISBN 978-0-465-02346-2 (e-book).

Thor Hanson, a field biologist who is already an award-winning nature writer, has now written a scholarly and enjoyable book for the lay reader on all aspects of feathers. (We have to excuse him for his unfortunate choice of a subtitle—by definition, evolution is natural, but miracles are not—and take it to imply only that feathers are a source of fascination and mystery as well as of historical and scientific interest.) The reason that the book merits review in the *Condor* is that Hanson has worked hard to summarize the science behind our current understanding of the form and function of feathers, their development, and their evolution. He contacted leading researchers and he covered all the aspects of feathers treated by Frank Gill in his authoritative textbook. Here he mixes that summary with interesting accounts of his own field experiences, such as observing feeding vultures in Africa, studying the winter ecology of kinglets in Maine, spotting birds of paradise in Australia, and retrieving a lost murre in his home state of Washington. He also describes various small experiments with birds and adds information from