

# Ornithological Literature

Edited by William E. Davis, Jr.

**ECOLOGY AND MANAGEMENT OF NEOTROPICAL MIGRATORY BIRDS: A SYNTHESIS AND REVIEW OF CRITICAL ISSUES.** Edited by Thomas E. Martin and Deborah M. Finch. Oxford Univ. Press, New York. 1995: 489 pp., numerous tables and figures. \$35.00 (paper); \$65.00 (cloth).—In the 1970s, two lines of evidence converged to focus the attention of ornithologists on the ecology of migratory songbirds. At about the time that researchers in eastern North America realized that Neotropical migrants had declined precipitously at several widely scattered woodland sites, researchers in Central America and Mexico were discovering that Neotropical migrants are common winter residents in the interior of tropical forests that are melting away with the expansion of human populations. The prospect that many of the most abundant breeding birds in North America might be in trouble triggered hundreds of research projects on the habitat requirements and population ecology of Neotropical migrants. Although the results of these studies have been summarized and synthesized periodically in a series of books and review papers, the rapid pace of research on Neotropical migrants requires new summaries every few years. This volume does an excellent job of integrating and interpreting information from recent research on neotropical migrants.

To prepare this volume, groups of researchers were invited to work together to review the literature on their general areas of interest. The goal was to minimize theoretical and regional bias and ensure that different perspectives were represented. Generally this approach worked well. For example, the chapter on winter habitat use (Daniel Petit et al.) was written by researchers who had studied migrants in the West Indies, the Yucatan Peninsula, western Mexico, and Central America. Because studies from these different regions are compared so thoroughly, the resulting conclusions are robust: Neotropical migrants are found in a wide range of habitats in winter, including early successional and agricultural

habitats, but some species are primarily restricted to large areas of undisturbed forest or to specific habitats such as mangrove swamps or pine forests. Similarly, the chapter on the impact of cowbirds on Neotropical migrants (Scott Robinson et al.) is written by researchers who have studied cowbirds in regions with different cowbird densities, host species, and landscape patterns, so regional differences in the effect of cowbirds are emphasized.

Another distinctive feature of this volume is that authors were asked to thoroughly address the implications of research findings for conservation and management of Neotropical migrants. Although the result is useful synthesis for researchers, the main goal was to interpret the scientific literature for foresters, wildlife biologists, and conservationists. Most chapters provide useful advice on management and conservation, but this is usually in the form of general recommendations rather than precise prescriptions of the type that foresters and wildlife managers frequently use for regenerating white pine or managing gamebird populations. For example, in the chapter on silviculture in central and southeastern oak-pine forests, James Dickson and coworkers recommend a mix of selection cutting and even-aged management to maintain both small and large openings and a range of successional stages. They also recommend several methods for preserving large blocks of continuous forest needed by edge-sensitive species: large areas reserved from timber harvest, larger regeneration cuts on longer cutting rotations, or single-tree rather than group selection cuts.

In most chapters, management recommendations flow seamlessly from the analyses of the habitat requirements and behavior of migrants. However, in a chapter on the effects of livestock grazing (Victoria Saab et al.), the general prescription for “large (at least 1000 ha), permanent livestock exclosures” (pg. 342) clearly applies to habitats such as desert grasslands and shrubsteppe where there were few native grazers, but not so obviously to the shortgrass prairie where “millions of native

ungulates (bison) were obliterated and then replaced with millions of exotic ungulates" (pg. 314), and where different species of birds are adapted to grassland in different stages of recovery from grazing.

For both resource managers and researchers, one of the most important chapters concerns whether populations of Neotropical migrants are limited in summer or winter. This is not only a contentious theoretical issue, but also an important practical issue: efforts to manage breeding habitat for migrants in Wisconsin forests or Kansas grasslands will be ineffective if populations are actually limited by availability of suitable wintering habitats thousands of miles to the south. Thomas Sherry and Richard Holmes develop an elegant graphical model which shows how population change probably results from a complex interplay of habitat availability in both summer and winter. This model depends on the assumption (confirmed by several recent studies) that habitat varies in quality in both breeding and wintering areas. If nesting habitat is destroyed, then fewer birds will migrate to the tropics during the winter. Consequently, a higher percentage of birds will find favorable winter habitat, increasing the average rate of survival. If winter habitat is destroyed, then fewer birds will return to the north, and a larger proportion of the survivors will settle in the best breeding habitat. Thus, losses at one end of the migratory route will be offset to some extent (and within limits) at the other end. For conservationists, this model implies that local efforts are nearly always worthwhile, but international cooperation is ultimately essential.

Most of the 17 chapters emphasize the importance of considering the regional context of a patch of habitat, regardless of whether the issue is winter habitat, migratory stopover sites (Frank Moore et al.), or breeding areas. The most cohesive discussion of population dynamics at the landscape scale is presented in two chapters that focus on habitat fragmentation. John Faaborg and coworkers emphasize the negative impact of habitat edge, while Kathryn Freemark and coworkers describe how reproductive and survival rates depend not only on the habitat within and on the edge of a site, but also on the landscape patterns in the larger region around the site.

The initial chapters focus on analysis of

data from the Breeding Bird Survey (our main source of information on large-scale population trends) (Bruce Peterjohn et al.) and on methods for conclusively determining the cause of population trends (Frances James and Charles McCulloch). John Rotenberry and coworkers analyze the importance of natural perturbations (fires, storms, insect outbreaks) for Neotropical migrant populations. Other chapters provide comprehensive reviews of the effects of timber harvesting (Frank Thompson III et al., Sallie Hejl et al.), farming (Nicholas Rodenhouse et al.), pesticide contamination (Nicholas Gard and Michael Hooper), and management directed at single species and guilds of species (William Block et al.).

This book will be a logical starting point for anyone planning to manage habitat for migratory birds in a particular region as well as for those interested in understanding the adaptations and requirements of long-distance migrants during the complex yearly cycles. The authors have effectively summarized and interpreted much of what is known about the ecology and conservation of Neotropical migrants.—ROBERT A. ASKINS.

**NEOTROPICAL BIRDS: ECOLOGY AND CONSERVATION.** By Douglas F. Stotz, John W. Fitzpatrick, Theodore A. Parker III, and Debra K. Moskovits. Univ. of Chicago Press, Chicago, Illinois. 1996: 502 pp., 3 large maps, 16 color plates, 46 black and white plates, 48 numbered text figures (that include small maps), 9 databases. \$37.50 (paper); \$100 (cloth).—In this ambitious volume the authors attempt to summarize relevant vegetation and physical characteristics of all Neotropical habitats and, more importantly, to provide an overview of the conservation status of each. A major component of the volume is the inclusion of nine databases (also available from the publisher on diskette) that together will prove invaluable to anyone researching Neotropical ornithology. These databases collectively occupy 306 pages, while the main text takes up but 130 pages. As would be expected, there is an extensive literature cited section.

The first part of the book is devoted to five chapters that review avian habitat types, hu-

mid forests, dry forest and arid scrub, grasslands, and aquatic communities. These chapters outline the major threats to birds in each of these habitat types. The surprising conclusion, at least for those who have relatively little actual experience in the Neotropics, is that lowland humid forests, rainforests, are not the habitats facing the most severe threats. Rather, it is dry forests, savannas, and more arid habitats, many of which contain a high percentage of endemic bird species, that are most at risk. For example, in the extensive Brazilian cerrado, a dry woodland of short stature trees that occupies much of southeastern Brazil, the authors suggest that 40% of the endemic bird species are threatened or endangered, while fully three-fourths are considered at risk. Loss of natural cerrado by habitat conversion (as for soybean production) is considered an "unheralded crisis." While each of the chapters is brief, there is much information to be gleaned and all of the chapters are well referenced to the professional literature.

Two chapters provide an overview of migrant birds, one chapter devoted to Nearctic migrants and one to Austral and Intra-tropical migrants. Regarding Nearctic migrants, the authors assert that population declines resulting from habitat loss in the Neotropics has not been well substantiated and they believe that most species have not declined for this reason. Those migrants most at risk are believed to be those restricted to lowland forests of Central America and the Greater Antilles (where deforestation has been extensive) as well as the pampas grasslands of Patagonia. Most Nearctic migrants occupy pine and pine-oak ecosystems, lowland evergreen forest, secondary forest, and coastal habitats, all ecosystems which are still relatively widely distributed and extensive in area. The chapter on austral migrants and intra-tropical migrants will prove insightful in demonstrating how common regional movements are. Neotropical bird communities undergo more fluctuation than many realize, and this chapter helps explain some of this intrinsic variability.

The two final chapters are devoted to developing principles for conservation policy and an evaluation of those areas most at risk. The main point is to suggest a concept the authors call "globally significant cornerstone habitats," defined as "regional habitats con-

taining large proportions of the endemics that are restricted to that vegetation type." The concept of endemism is thus used as the fundamental criterion for making decisions about which areas most deserve protection. The logic for this position is well argued. The authors suggest recognizing five stages of threat to bird communities: the ancestral condition (as with the Venezuelan tepuis, not yet threatened); vulnerable communities (few endangered endemics, as with the Gulf-Caribbean Slope and Southern Amazonia); endangered communities (more than 20% of endemics threatened, as with the Brazilian Atlantic Forest and Northern Andes); severely endangered communities (about 60% of endemics threatened or endangered, as with the Lesser Antilles); ecological collapse (as with the Hawaiian Island avifauna—no Neotropical bird communities as yet fit into this category). Overall, threat to an avian community is measured by factoring in total vulnerable species, percentage of avifauna endangered or threatened, percentage of avifauna vulnerable, percentage of endemics at risk, and percentage of habitat-restricted endemics at risk. Using these variables, five ecosystem groups are recognized with regard to level of precariousness.

The nine databases, authored specifically by Theodore A. Parker III, Douglas F. Stotz, and John W. Fitzpatrick, provide an immense amount of information and will prove indispensable to researchers. These databases include the following: a huge table (161 pages) containing the zoogeographic and ecological attributes of all Neotropical bird species, the distribution of Neotropical bird species by country; two databases on Nearctic migrants, one on Austral migrants, plus databases on seabirds not breeding in the Neotropics, Nearctic partial migrants, Austral partial migrants, and indicator species. The databases are part of the legacy of the late Ted Parker.

It is hard to image any Neotropical ornithologist who would not find this volume essential. It is a splendid summary of a vast amount of information, much of which requires action in the near future if, indeed, the future of Neotropical bird communities is to be in any way assured. Beyond that, the book contains solidly argued methodological approaches that should prove useful to inform those making conservation decisions.—JOHN C. KRICHER.

LIVES OF NORTH AMERICAN BIRDS. By Kenn Kaufman. Houghton Mifflin, Boston, Massachusetts. 1996: 703 pp., 645 color photographs, 604 color range maps. \$35.00 (hardcover).—This could be an extremely short review: “Rush out and get this book. Now!” However, you might want a few good reasons why this frantic suggestion might be justified. This book is a convenient reference to over 900 birds found in North America, with mini-life-histories on 680 of them and shorter accounts on more than 230 others. Curiously, the volume started as a CD-ROM, reversing the “usual” pattern of some book transmogrifying into an electronic form. (Fear not. Atavistic bibliophiles, techno-peasants, and die-hard luddities should still feel quite comfortable with Kenn Kaufman’s book. Indeed, we might not have guessed the origins of this book unless Kaufman himself had let us in on the story in the volume’s Acknowledgments.)

The book’s species treatments are divided into long and short versions—hereafter called “the full treatments” and “the brief treatments” respectively.

The full treatments cover an introduction to the species (usually dominated by a general description, characteristic behavior, and interesting history on the species in North America), habitat preference, feeding (activity and diet), nesting (territorial display, nest, eggs, incubation, and care of young), migration, and conservation status. Except for the first two categories—the introduction and habitat—you cannot find this information in standard field guides (the recent Stokes’ admirable contribution to the genre notwithstanding). I particularly appreciated Kaufman’s insightful sections on “Nesting,” providing fine short summaries of each species’ breeding biology. The “Migration” sections are also creative and enlightening, covering range, usual movements, dispersal, and irruptions. The sections on “Conservation Status” are excellent, especially these days with growing interest in and sensitivity toward such species as Neotropical migrant forest birds and grassland species.

A full treatment will also have a photo and, usually, a range map for each species. However, I would not recommend buying the book simply for these two elements. The

maps are small and only give a general idea of North American bird distribution. The photos are normally good, but there are some small or dark notable exceptions, particularly among the Procellariiformes [e.g., Black-capped Petrel (*Pterodroma hasitata*), Buller’s Shearwater (*Puffinus bulleri*), Leach’s Storm-petrel (*Oceanodroma leucorhoa*), and Ashy Storm-petrel (*Oceanodroma homochroa*)]. Moreover, the photos have no captions to indicate the time and location of the shot, a point of importance to many serious bird students.

The brief treatments are exactly that, with over 230 species typically getting no more than four sentences on their natural history and North American status. Kaufman included every single unusual species that I sought in his brief treatments [e.g., Little Shearwater (*Puffinus assimilis*), Paint-billed Crane (*Neocrex erythrops*), Large-billed Tern (*Phaethusa simplex*) and Pine Bunting (*Emberiza leucocephalos*)]. They all were there.

Nonetheless, what is perplexing to this reviewer were Kaufman’s standards for choosing which species would get the full treatments and which ones would get the brief treatments. While I originally thought that Kaufman was providing the full treatments for all North American breeders—justifying the fine nesting section in each full treatment—I shortly found out that this could not be so. Such non-breeders in North America as White-tailed Tropicbird (*Phaethon lepturus*), Short-tailed Shearwater (*Puffinus tenuirostris*), South Polar Skua (*Catharacta maccormicki*), and Brown Booby (*Sula leucogaster*) all got full treatments. These species may breed in the Caribbean, Australia, Antarctica, and Mexico, respectively, but not in North America. Contrariwise, some North American breeders only got brief treatments.

Why would Kaufman give full treatment to such breeders as Curlew Sandpiper (*Calidris ferruginea*) but not Wood Sandpiper (*Tringa glareola*), Ruff (*Philomachus pugnax*) but not Mongolian Plover (*Charadrius mongolus*), White Wagtail (*Motacilla alba*) but not Red-throated Pipit (*Anthus cervinus*), Spotted Dove (*Streptopelia chinensis*) but not Crested Myna (*Acridotheres cristatellus*), Buff-collared Nightjar (*Caprimulgus ridgwayi*) but not Antillean Nighthawk (*Chordeiles gundlachi*),

Yellow-green Vireo (*Vireo flavoviridis* but not Streak-backed Oriole (*Icterus pustulatus*)?

Alas, not one parrot is given a full treatment.

These inconsistencies notwithstanding, the treatments—full or brief—are nothing short of superb. The book is simply packed with information, ready to burst like some ornithological bouillon cube.

I would be remiss if I did not mention the book's wonderful Introduction, explaining the organization of the book and the organization of the species accounts. It is thorough, informative, and interesting, yet, surprisingly, neither technical nor simplistic. The Introduction contains the words of an author who is clearly familiar and comfortable with his subject. In the Introduction, moreover, Kaufman challenges the inquisitive field birder to add to ornithological knowledge, drawing attention to what we *don't* know about birds.

And, in the same area of arcane knowledge, I tried to "catch" Kaufman on some very obscure incubation periods and nestling periods for scores of species. I only succeeded a half-dozen times, and these were, I stress, some very obscure species [e.g., White-tipped Dove (*Leptotila verreauxi*), Red-whiskered Bulbul (*Pycnonotus jocosus*), Sprague's Pipit (*Anthus spragueii*), and Rufous-winged Sparrow (*Aimophila carpalis*)].

Finally, are there reasons why you wouldn't want this book?

The most serious ornithological researcher would be disappointed with the lack of detailed references. But Kaufman freely admits that including this information within the full and brief treatments would have made his text—designed for a general, though curious, audience—unwieldy. Besides, the professional ornithological camp has the fully adequate *Birds of North America*, though without the sprinkling of the Kaufman charm.

In brief, there is no good reason *not* to buy this work. Kaufman wished to focus on "keeping everything as clear and accessible as possible," and he has succeeded admirably. The book is instructive, engaging, and surprisingly compact. Yes, I was probably right the first time: "Rush out and get this book. Now!"—PAUL J. BAICICH.

HANDBOOK OF AUSTRALIAN, NEW ZEALAND & ANTARCTIC BIRDS, VOLUME 3 SNIPE TO PIGEONS. Edited by P. J. Higgins and S. J. J. F. Davies. Color illus. by J. N. Davies. Oxford University Press, Melbourne, Australia. 1996: 1028 pp., 60 color plates, numerous maps, sonagrams, and line drawings. \$265 (cloth).—This third volume of this mammoth project produced by the Royal Australasian Ornithologists Union covers the remainder (eight families were covered in Volume 2) of the Charadriiformes—the Scolopacidae (sandpipers and allies), Glareolidae (coursers and pratincoles), and Laridae (skuas, jaegers, gulls, and terns)—and the Columbiformes (Columbidea, pigeons and doves). The nomenclature and taxonomy generally follow Christidis and Boles (1994. RAOU Monogr., 2). Family and subfamily account introduce the 129 species accounts. The species accounts typically have sections on field identification (including a section on similar species), habitat, distribution and population, movements (including long-distance banding recoveries and banding summaries), food, voice, plumages and bare parts, molts, measurements, structure (e.g., wings long, narrow and pointed), ageing, and geographical variation for migratory species not breeding in the handbook area. Sections on social organization and behavior, and breeding are added, where appropriate, for breeding species. Diagrams delineating breeding season, present in volumes 1 and 2, are not present in volume 3. Maps show confirmed breeding areas in red, with areas where the species occurs but breeding has not been ascertained in half-tone red. For migratory species a world map showing breeding distribution supplements detailed distribution in the handbook region. The species accounts appropriately are of different length, ranging from a page or two for vagrants to nearly 30 pages for some gull species. The color plates are generally good quality, but I like the plates of pigeons and doves better than those of shorebirds.

I could not help but be impressed with how little is known about a large percentage of the species covered. Among the pigeons and doves, for example, for even widely distributed species like the Diamond Dove (*Geopelia cuneata*) the BREEDING section begins "Not well known, no major studies"; in the

Bar-shouldered Dove (*G. humeralis*) it begins "Poorly known, no major studies"; in the Emerald Dove (*Chalcophaps indica*) "Not well known, no major studies". In the Pacific Gull (*Larus pacificus*), a species endemic to southern Australia, we find MOVEMENTS "Poorly known"; SOCIAL ORGANIZATION "Poorly Known"; SOCIAL BEHAVIOUR "Poorly known; no published studies"; VOICE "Poorly known, No detailed studies"; BREEDING "Poorly known, no major studies"; GEOGRAPHICAL VARIATION "Poorly known". Clearly, one of the major contributions of this handbook series will be its heuristic value. Detailing what is not known may in the long run be more valuable than detailing what is known.

The book has a few minor problems. The printing in volume 1 was much easier to read than in either vol 2 or 3. I am also bothered by the lack of social interaction and breeding information on birds that only winter in the region covered by the handbook. Certainly, simply because a bird doesn't breed in an area doesn't preclude an interest in its breeding biology. At least a brief summary and references would have added a more cosmopolitan dimension to the work, and justified the expense of the added pages.

There are a number of features which I particularly like. The color descriptions are intelligible to non-specialists who may be unfamiliar with "burnt umber" but can picture "dark brown." The type-face is the same size throughout the accounts, letting the reader decide what should be considered more or less important. By far my favorite feature is the inclusion of references at the end of each order, family, subfamily, and species account. This is a very "user-friendly" feature, especially if you want to photograph a particular account.

Overall this is an excellent contribution. The accounts are well researched, the illustrations generally adequate for coverage of sex and age differences in plumage, the book is well laid out and sturdy. The series is the source for quickly and easily finding what is known (and not known) about birds in the Australasian region. The price may well be prohibitive for most individuals, but is essential for any serious student of birds of this region. Hence it is a must for academic libraries.—WILLIAM E. DAVIS, JR.

THE HISTORICAL ATLAS OF BREEDING BIRDS IN BRITAIN AND IRELAND: 1875–1900. Compiled by Simon Holloway. 1996. T & AD Poyser, London, UK. (United States Edition by Academic Press, Inc., San Diego, California). \$39.95.—The late Trevor Poyser's legacy to the ornithological world was the magnificent series of books bearing the imprint of T & AD Poyser, primarily species monographs but with a number of subject monographs, including the three atlases of Britain and Ireland (*The Atlas of Breeding Birds in Britain and Ireland* (1976), *The Atlas of Wintering Birds in Britain and Ireland* (1986), and *The New Atlas of Breeding Birds in Britain and Ireland: 1988–1991* (1993)). The volume under review constitutes the fourth atlas, this time not an atlas of contemporary distributions but a compilation of historical records for the last quarter of the Nineteenth Century. Despite this, Holloway is eminently readable: science and natural history, not the dry facts of history, leap from these pages.

In 1852 Hewett Cottrell Watson (1804–1881), a noted English amateur botanist of the Nineteenth Century, gave a list of 38 sub-provinces and 112 "vice-counties" into which he proposed to divide Britain so as to provide a set of geographical units more equal in their areas than were the political counties. With this advent of the Watsonian vice-counties was laid the foundation for a relatively systematic recording format in Britain (and in Ireland, where county sizes were, with two exceptions, more uniform in size). Watson's vice-counties provided the means for systematic recording of the distribution of plants and animals throughout the two islands, this eventually yielding to the 10 km grid squares of the three modern atlases but allowing the present compilation almost comparable comprehensiveness for data 100 years older!

Holloway's volume begins with a general introduction outlining the historical background to the period and providing details of the vice-county system. A 14 page section on his data sources follow. In addition to the three major Eighteenth Century avifaunas covering Britain and Ireland and associated with the names Yarrell, Thompson, and More, Holloway consulted more than 100 county and regional avifaunas for the period 1875–

1900. Geographic details are provided for each of these, together with a short paragraph about the authors of these works. Glancing through the biographies of these authors is fascinating, revealing much of the sociology of late Nineteenth Century ornithology and providing insight as to the origins of the wealth of avifaunas for England compared to the paucity for North America for the same period. Clergymen feature prominently, reflecting the triplet of an assured stipend from the Church of England, time on their hands, and natural history as a suitable occupation for a clergyman. However, lawyers, school teachers, academics, bankers, soldiers, nurserymen, and other occupations appear in these accounts, together with the obligatory dozen or so of independently wealthy English gentlemen. These accounts provide a fascinating glimpse of the nature of the world of ornithologists at that time and their inclusion here is a touch of genius on Holloway's part. A 10 page section follows to describe the late Nineteenth Century environment in relation to habitats and land use changes. In contrast to the primary sources used extensively for the historical information on birds, this section is based primarily on secondary sources, with heavy reliance on, for example, Marchants and coworkers' (1990) *Population Trends in British Breeding Birds* (British Trust for Ornithology, Tring) and Fuller's (1982) *Bird Habitats in Britain* (Poyser, Calton) for information as to how various land changes impacted bird populations.

A short 3 page section introduces the species accounts, primarily describing the layout of the accounts. The main point of interest here is Holloway's procedure for standardizing the abundance scores for each species. The authors of the Nineteenth Century avifaunas used language very differently one from another, so that such phrases as "not uncommon" are likely to mean different things for a given species in different regions. To standardize the historical picture in the face of such variation, Holloway painstakingly collated the descriptions from each avifauna, so that within each the spread in terminology from species known to be extremely rare through to those known to be abundant was, in effect, rank ordered, and this ordering was then standardized across avifaunas.

Each major account consists of two facing pages. On each 2 column text page the species' name and a woodcut illustration from Yarrell's (1837–1843) *A History of British Birds* precede the text account describing the status of the species in Britain and Ireland in the final quarter of the Nineteenth Century, concluding with a brief summary of the current distribution as revealed by the modern atlases. A nice touch for each species title is the inclusion after the current English name of older names that were at one stage widespread in use. One forgets just how recently such names as Land Rail for the Corncrake *Crex crex*, Waterhen for the Moorhen *Gallinula chloropus*, and Ring Dove for the Woodpigeon *Columba palumbus*, have fallen into disuse. At the bottom of each page is (in most cases) a small table showing the numbers of British and Irish counties of breeding (probable, confirmed, and combined) in 1875–1900 and in 1968–1972 (the dates of 1976 *Atlas of Breeding Birds*), and the proportional changes involved. Here the unwary reader may be caught by the occasional references to a 34-county Ireland (rather than to the 32 political counties), this is because Galway and Tipperary were each divided in two since Nineteenth Century data were regularly available for these two sub-counties. Occasionally the structure of this table is changed somewhat, by necessity. Thus, for the Gannet, *Morus bassanus*, it is the number of colonies and number of pairs for the periods 1900 and 1984–1988 that are recorded. Similarly for the Red Kite, *Milvus milvus* (now restricted to a single region in Wales), and for the White-tailed Sea Eagle, *Haliaeetus albicilla* (now extinct), these tables are omitted altogether. Some species accounts depart from this standard format. For the Tufted Duck, *Athya fuligula*, the text includes a map showing the extension of the breeding range of this species in Scotland during the Nineteenth Century; for the Scaup, *Aythya marila*, a table showing the dozen or so occurrences of Twentieth Century breeding at locations in Scotland, together with notes as to the breeding effort involved, is provided. For the Common Scoter, *Melanitta nigra*, a graph shows the number of pairs breeding on Lough Erne in Ireland over the period 1909–

1990. Similar variants appear within other species accounts.

In each species account the facing page contains a map with each vice-county (or in Scotland a faunal region) shaded to indicate one of seven classes of abundance (not breeding, probable but not confirmed, occasional, rare, uncommon, common, and abundant). An eighth category, extinction, is indicated where appropriate by the letter "E" being positioned in the vice-county or vice-counties. For island-breeding seabirds the locations of the islands are indicated by large dots of the appropriate color, while for coastal-nesting seabirds such as the Cormorant, *Phalacrocorax carbo*, or the Kittiwake, *Rissa tridactyla*, a color band along the coastal margin of the vice-county is used to indicate status. In the top righthand corner is reproduced (rather poorly) the dot distribution maps from the 1968–1972 *Atlas of Breeding Birds* (though I have yet to find a statement anywhere in the book that this is where these maps came from).

The 149 main species accounts are followed by brief (2–3 per page) accounts of other species that have bred since 1800 but not during 1875–1900, together with the species that colonized Britain or Ireland in the Twentieth Century but that were never recorded breeding during the Nineteenth Century. A short appendix provides historical details on the avifauna of various small islands around Britain and Ireland, these islands often having been the subject of particular accounts during the Nineteenth Century. Finally, three appendices list the names and scientific names of plants, birds, and other animals mentioned in the text, followed by a 13-page bibliography, an acknowledgments section, and an index of bird names.

A small number of errors have made it through the checking and production process. The introduction to the species accounts refers to the accounts being presented in three sections in taxonomic order, apparently intended to be sections on all species respectively that had bred in Britain and Ireland during 1875–1900; on introduced or domesticated species or those derived largely from such introductions or human intervention; and on other species. However, the first two of these appear to have been merged in the book, this introduc-

tion notwithstanding. As noted above, the reproductions of the original *Atlas of Breeding Birds* dot distribution maps appears to be unacknowledged, and it also took me awhile to find the information about the provenance of the woodcuts used in each species account. The citation to Hulme (1984) on page 34 is not accompanied by a corresponding entry in the bibliography, a reference on page 36 to "Beswick" should be to Thomas Bewick, and the entry for the *Atlas of Winter Birds* in the bibliography on page 463 is described as the "*Atlas of Wintering Birds*"! On page 96 the graph is indicated as referring to the period 1905–1900, instead of correctly 1905–1990. With these few exceptions, the text otherwise seems to conform admirably to the high standards set by Poyser for his imprint.

The book will appeal to two groups of North American ornithologists. First, for those who have ever enjoyed Audubon's diaries or who have read Whitney's (1994) *From Coastal Wilderness to Fruited Plain* (New York, Cambridge Univ. Press), this book is worth a couple of hours' browsing, if only with a library copy. The contrast with North America in the sociology of ornithology, the *tour de force* of a systematic mapping of distributions of these species *in the last century*, and the contrast it provides for North American ornithology is worth the time. A second group of readers probably lies among conservation biologists: there is much empirical data in this work for evaluating ideas about range changes, extinction rates, and so on, on a scale not readily available elsewhere. The data here provide an interesting set of templates against which to evaluate some of the most contemporary ideas in conservation biology. However, for North American readers perhaps the most thought-provoking question raised by this book's existence is the following: how likely is it that in the year 2096 a future writer would be able to produce the equivalent compilation for North America for the closing quarter of the *present century*? I am not sure that such an undertaking will be as feasible as one might first think, and this book may well have some important lessons for us as to how we do our bird recording as the Twentieth Century draws to a close.—RAYMOND J. O'CONNOR.



**FIELD GUIDE TO THE BIRDS OF THE MIDDLE EAST.** By R. F. Porter, S. Christensen, P. Schiermacker-Hanses, illus. by A. Birch, J. Gale, M. Langman, and B. Small. T & A D Poyser, London. 1996: 460 pp., 112 color plates, maps of distribution. £29.95 (cloth).—The Middle East is an attractive place for birdwatchers. At the meeting spot of three continents, this area is rich in avifaunas with many rare and endangered species, flocks of millions of birds in passage, and thousands of wintering birds. A team of three authors and four illustrators who have extensive ornithological experience in the Middle East countries prepared a field guide which should not be missed by anyone interested in birds of this region. This up-to-date guide describes all species recorded as of the beginning of 1996, and accurate relatively large-sized maps show distribution of each breeding species in detail. A few introductory pages open this field guide, and are followed by 112 color plates of superb quality. Where it is relevant, a range of plumages by age, sex, and geographical variation of that species is shown. Even though there are several species on each plate, the illustrations still depict details with accuracy. Most of the non-passerines and some groups of passerines, such as martins and swallows, wheatears, crows, and finches are portrayed in flight, showing the typical features that help with identification. On the facing page of each color plate are the maps of distribution, and brief descriptions of status and habitat. An identification text of different length for each of the 722 species reflects the multiple-year field expertise of the authors. Written with clarity, this field guide describes the species' appearance and typical behavior. In most accounts, the authors make a comparison with similar species. Description of important identification features and differences between similar species are printed in italics which help with quick utilization of the text. Body length, wing span, and description of voice is included for each species. The book closes with a list of references for each country, a species list, and indices of English and scientific names.

This excellent book is a must for anyone going to this region. Beginners will find it easy to use and learn from. Advanced bird-watchers will learn something new that will

ultimately help with correct identification. The bottom line is: this is the best field guide published so far on birds of the Middle East.—JOSEF KREN.

**A FIELD GUIDE TO BIRDS OF ARMENIA.** By M. S. Adamian, and D. Klem. American University of Armenia, Oakland, CA. 1997: 220 pp., 61 color plates, 348 maps of distribution. \$39 (field cover), \$44 (hardcover).—Armenia, a country of the size of Maryland that lies in the Caucas mountains between Europe and Asia, has a rich avifauna of 349 species. As part of the former Soviet Union, Armenia birds were included in a few general handbooks, and one work on Armenian birds was published in the 1950s. Shortly after Armenia declared its independence in 1991 an international team of ornithologists began a work on 3-year project, resulting in this splendid field guide. The book opens with a general introduction. Descriptions of bird topography and habitats, basics of bird identification and keeping field records, and how to use the field guide are provided on 20 pages. These introductory chapters target beginners; advanced ornithologists will most likely appreciate a short chapter on habitats of Armenia. The major part of this field guide is species description with color plates on the facing page. English common names follow names given by Sibley and Monroe (1990), however, the sequence of species follows Peters' (1934–1987) classification. For every species a total length, wing span, status regarding seasonal occurrence, and abundance category is provided at the beginning of the account. Identification features, description of similar species (where applicable), behavior, habitat, food, nest, and eggs complete the species account. The species identification features are short but well described, with key features being underlined. I did not find the sections on food, nest, and eggs particularly essential for this type of book. Instead, a more thorough description of habitats and chronology of seasonal occurrence would be more useful. The color plates, a work of 11 prominent, mostly British artists are excellent. They depict an adult individual of each species in different plumages, in many cases juveniles, and where

relevant also subspecies. Partial figures showing key identification features are included in some species. In each illustration, lines point to diagnostic characteristics. The illustrations are larger than illustrations in most field guides. I found the last part of the field guide (as other ornithologists may too) the most appealing. Accurate, four-colored maps show distribution and abundance of each species. They are based on records from the past 45 years, and provide a valuable source of data for larger-scale monographs. In summary, the reviewed field guide is a significant contribution to the so far poorly studied avifauna of Transcaucasia. Not only ornithologists visiting Armenia, but also surrounding countries, will find it necessary; I highly recommend it.—JOSEF KREN.

**HOST-PARASITE EVOLUTION. GENERAL PRINCIPLES AND AVIAN MODELS.** Edited by Dale H. Clayton and Janice Moore. Oxford Univ. Press, Oxford, UK. 1997: 473 pp., many figures in text. \$45.00 (paper); \$110.00 (cloth).—The principles of parasitology offer us the world in microcosm, but managing to integrate the appreciable taxonomic range of parasites and the virtually endless range of hosts is daunting. The seventeen reviews in the volume edited by Clayton and Moore are less daunting, in that the range of hosts is limited to birds. The emphasis is on the evolution of host-parasite interactions, which is an excellent approach to contemporary work in parasitology.

Readers whose exposure to parasitology has been classical, that is, earlier than 15 years ago, will find a virtually new field of study exposed here. Although taxonomy of parasites and the laboratory techniques of study are as important as ever before, the questions posed and the way answers are pursued are clearly taken from the developing field of evolutionary ecology. This places the emphasis on the dynamics of host-parasite interactions. Thus, host-parasite coevolution, sexual selection mediated by parasites, and variation in parasitic virulence are prominent foci of inquiry in this book.

Because the range of topical coverage is restricted to birds, Clayton and Moore point out

that avian parasitology has had a lengthy and diverse history. Such history provides a good foundation on which to examine phenomena such as coevolution, coadaptation, and cospeciation, among others that are currently of interest to theorists.

The book consists of three parts. Part I concerns general principles, and includes examination of natural selection by parasites, the genetics of host immune defenses by means of endocrines, behavior, and life-history variation, demographics of parasitized host populations, parasites and bird conservation, host-parasite community ecology, and host-parasite cospeciation.

Part II examines some avian models—birds serving as habitats for viruses, bacteria, fungi, protozoans, helminths, and arthropods, as well as foster parents in brood parasitism (the latter review, by Robert Payne, is the most strictly ornithological of all in the book, and is the most mature and comprehensive review of brood parasitism ever done). Moore and Clayton summarize Part II with an essay on the evolution of host-parasite interactions.

Part III consists of appendices in which techniques of collection and identification of avian parasites are summarized. Indexes to organisms and to topics are adequate, although some organisms with two or more vernacular names have them treated as though they are distinct [e.g., rock dove, rock pigeon, and domestic pigeon (*Columba livia* is not included); if you don't look up all three, you will miss some page references].

This is a serious book with a high level of intent and of accomplishment. Professionals working in ornithology, parasitology, and evolutionary ecology need to have this book, and it should be in all research libraries.—RICHARD F. JOHNSTON.

**FLIGHT-FEATHER MOLT PATTERNS AND AGE IN NORTH AMERICAN OWLS.** By Peter Pyle. American Birding Association Monographs in Field Ornithology No. 2, 1997: 32 pp., 14 figs. 8½" × 11", heavy paper cover, spiral-bound. \$9.95.—According to the author, "molt schemes in several species [of North American owls] have been erroneously reported or are underdescribed, and for other

species accurate information exists but its full applicability for ageing has not been examined." Several papers that misinterpreted owl molts and the presence of more than one generation of flight feathers are cited. The author's goal was to clear up the misunderstandings and provide an accurate account of owl molts and plumages with the emphasis on ageing birds in the hand. In this connection he examined 2429 owl specimens from four collections in California. Species samples ranged from 23 for the Boreal Owl (*Aegolius funereus*) to 251 for the Burrowing Owl ["*Speotyto*" (=Athene, reviewer's preference)] *cunicularia*. Using body plumage and flight feathers, specimens were assigned age codes using the calendar-based system of the Bird Banding Laboratory, from HY (=hatching year) all the way up (in some instances) to 4Y/5Y (=birds in their fourth basic plumage). The author emphasizes that all assigned ages except for those of obvious juveniles were inferred rather than absolutely known, as older known-age specimens were not available. He recommends that his conclusions be checked against captive [risky—KCP] and recaptured known-aged wild birds.

Conclusions about age were drawn primarily on the basis of active molt plus relative wear of flight feathers. In some species the shapes of particular unworn feathers and also their color patterns can be used in determining age. Full renewal of all primaries and secondaries is said to take as much as six (or more) years in some species; if this is true, the author quite properly asks why replacement of these feathers occurs so slowly in relation to most other birds. He also wonders what, if any, might be the systematic implications of molt patterns in owls. Certainly the identical molt regimes in "*Speotyto*" and *Athene* could be considered evidence for the relumping of these genera.

In his Conclusions section, Pyle states that "Reliable ageing of owls . . . requires caution and experience in many cases. In many owls, molt patterns may not be easily distinguished without practice . . ." Amen! Pyle's findings were based on examination of museum study

skins. In trying to age randomly selected owl skins in the collection of Carnegie Museum of Natural History, I found that identifying the individual remiges on the closed wing of study skins was difficult, and trying to assign each to a feather generation based on wear was for me almost impossible. We have a large collection of detached spread wings; using these I had no trouble identifying individual remiges, but without having Pyle's experienced eyes, I could, in general, distinguish only three kinds of remiges: growing, very worn and bleached, and everything else. Differences in shape and pattern were somewhat easier to detect, but did not always fall into the neat categories shown in the drawings. Pyle warns (p. 9) that there is overlap between age groups in these characters.

I believe Pyle's conclusions are probably reasonably accurate, especially considering his caution in their presentation. However, I find myself asking two questions about this publication. First, what is the intended audience? With the inherent difficulty in using conventional study skins, I doubt whether many curators will wish to age their specimens retroactively. Obviously the keys and descriptions will be best used with birds in the hand, whether in general banding projects or in population studies of a particular species when the birds can be captured for ageing. People carrying on such studies are likely to be the only ones willing to pay ten bucks for the publication (other than bird book collectors who buy *everything*). This brings up the second question—why was this paper (for that is really what it is, not a book) published as the second "Monograph in Field Ornithology" of the American Birding Association? Pyle's results are of use *only* with birds in the hand, whereas the emphasis within the A.B.A. has always been on *field identification*, whether simply to species or to age and sex classes. I could easily see this as a paper that the Bird Banding Office might have published for its own audience and anybody else who might be interested, but it doesn't strike me as relevant for the A.B.A. as we know it.—KENNETH C. PARKES.