



EDITED BY REBECCA HOLBERTON

*The following critiques express the opinions of the individual evaluators regarding the strengths, weaknesses, and value of the books they review. As such, the appraisals are subjective assessments and do not necessarily reflect the opinions of the editors or any official policy of the American Ornithologists' Union.*

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*The Auk* 118(2):564–565, 2001

**Stopover Ecology of Nearctic–Neotropical Landbird Migrants: Habitat Relations and Conservation Implications. *Studies in Avian Biology*, no. 20.**—Edited by Frank R. Moore. 2000. Cooper Ornithological Society, c/o Western Foundation of Vertebrate Ornithology, 496 Calle San Pablo, Camarillo, California. iv + 133 pp. ISBN 1-891276-12-3. Paper, \$18.00.—Conserving critical habitat for migratory birds is especially complex and challenging. The problems associated with habitat loss and fragmentation on the breeding and wintering grounds are apparent and have received considerable attention from researchers and managers. The stopover habitat ecology of migratory landbirds in the New World, however, is far from clear and fundamental questions must be resolved if we are to understand and conserve this important group of bird species.

In this edited volume of *Studies in Avian Biology*, Frank Moore and his colleagues have done an excellent job of characterizing the scope and complexity of migrant stopover ecology. This volume consists of a short introduction by Moore followed by nine papers that address an appropriately diverse set of topics on biological and political/management issues. Previously published results are summarized in several papers and new findings are also reported. I found the volume to be especially valuable in the articulate presentation of pressing questions that range from individual energetics and foraging behavior to movements of birds at the landscape and regional scale.

In the first paper, Simons, Pearson, and Moore present an interesting set of techniques and modeling protocols for spatial analysis of stopover habitat associations and movements of migrating birds. They present individual-based models depicting the behavior of migrants as they make decisions about where to land and replenish after undergoing a trans-Gulf of Mexico flight. The currencies for those decisions are the individual's condition and the intrinsic quality of a habitat patch or landscape. Those analytical techniques appear promising for developing further explanatory and predictive (simulation) models. A later paper by Moore

and Aborn on the mechanisms of *en route* habitat selection is informative and complements the chapter by Simons et al. by summarizing the proximate mechanisms that may underlie an individual's decision to use a given habitat patch.

In another paper, Petit presents a valuable review of what is known about habitat use by passage migrants. Petit poses several basic questions about habitat selection and the types of habitats that birds appear to favor or avoid. Those patterns vary considerably among and within species according to geographic location and season (i.e. spring vs. autumn). Nonetheless, Petit offers the tentative conclusion that management strategies designed for birds during the breeding season will also be useful for *en route* migrants (with special provision needed for critical habitats near geographic barriers such as large bodies of water and mountains). A later chapter by Parrish on foraging plasticity (especially pertaining to switches by "insectivores" to frugivory) of *en route* migrants is also relevant to the issue of how breeding-season habitat can accommodate migrants. The management implications of this question are far reaching and merit critical analysis using field data and simulations.

Other papers include detailed analyses of age-dependent stopover behavior (Woodrey), a case history of stopover habitat loss along the northern Gulf Coast (Barrow et al.), and analyses of migrant use of riparian habitats in the Middle Rio Grand Valley of New Mexico (Finch and Yong). The latter paper complements the majority of those in this volume that focused on stopover ecology in eastern North America. Mabey and Watts offer a unique account of how local land-use policy can affect prospects for conserving valuable stopover habitat in Virginia's lower Delmarva Peninsula. The authors illustrate how important the cooperation of private landowners is to the conservation of stopover habitat. In the final paper, Hutto offers an insightful, sometimes personal, overview of migrant ecology and conservation. To those reading the entire volume, I recommend reading this

paper first as a nice introduction to the major issues and concepts presented throughout.

The volume does not cover all issues in detail and it was not intended to be comprehensive in scope. Urban or suburban areas, exotic trees and shrubs, and new tools such as Doppler radar in the study of migrant ecology, are important topics that were not addressed in detail. Moreover, a critical analysis of the contributions of lost stopover habitat to long-term trends in abundance would have been informative. Many migratory species are decreasing over much of their range whereas others are not, and some are even increasing. Differences in the migratory behavior and stopover ecology of species that are generally increasing versus those that are decreasing would clarify the conservation importance of stopover habitat and demographic events during migration.

Notwithstanding, I recommend this volume enthusiastically to those interested in avian conservation, behavior, and life histories. The volume is an excellent introduction to the ecology of migrants, the price is right, and the compendium of references (through the mid-1990s) is useful.—JEFFREY D. BRAWN, *Illinois Natural History Survey and Department of Natural Resources and Environmental Sciences, University of Illinois, Champaign, Illinois 61820, USA. j-brawn@uiuc.edu*

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*The Auk* 118(2):565–566, 2001

**Ecology and Evolution of Darwin's Finches.**—Peter R. Grant. 1999. Princeton University Press, Princeton, New Jersey. xx + 492 pp., ISBN 0-691-04866-5, Paper, \$22.95; ISBN 0-691-04865-7, Cloth \$69.50.—In 1986, Peter Grant brought together the results of the massive research effort he, his research collaborator and spouse, Rosemary, and his students had undertaken over the previous decade on the evolutionary ecology of Darwin's Finches. This new book is a reprint of the 1986 publication (the 16 chapters of the original are unchanged), with a new preface and afterword by the author, and a long list of new references. The Grants and their colleagues have been busy in the 13 years since the publication of the original edition. The 142 new references include 45 in which Peter or Rosemary Grant or both are a co-author!

The quality and quantity of the Grants' work with Darwin's Finches is such that the 1986 book was immediately recognized as a more than worthy successor to David Lack's *Darwin's Finches* (1947). Grant concisely explained the ecology and evolution of that famous group of island birds, on the basis of the

many impressive data sets collected by the Grants and their colleagues. Grant has shown how one can study avian evolution in the field, documenting natural selection and the evolutionary response to it. Indeed, his work demonstrating generation-to-generation evolutionary change in bill characters in the medium Ground Finches (*Geospiza fortis*), has made its way into several university-level introductory biology textbooks.

Grant's general premise was that the Galapagos environment is notably harsh and fluctuating and that food is frequently limiting. That resulted in rapid evolution of traits, such as bill characters, that are related to feeding. He put forth likely scenarios for past speciation in that group of birds. He also highlighted the current situation involving interpopulational morphological differences within species, the dynamism of morphological evolution across generations, and provided fascinating instances of hybridization between sympatric species. In reviewing his original text, I can do no better than to refer the reader to the review of the first edition by McGillivray that appeared in *The Auk* in 1988.

All new information in the recent edition is contained in the 24 page afterword. This is a chapter-by-chapter update. Some chapters are essentially unchanged, with a single paragraph noting only a few additional findings. Other chapters include multi-page summaries of relevant work published over the past 13 years. Those summaries are very helpful, bringing the reader up to date where necessary, and giving Grant a forum in which he reminds readers of the predictions he made in the first edition that have since been borne out by further research.

Grant singles out two topics for discussion in the afterword. Both of these have been the focus of significant research efforts since the first edition, and both are ripe for further research. The first is the continual refinement of finch phylogenies. Grant notes that the finch phylogeny in the first edition (fig. 72 on p. 259), taken from Yang and Patton (1981) and based on protein polymorphisms, has been superseded by the newer phylogeny by Petren et al. (1999) that is based on microsatellite DNA length variation at 16 loci (reproduced as fig. 103 on p. 424). Although the two phylogenies are broadly similar, the new one has revealed a deep split between two populations of the Warbler Finch (*Certhidea olivacea*), with the conclusion that this species is probably best recognized as two allopatric species, *C. olivacea* and *C. fusca*. As a consequence, there are 15, not 14, extant species of Darwin's Finches.

Grant argues that effort should be focused on further elucidating the phylogeny of Darwin's Finches because important questions about their evolutionary change depend upon the best-hypothesized phylogeny for this group. For example, relating the recent phylogeny to bill characters and diet of extant species presents as most parsimonious the hypoth-