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ORNITHOLOGICAL LITERATURE

CURRENT ORNITHOLOGY, Vol. 4. By Richard F. Johnston (ed.). Plenum Press, New York, New York, 1986:xiii + 324 pp., 17 numbered text figs., 18 tables, 2 appendices. $45.00.—During the last 25 years, the expansion of the biological sciences has led to the division of a previously coherent discipline into distinct fields with increasingly different languages and goals. More than ever, workers who specialize on a particular taxonomic group find themselves at risk of losing touch with developments outside their own areas of study. The need for communication among the divergent biological sciences may help explain the continuing success of the "Current Ornithology" series in the face of stiff competition in a market full of compendia and review volumes. Editor Richard Johnston deserves much of the credit for this success, because he has consistently selected topics of interest to avian biologists and chosen authors who not only can discuss the results of avian studies in a general context, but who incorporate important developments in other fields as well. Volume 4 is no exception to this.

In "Evolutionary Processes and Patterns of Geographic Variation in Birds," Robert Zink and J. V. Remsen provide a much-needed critical review of previous studies of geographic variation in birds in light of current evolutionary theory. They also discuss the role of studies of geographic variation in research on speciation. I was surprised that Zink and Remsen did not review the problem-ridden reinforcement model of speciation in this section or the studies on geographic variation and reproductive interactions in the *Icterus galbula* and *Vermivora chrysoptera-pinus* complexes, for which pertinent genetic and behavioral data exist. Otherwise, the section on geographic variation and speciation is thorough, and the article as a whole is quite thought-provoking.

"The Heritability Concept Applied to Wild Birds," by Jack Hailman, works especially well with Zink and Remsen's article, because Hailman provides a general model of the interactions between genetic and environmental components of the expression of traits, such as the geographically varying characters discussed by Zink and Remsen. Hailman's perspective is refreshing; as an ethologist, he is keenly aware of the role of environmental (especially social) effects on the expression of traits during development and maturation, unlike many quantitative geneticists. Most readers will not be surprised to learn that studies of heritability in natural populations are rife with difficulties, which Hailman documents fully.

Three chapters reveal the ecological side of the series in addressing the regulation of avian populations. "Clutch Size in Nidicolous Birds," by Edward Murphy and Erkki Haukioja, extensively reviews the literature on why the clutch size that produces the largest number of fledglings is often smaller than the modal clutch size, contrary to the ideas of Lack. Murphy and Haukioja illustrate the limitations of adaptationist paradigms in studies of clutch size but argue convincingly that dismissals of Lack's hypothesis have been premature.

"Competition in Breeding Birds: On the Importance of Considering Processes at the Level of the Individual," by Thomas Martin, aims to demonstrate the utility of the individual-level perspective in studies of interspecific competition. Martin pleads for a less all-or-nothing view of competition and calls into question dismissals of its importance.

"Distribution and Abundance of the Dickcissel," by Stephen Fretwell, reviews the life-history of *Spiza americana* and offers a model of its population regulation with a striking implication, the imminent extinction of the Dickcissel. The evidence is circumstantial, yet the reasoning of his argument makes sense, even if it is hard to follow and accepts certain data (e.g., Breeding Bird Surveys) too uncritically. Some unusual characteristics of the life-

history of the Dickcissel may indeed be exacerbating the effects of a change in wintering habitat, but only time will tell if the demise of the species is at hand.

The remaining chapters stand somewhat apart from the other articles. The title of Pat Rich and Robert Baird's "History of the Australian Avifauna" is somewhat misleading because the article pertains mainly to the geographic, geologic, and taphonomic characteristics of fossil sites in Australia and New Guinea. Rich and Baird discuss the biases of the Australian fossil record critically and in detail, and thus provide a commendable addition to a generally uncritical literature on avian paleontology. However, they do not address the biases of fossil identification. A list of genera would have added to the utility of the tabulations of taxa per family at each site.

In scanning the contents of the volume, I was initially pleased to see the last article, "A Bibliography of Ornithological Translations," by Douglas Siegel-Causey and Janet Hinshaw, which lists the readily available English translations of research articles in other languages. Unfortunately, in my first attempt to use the subject indices, which classify the numbered articles by subject inferred from their titles, I discovered so many errors that I was forced to inspect all 1030 citations to insure that I had found the pertinent references. For example, the chaffinches (*Fringilla*) are indexed inconsistently under Emberizidae and Fringillidae. The former includes a reference to two species of wheatears (*Oenanthe*) and the latter a reference to an article on the Chiffchaff (*Phylloscopus collybita*). Even worse, nearly all references to rails, coots and gallinules (Rallidae), and one to the Pin-tail Snipe (*Gallinago stenura*), are indexed under Anseriformes. It appears that roughly 15% of the articles are indexed incorrectly in one way or another. If this level of error is characteristic of the citations themselves, then I dread the effects of the article's use, given the regularity with which preparers of reviews inappropriately cite publications without seeing the original sources.

This volume might euphemistically be termed "Currently Ornithology," because some of the conclusions reached may prove much broader (or in a few instances narrower) than the title of the volume would suggest. For instance, Zink and Remsen's analysis of the degree to which North American birds conform to Bergmann's rule (poorly) and Gloger's rule (very well) has implications outside of avian biology *per se*. So do Hailman's model of the interplay of genetic and environmental factors in the expression of traits and Rich and Baird's analysis of the biases of fossil sites in Australia. In contrast, I found Martin's argument for the importance of an individual-level perspective on competition uncompelling, in light of the need for measures of relative fitness of those individuals, which requires population-level studies. Regardless, all of the articles make substantial contributions and should appeal to specialists and general readers alike.

The problems with the bibliography of Siegel-Causey and Hinshaw, the ten or so typographical errors I noticed, and the apparent inconsistency in the level and type of editing suggest that the bugs characteristic of the earlier volumes of the series linger on. However, they do not detract seriously from the utility and value of this volume as a whole. I strongly recommend it for university libraries, museums and any active ornithologist or evolutionary biologist.—ANTHONY H. BLEDSOE.

ORNITHOLOGY IN LABORATORY AND FIELD, 5th ed. By Olin Sewall Pettingill, Jr., illus. by Walter J. Breckenridge. Academic Press, Inc., New York, 1985:403 pp., 58 numbered text figs., 8 tables, sample data sheets. Price variable.—I delayed reviewing this long overdue "revision" for one semester so that I could use it in my ornithology class and receive feedback from the students. This review is based on my impressions of the book, plus those of my students, whom I hope, read the book more carefully than I did.

The first point to note about this "revision" is that it isn't. Most of the material is held over from Edition 4, Edition 3 . . . . This is not necessarily bad, however, in that the old material was pretty useful for an undergraduate class. Still, I am somewhat disappointed that there is not a single ornithology text on the market that meets the needs of today's students; perhaps that is not possible. It appears that most of the new material was written by "guest authors," noted experts in their respective areas (see below).

As in other editions, the "laboratory" chapters (including Topography, Feathers and Feather Tracts, Anatomy and Physiology, External Structural Characters, Laboratory Identification, and Plumages and Plumage Coloration) are quite useful for that portion of the course. Students are still required to "color in" topographic areas of a "typical" bird, which can be instructive but wipes out students buying used books. Some students have complained that "coloring" went out in the primary grades. One might wonder why skeletal drawings of the wing and leg and their concomitant descriptions are in the Topography chapter and not in the Anatomy and Physiology chapter beginning on p. 53, especially since the information in Figure 4, p. 14, is repeated in Figure 26, p. 57. In the latter chapter, mention should be made of the varying quality of the figures. Most are quite adequate, in fact well done. Berger's line drawings of the muscles are excellent (as in past editions) as are Gaunt's sketches of an "idealized" syrinx (Fig. 33). However, some of the figures photocopied from other sources are suspect. The quadrotojugal (Fig. 28) is missing in my book (the label arrow points to air), the lungs and air sac system (Fig. 32) are difficult to understand, and the circulatory system drawing (Fig. 35) has no practical application to a student working on a double-injected pigeon. Some of the feather pictures (e.g., Fig. 23, p. 46) and the internal anatomy figures (Fig. 34, p. 78, and Fig. 36, p. 81) are poor quality, black-and-white photocopies of colored pictures in earlier editions.

Fig. 11 (p. 28) from the new and interesting, yet surprisingly superficial, chapter on flight should be removed. The idea is sound but the Belted Kingfisher artwork is questionable. What is that bird doing?

The External Structural Characters chapter is satisfactory, but additional drawings are needed for such bill features as: chisel-like, serrate vs lamellate, angulated commissure, operculum vs cere, and linear vs ovate vs circular nostrils; tail characters such as emarginate vs forked; and feet characters such as zygodactyl vs heterodactyl and semipalmate vs totipalmate vs palmate. The revised sections on Order and Family synopses and the new key to Order and Families are excellent, owing to the hard work of Ken Parkes and Jay Loughlin at the Carnegie Museum.

The real issue concerning the "lab" chapters is one of "to include or not to include." One must decide if it is advisable to have so much laboratory material, some of marginal quality (especially sample data sheets and questionable figures) in a handsomely bound Academic Press style book of nontrivial expense, or should this material be combined with a solid lab anatomy text (loosely bound, inexpensive, rugged) leaving the needed textual material in an expanded, up-to-date format hard-copy book. I would opt for the latter approach, especially since it just does not seem right to bring such a nice textbook into the lab where it may be exposed to formalin, visceral fluids, feces, and semisadistic zoology students.

The chapter on distribution is repeated, almost intact, from previous editions, including the rather unfortunate table on Birds of the Coniferous Forest (p. 184) and figure on Altitudinal Succession (p. 191). Most of the information in this chapter is available in a good field guide. Other unrevised chapters were reviewed for previous editions and need not be repeated here.

The strengths of this edition lie in the newly written chapters, those done by guest authors. Much of this information is current and timely. Of special note are the chapters on Behavior by J. P. Hailman and Migration by S.A. Gauthreaux. Hailman is quite successful at reducing

the voluminous information on bird behavior to only 30 pages, including a pretty good list of references. Most major aspects of the field are outlined, and a section of field studies is an added touch. The migration chapter is completely reorganized from previous editions. Gone are pages of wasted space including sample data sheets, being replaced with useful illustrations such as the Lowery "moon watching technique" and radar tracking photographs. For some reason the famous "kite study" is not reported here. The section on Theoretical Origins is a little brief but does not overly detract from the value of the chapter. It is a good coverage of an important topic.

In summary, the book could have been a major help to a university level ornithology class and many parts are useful. I admire anyone who attempts to cover such a widely based, important subject in a single book, a task which is probably not possible. As it stands now, I will make this book available to the students as a reference text, along with the others currently available, and go back to photocopied reprints and a good field guide for the bulk of the course material.—ROBERT C. WHITMORE.

DUCKS OF NORTH AMERICA AND THE NORTHERN HEMISPHERE. By John Gooders and Trevor Boyer. Facts on File Publications, New York, New York and Oxford, England, 1986: 176 pp., 29 full page color plates, numerous other paintings, black-and-white drawings, charts, and range maps. $24.95.—As the title suggests, the 52 species of ducks that occur in the Northern Hemisphere are the subjects of this book, which provides paintings and flight profiles of each, along with a short discussion of subjects such as plumages, life histories, and conservation. As a supplement to the field guides, the book illustrates a number of helpful hints not widely available elsewhere. The layout is attractive, and the illustrations are sharp and clear. Small maps indicate the primary breeding and winter ranges of each species. A small chart at the top of each account provides data on wing length and weight for both sexes, egg color, clutch size, incubation, and fledging periods. Much of the data in these charts is repeated in the text, although frequently the information in the chart and that given in the text don't agree; or in the chart the authors may imply that data are unavailable (e.g., the incubation period for the Cinnamon Teal [*Anas cyanoptera*]) and then proceed to provide this information in the text. Undoubtedly, the primary reason for this publication is to showcase Boyer's paintings. These are, as a lot, attractive and technically well-executed, yet to this reviewer's eye many fail to convincingly portray their subjects; a few are nearly decoy-like, lacking the realistic appearance of feathers.

Ducks of North America and the Northern Hemisphere is, essentially, a British book (a European edition was published at Oxford, with apparently little but the title differing from the American version). British spelling and usage aside, the North American edition might have benefited from editing by someone more thoroughly familiar with waterfowl throughout this continent. Even a quick editing, for example, might have changed the statement that Long-tailed Ducks (Oldsquaw) (*Clangula hyemalis*) come inland only as a result of storms or oiling (which may be more or less true in Europe), and we may not have been told that migrating Ruddy Ducks (*Oxyura jamaicensis*) ". . . avoid the Appalachians." This book will appeal to many bird watchers with a general interest in the ducks of the Holarctic region, primarily for its color plates. Few serious students of North American waterfowl will be tempted to discard their copies of Kortright or Palmer in favor of this volume; still, the reasonable price, along with its good color reproduction, make the book worth consideration.—ROBERT C. LEBERMAN.

WILLIAM L. FINLEY/PIONEER WILDLIFE PHOTOGRAPHER. By William Mathewson. Foreword by Roger Tory Peterson. Oregon State University, Corvallis, Oregon, 1986:197 pp.,

over 200 photographs. $29.95.—Bowdoin College, which I attended in the late 1920s, had an endowed lectureship earmarked for bringing to the campus each year an illustrated program about birds. As a cub reporter for the college newspaper, one of my assignments was to interview William L. Finley from Oregon, attend his film program, *Camera Hunting in the Northland,* and later report on it. Finley filled the local theater to capacity, his reputation as one of the leading wildlife lecturers of the day having preceded him. Prepared as I was for excellent motion pictures of birds and mammals, I never expected to be enchanted by Finley's presentation, his precise timing of words to action on the screen, his lively sense of humor, and his flair for the dramatic as he built up his audience to climactic scenes. I was impressed, deeply so. Never again did I attend a lecture on wildlife that impressed me more.

William L. Finley as born in Santa Clara, California, on August 9, 1876. The next year the Finley family moved to Portland, Oregon, and from then on William Finley's name would always be associated with Oregon. Young Finley soon made friends with the boy next door, Herman Bohlman. Together they formed a team, taking photographs of birds for a decade, between 1899 and 1908. According to Mathewson, "it can be argued that these years of association with Bohlman were the highlight of Finley's long career."

In 1906 Finley married Nellie Irene Barnhart, while in that same year Bohlman went into business with his father and gave up photography. Irene made up for the loss of Bohlman with her interest in birds and talent as a writer. She assisted her husband in his first book, *American Birds* (1907), and with her husband published two other books, *Little Bird Blue* (1915) and *Wild Animal Pets* (1928). During the 1920s and 1930s William Finley gained national recognition for his personally narrated wildlife movies sponsored by the American Nature Association. To obtain the necessary footage, the Finleys traveled widely in Wyoming, Washington State, western Canada, and Alaska.

William Finley died in 1953. Famed as he had been in his lifetime as a photographer, writer, and lecturer, an often overlooked accomplishment was his becoming an ardent conservationist and more instrumental than any other person in Oregon for making "the eastern establishment" in the United States aware of his state's vast wildlife resources and the need for creating national refuges in his state for their protection.

The first 18 pages of this book are biographical, based on Mathewson's diligent research on the story of William Finley's career, including his many friendships as well as his "differences" with friends. The bulk of the book, pp. 19–193, is essentially a splendid album of photographs (usually one to a page) by Finley, Bohlman, and many others. Assembling the photographs represented a commendable task. The superb quality of the selected wildlife photographs is remarkable, especially when one considers the conditions in the field with which the photographers coped—the awkward, bulky cameras as well as the heavy, glass-plate negatives and the vials of chemicals for their development.—Olin Sewall Pettingill, Jr.

Forest Bird Communities of the Hawaiian Islands: Their Dynamics, Ecology, and Conservation. By J. Michael Scott, Stephen Mountainspring, Fred L. Ramsey, and Cameron B. Kepler; illus. by H. Douglas Pratt. Studies in Avian Biology, No. 9, Cooper Ornithological Society, 1986:341 figs., 75 tables. $26.50.—This is a magnificent work. I believe it to be one of a kind. I believe, further, that anyone who has done field studies in mountain rain forests with an annual rainfall of 300 inches or more, and typically with a very rough and treacherous lava substrate, will agree.

More endemic bird species have become extinct in Hawaii than in any other part of the world. After their studies of fossil material, Storrs Olson and Helen James concluded that more than 40 species of endemic birds became extinct between the arrival of the early

Polynesians and the rediscovery of the islands by James Cook in 1778. Since that date, another 20 species or subspecies have become extinct, and at least 31 taxa are now classified as threatened or endangered.

Except for the theses on the endemic Hawaiian honeycreepers by Dean Amadon (1950) and Paul Baldwin (1953), there seem to have been no field studies on the Hawaiian forest birds between the early 1900s and 1964. The first member of the U.S. Fish and Wildlife Service was assigned to work in Hawaii in 1965. "Eugene Kridler, John L. Sincock, and J. Michael Scott conceived the idea of a state-wide forest bird survey in 1975, because such an approach was needed to identify areas requiring protection, research priorities, and management strategies."

Detailed surveys were made in all native forests above 1000 m elevation on the islands of Hawaii, Maui, Molokai, and Lanai, as well as "the known distributional area for endangered forest birds on Kauai." John L. Sincock had spent several years in the cold, rain-drenched Kauai forests, hence had a great deal of base-line data for the survey.

"The principal objectives of the Hawaiian Forest Bird Survey were to determine for each bird species in the forests we studied: (1) distribution; (2) population size; (3) density (birds/km^2) by vegetation type and elevation; (4) habitat response; and (5) geographical areas where more detailed studies were needed to clarify distributional anomalies and to identify limiting factors of various species."

The authors have done an outstanding job in presenting the results of their thorough surveys, as suggested by the 341 figures, 75 tables, and many maps. We now have excellent data on the distribution and status of the endemic Hawaiian forest birds, as well as on the many introduced bird species, a number of which have invaded the mountain forests. We may hope that this excellent report will stimulate the State of Hawaii finally to take a much greater interest in protecting the few remaining native forests and their unique bird life. It may be noted here that no survey was made on the island of Oahu "because of the low density of native birds," which is only a suggestion of the dire straits of most of the unique Hawaiian birds.

This book should be in the library of every field ornithologist, ecologist, and anyone with an interest in endangered birds.

The dedication to Eugene Kridler and John L. Sincock, two dedicated and effective field biologists with many years of experience in Hawaii, is most appropriate.—ANDREW J. BERGER.

THE BIRDS OF BURMA. 3rd ed. By B. E. Smythies, illus. by CDR A. M. Hughes, R. N. Silvio Mattacchione & Co., Pickering, Ontario, 1986:432 pp., 32 color plates with caption pages, 1 map, 18 text figs., 19 black-and-white photographs. ISBN 0-9692640-0-3. $95.00 (special deluxe edition, $475.00).—Long out of print (2nd edition published in 1953) and difficult to obtain, this new edition is welcome. The species accounts make up the bulk of the book and vary in length, depending on what is known about the bird in Burma. Subheadings in the accounts are: (1) Local name; (2) Identification; (3) Voice; (4) Habits and food; (5) Nest and eggs; (6) Status and distribution. Accounts range from 5 lines to 1½ pages. There are 32 pages of introductory material, a 9-page bibliography, and an index. The useful distribution table was not included in the new edition.

The species accounts summarize all that is known about the birds of Burma, including much natural history data, which often makes interesting reading. These accounts virtually are the same as the 1953 edition, except for the addition of a few new distributional records. The identification sections are useful but often have been superseded by more modern texts, especially for the difficult species and groups. Generally the natural history data (when given) and the Status and Distribution section are the more useful parts of the accounts, as they

are complete for Burma. Better identification materials may be found elsewhere. Unrecorded species likely to be found in Burma are listed.

Burma is a large country with an extensive avifauna of 967 known species. It encompasses tropical rain forest, wet temperate forest, mixed deciduous forest, savannah, thorn scrub, and paddy lands, as well as marshes, swamps, etc. Besides all these habitats, Burma extends from about 10°N–29°N, a range that brings it into contact with the Himalayas, Indian Subcontinent, SW China, Indochinese area, and Malaysia. The introduction gives more details of the biogeography and habitats. Unfortunately, for over 25 years, the maximum visit by foreigners has been limited to one week. Since there are no Burmese ornithologists, this time restriction has virtually halted scientific ornithology. The 1953 edition bibliography included references up to 1950, and only 20 new entries are to be found in the 1986 edition. Only three of those papers concern new distribution records for Burma; the rest are more general works that affect Burma. Nearly all of the new distributional records for Burma in that 36-year period have come from bird-watching tours. The impact on knowledge of bird distribution in the tropics from tours should not be underestimated. The leaders are often experienced field observers who can make a significant contribution.

The second edition was a thick, heavy book at 4 pounds, but the new edition is a whopping 6 pounds of coffee table size, 13¼″ × 8¾″ × 1¾″. The second edition was not a book you could carry in the field, but you could take it along on a trip and leave it in your hotel room for reference. I expect most will prefer to leave the new monster edition at home.

The 32 color plates by CDR Hughes are well done, and the individual birds, all recognizable, range from good to excellent. They illustrate 290 of the commoner species of Burma. The 18 line drawings are mostly old-to-ancient cuts, several of species that do not occur in Burma! To me, they are neither pleasing to the eye nor particularly accurate, and they add nothing to the book, except as coffee table book embellishments to fill blank space. The 19 black-and-white photos are interesting, but of little variety. Six of them are of working elephants and another six are of high altitude winter scenes in northern Burma, leaving only seven for the rest of Burma. The front cover birds are identified as Greater Necklaced Laughingthrushes (*Garrulax pectoralis*), but they are White-crested Laughingthrushes (*Garrulax leucolophus*). I found several typos, but mostly the resetting was done well. The type is large and easily read and all the same size, except keys which are done in smaller type.

This is an expensive book, but for those interested in the birds of Burma, it is the only summary of what is known and thus indispensible.—Ben King.

Waders: Their Breeding, Haunts, and Watchers. By Desmond and Maimie Nethersole-Thompson. Buteo Books, Vermillion, South Dakota, 1986:400 pp., 32 black-and-white photos, numerous line drawings, 8 text figs., 5 tables, appendices. $45.00.—The name Nethersole-Thompson on a bird book brings to mind the five monographs that Desmond has written (the most recent one, *Greenshanks* in 1979, was also co-authored with his wife, Maimie). While Desmond was studying Common Greenshanks (*Tringa nebularia*) and Eurasian Dotterels (*Charadrius* [*Eudromias*] *morinellus*), treated in a 1973 monograph, he encountered all of the other 16 species of commonly nesting British shorebirds. This book reports their observations on all 18 species in the same enthusiastic style as their earlier books. Desmond found nests of all but one of these species. Their own observations on the breeding biology of these birds are supplemented by a review of the literature, and 16 rare or possible breeding species (for Great Britain) are described more briefly.

The value of this book depends on whether one considers it a work of descriptive natural history, to be read from cover to cover, or a technical reference for shorebird biologists. I think it tries to be a bit of both, but it fulfills neither aim completely.

As a work of natural history, it is less satisfying to read than their earlier works, because the encounters with the birds here are shorter, and the observations are less detailed. The sections on Greenshanks, Dotterels, and Eurasian Woodcocks (*Scolopax rusticola*) are exceptions to this rule. However, there is more variety here than in the earlier books, and there are also descriptions of British shorebird habitats and shorebird watchers. Desmond describes how he found the nests of many species, and his enjoyment of nest-hunting is obvious.

As a technical handbook it suffers by comparison to *Birds of the Western Palearctic* (Vol. III, 1983) edited by S. Cramp and K. E. L. Simmons. The latter volume has far more detail and more references (many of them more recent) on all 18 species. The Nethersole-Thompsons present some of their own data, but the amount varies widely from species to species. Also, some aspects of breeding biology (e.g., nest dispersion, laying season, and chick behavior) are treated in detail, while others (e.g., incubation behavior and site and mate fidelity) receive less attention. Vocalizations and displays of each species are described, based in part on their own observations, but there are few references to the descriptions of others, which makes comparison difficult. The drawings of displays (by Donald Watson) are not referred to in the text, so it is hard to tell which display is being shown. The black-and-white photographs merely illustrate the species described. In general, the authors took few of their many opportunities for comparison and synthesis, aside from an appendix of sonagrams of some species (including calls between parents and chicks) and a short chapter on spacing and dispersion.

I recommend this book for "wader watchers" (especially those who live or travel in Britain) who want a readable and enjoyable introduction to the breeding biology of these species. The authors' love of shorebirds comes through clearly, as does a plea for the preservation of shorebird breeding habitats, something that all wader watchers should care about.—PETER W. BERGSTROM.

BIRDS OF SOUTH FLORIDA: AN INTERPRETIVE GUIDE. By Connie Toops and Willard E. Dilley. River Road Press, Conway, Arkansas. 1986:vi + 150 pp., 51 color photographs, 2 maps. $9.50.—This is a pleasant little book of five chapters introducing the birds, parks, and major environments of south Florida. The first chapter is a very brief discussion of the history of the south Florida avifauna and of its interactions with human civilization. Chapter 2 introduces the major terrestrial habitats of the area and discusses a few characteristic birds of each. Chapter 3 reviews the major parks, refuges, and wildlife sanctuaries and some birds of each. Chapter 4, comprising about half of the book, is an annotated list of the birds of the region, and Chapter 5 is a brief but lucid discussion of introduced birds in south Florida.

The definition of "south" Florida is a bit odd. Coastally, coverage of the book extends north only to Fort Lauderdale on the Atlantic, and Sanibel Island on the Gulf coast, but north inland to include Loxahatchee Refuge, Lake Okeechobee, and even the Kissimmee Prairie.

The species list includes about 400 species and is illustrated by 41 high-quality photographs. The species accounts give one-to-three word descriptions of species abundance, and usually include telegraphic notes on behavior, migration, and preferred habitats. Often a number of places are listed where the bird is "most likely to be seen." The species list is extensive but not complete: a number of rare visitors are omitted, e.g., Ruddy Quail-Dove (*Geotrygon montana*); La Sagra's Flycatcher (*Myiarchus sagrae*); Fork-tailed Flycatcher (*Tyrannus savana*); and several seabirds. One or more localities may be listed for the rare and accidental species, but these lists are generally incomplete. A few of the comments on status are outdated or inaccurate, e.g., Fulvous Whistling-Duck (*Dendrocygna bicolor*) has

become much more common as a breeder than indicated; Snowy Plover (*Charadrius alexandrinus*) breeds in south Florida on the Gulf Coast; but overall the quality of information is very good.

This book will probably be most useful to birders visiting or planning trips to south Florida. It should also be useful to ornithologists wishing a quick familiarity with the south Florida avifauna.—WAYNE HOFFMAN.

LES OISEAUX DES RÉGIONS FORESTIÈRES DU NORD-EST DU GABON. VOL. 1. ÉCOLOGIE ET COMPORTEMENT DES ESPÈCES. By A. Brosset and C. Erard, illus. by A. R. Devez. Société nationale de protection de la nature, 57 rue Cuvier, B. P. 405, 75221 Paris Cedex 05, France, 1986:297 pp., 54 figs., index of scientific names. 250 French francs.—"This book, the first of a two-volume work on the birds living in the Ivindo River basin of northeastern Gabon, presents in a descriptive and analytical fashion most of our data on the biology of the species found there. In volume two we will discuss general topics, including community structure, social behavior, population dynamics, and ecological adaptations of birds to forest life" (translated from the authors' introduction, p. 3). This long-awaited publication represents the results of research carried out uninterruptedly in Gabon from 1963 to 1985 by a team from the Centre National de la Recherche Scientifique (C. N. R. S.) and the National Museum of Natural History in Paris. The senior author heads the ECOTROP research program of the C. N. R. S. ultimately responsible for all phases of the research in Gabon (which includes vertebrate taxa other than birds and invertebrates as well), and the junior author is Curator of Birds at the National Museum. Between the two of them, the authors have spent more than seventy months doing field work in the Ivindo basin. Their own studies were supplemented by results of research pursued by other investigators who spent several consecutive years in this region and whose field notes are incorporated in the present volume. It must be emphasized that the authors' research programs were not primarily faunistic but were designed to answer questions about the biology of selected forest birds, especially the Pycnonotidae (Brosset) and the Muscicapidae (Erard). This publication is therefore a by-product of this other research, only some of which has been published to date.

English-speaking readers must be warned that the thirteen-line English summary (p. 285) is quite inadequate to convey a sense of the contents or of the significance of this book. This text is, indeed, an annotated list of 424 species of tropical West African birds, but this is no ordinary annotated list. Most of the work leading to the present monograph (as well as to 30 other papers in the bibliography by one or the other, or both, of the co-authors, plus about 12 additional papers by other workers) has been carried out during 14 years on a 300 ha plot at a site called M'Passa near the town of Makokou (4000 inhabitants) in northeastern Gabon. The M'Passa plateau has permanent laboratories in or next to primary rainforest, in which three plots with quadrats have been established for long-term research on plants, invertebrates, and vertebrates. Species diversity is very high in this rainforest region: 473 species of plants and 364 species of birds have been identified on a 2 km^2 plot. Most field data were gathered in this restricted locality, but wisely the authors chose to extend the geographical scope of their report to the entire Ivindo basin, a 50,000 km^2 area covered mostly with primary tropical rainforest. The data come from visual observations, specimens collected (1400, deposited at the National Museum in Paris), banding (4000 birds belonging to 132 species), nest controls (1600 nests, not including those of several colonial groups such as *Ploceus*); breeding data (on 214 species), tape recordings of vocalizations, photographic documents, and raising of some species in captivity in France.

The book is divided into two chapters. In the first (pp. 9–24) are found a description of the Ivindo River basin, its climate, and its vegetation types (illustrated with black-and-white

photographs), and in the second, the bulk of the volume (pp. 25–285), a discussion of each of the 424 species definitely identified in this area. A bibliography and an index of the scientific names of birds end the book. In the species accounts more emphasis is given to passerines than to nonpasserines and to sedentary than to migrant species. The justification given by the authors is that the passerines or the sedentary species, especially the forest-inhabiting ones, are less well known than the others. While reading these species accounts, it is important to remember that the authors have not attempted to write "a series of species monographs," but instead they have presented only their "own data, insofar as they are original or complement usefully what was previously known." And furthermore: "When we refer to the basic literature, such as the work of Mackworth-Praed and Grant (1970 and 1973) and especially to the monumental *Birds of Africa* that is being published now, it is in order to complement it, or at times to contradict it" (p. 6).

Keeping this warning in mind, the reader will quickly appreciate the fact that this book (and the papers by the authors cited in their bibliography) constitutes probably the most significant piece of work on tropical African forest birds since the time of Chapin. It is impossible to cite here all the nuggets of invaluable information contained in the volume: they include thoughts about the systematic position of some species or genera, descriptions of nesting or display behavior, details about social life, and characteristics of habitats utilized or of foods ingested.

In spite of my overall praise for the published work and my admiration for the field data on which it is based, I do have a few criticisms or regrets. Given the fact that the research was pursued for so long and that one of the authors is a museum person, I regret that so few specimens were collected or preserved. For species after species we are told that one or two specimens only were preserved but that many more were not. What a loss of information. I wish in particular that the authors had made attempts to collect series of some of the more difficult taxonomic groups. Another point is the lack of information on weights, in spite of the note (p. 4) that after 1972 the weights of banded birds were rather systematically taken. Finally, I often wished while reading the book that the information was given in a more precise or quantitative manner. For example, the sample size of observations is too rarely indicated, so that it is difficult to judge whether some kinds of observations (relative abundance, habitat preferences) are based on just a few, or on the contrary, on hundreds of encounters with a given species. From the context of the text it is usually possible to guess at the relative frequency of observations, but this remains a subjective judgment on the reader's part. It would be wonderful if the authors had prepared a bank of raw data that interested colleagues could consult or obtain copies of (for instance banding returns, nest cards, or weights).

In spite of these few defects this publication is a landmark in tropical African ornithology, especially of forest birds. I look forward to the synthetic generalizations promised for the second volume.—FRANÇOIS VUILLEUMIER.

CONSERVATION OF CAMEROON MONTANE FORESTS. Edited by S. N. Stuart. International Council for Bird Preservation, 219c Huntingdon Road, Cambridge, England, 1986:iii + 263 pp., 7 maps, 17 numbered text figures, numerous tables, gazetteer, references, no index. £10.—This paperback reports the ICBP Cameroon Montane Forest Survey of November 1983–April 1984 with contributions by S. N. Stuart, C. G. R. Bowden, M. O. Fedden, M. E. Gartshore, F. P. Jensen, H. L. Macleod, D. W. Thomas, and H. Tye. The survey worked in the highlands of western Cameroon—the habitat of eight threatened species of birds. Montane western Cameroon has 53 forest species (some live also on the Obudu Plateau of

Nigeria and the island of Fernando Po, where lack of recent observations is cause for concern). Of these, 20 (38%) are endemic species that live no place else. Four chapters discuss birds and provide informative species accounts with observations on behavior, ecology, range, and systematics. Shorter chapters give sketches of the itinerary, landforms, climate, vegetation, observations of bats, other mammals, and reptiles and amphibians, and recommendations and conclusions about conservation of the habitats. The aims of the survey were to determine the distribution, relative abundance, and habitat of the montane forest species, and the importance of the montane forests for conservation of the endemic birds.

The survey visited the southern slopes of Mt. Cameroon, the Rumpi Hills, Mt. Kupé, Mt. Manenguba, Mt. Nlonako (the first exploration by any biologists), and Mt. Oku and other remnant forests in the Bamenda area. The most critical area in Cameroon is the Bamenda highlands. No forests remain below 1500 m, and the forests on Mt. Oku are disappearing rapidly due to clearing for agriculture, firewood cutting, grazing by cattle, and fire. Four threatened species live in the remnant forests of the Bamenda highlands, and two, Bannerman's Tauraco (*Tauraco bannermani*) and Banded Wattle-eye (*Platysteira laticincta*) live nowhere else on earth. "Mount Oku represents the most biologically unique and most seriously threatened of all the forests in Cameroon and urgent conservation measures are required." Mt. Cameroon has the only continuous forest extending from sea level to a natural treeline in Africa, but projected commercial plantations at low altitudes may cut off dispersal routes for certain birds, and the value of the mountain for conservation depends on maintaining an intact habitat. The Mount Cameroon Francolin (*Francolinus camerunensis*) is restricted to Mt. Cameroon and is hunted, but it lives in habitat difficult of access and seems not to be in danger. The Rumpi Hills were only partly explored and further observations would be of interest. No White-naped Pigeons (*Columba albinucha*) were seen, although this is the only known locality in West Africa for the species. Mt. Manenguba is in bad shape; the authors suggest planting of eucalyptus for firewood for the local people to slow the destruction of the remaining patches of endemic forest. Mt. Kupé has four threatened species, including the endemic Mount Kupé Bush-shrike (*Malaconotus kupeensis*) and is avoided by the local people, so reasonably might be designated a national park because this would require no economic hardship on the people.

Birds were identified by experienced observers by sight, calls, and mist netting (1199 individuals, 112 species). The authors correct the sight identifications and records of other workers, but a few birds gave them their own problems, including the Icterine and Xavier's bulbuls (*Phyllastrephus icterinus/P. xavieri*) and the Red-tailed Greenbuls (*Criniger calurus/C. ndussumuensis*) where identifications are questionable for the second of each pair. The authors reported longer wings on some bulbul species than did Bannerman, so their *P. xavieri,* identified by wing length, is problematic. Nor did they get repeatable bill measurements for the *Criniger,* for which others report no difference in vocal behavior between *calurus* and *ndussumuensis* and regard as conspecific thick- and thin-billed phenotypes. The chapter on netting includes ranges and histograms of measurements, but these are sometimes difficult to interpret because sex was not determined. Some species were larger at inland localities and at higher elevations, and it is uncertain whether the variation is geographic or altitudinal (both were suggested for Cameroon Mountain Greenbul [*Andropadus montanus*]).

The references cited are useful and reasonably complete for local distributions and relationships. The lists of bird species for several localities include nonforest and forest birds and would be useful for a visitor as well as for conservation purposes. Because montane western Cameroon is easy to visit, it is perhaps the best country in west Africa for anglophone ornithologists to travel and see African forest birds. It is hoped that the report will succeed in the ideal of its title.—ROBERT B. PAYNE.

ECOLOGY AND EVOLUTION OF DARWIN'S FINCHES. By Peter R. Grant. Princeton University Press, Princeton, New Jersey, 1986:xiv + 458 pp., 8 color and 55 black-and-white plates consisting of 123 photographs, 101 text figs., and 23 tables. $55.00 (cloth), $22.50 (paper).—Since their first scientific mention by Charles Darwin in 1841, the ubiquitous songbirds of the Galapagos and Cocos islands in the tropical eastern Pacific Ocean have been a perennial source of fascination for students of evolutionary biology. Given the patronym of "Darwin's Finches" by Percy Lowe in 1936, these 14 species of diminutive passerines have become famous out of all proportion to their size as classical examples of radiative adaptation. They are remarkable for their modest diversity in bill form, feeding habits and songs, and their striking homogeneity in patterns of plumage, nest, egg, courtship, and internal anatomy. Variation in beak structure within and between populations is often so broad as to blur species limits, a situation that originally led to considerable taxonomic confusion. It is not surprising, therefore, that generations of evolutionary biologists have been challenged by these birds in pursuit of a solution to that fundamental problem in biology, the origin of species diversity. The pervasive process of natural selection, and the product consisting of a plethora of Galapagos finches, were wedded in much of the reasoning embodied in Darwin's 1859 classic, "On the Origin of Species."

Darwin's finches have undergone monographic treatment on average every 25 years, viz. Rothschild and Hartert (1899/1902), Swarth (1931), Lack (1945/1947), Bowman (1961/1983), and most recently by Grant (1986). The latter, the subject of this review, summarizes the basic facts and ideas of earlier workers, integrating many of them with the results of multifarious studies previously published in scientific journals by Peter Grant and his wife Rosemary, and a coterie of postdoctoral colleagues and talented graduate students, spanning the period of 1975 to the present. The upshot is a modern synthesis of contemporary evolutionary thought about Darwin's finches, which is as impressive for its intellectual breadth, thoroughness of treatment, and physical bulk, as it is for its beauty and readability. A major thrust of this attractive volume is Peter Grant's affirmation of the overall stability of the "house that Lack built" for Darwin's finches. In this endeavor he seems to be playing the role of David Lack's "bulldog" and scientific "ombudsman." How convincingly Grant has struck a modicum of truth for certain contentious concepts remains to be seen.

The book is divided into a preface and 16 chapters, an appendix, references and author and subject indices. Each chapter, save the first, concludes with a helpful thumbnail summary. In the preface, Grant sets forth three reasons for his studying Darwin's finches: (1) The confusion about the significance of population variation in their beak sizes; (2) the lack of information on long-term changes in the modality of bill dimensions in island populations and its adaptive or nonadaptive significance; and (3) the need for resolution of the Bowman-Lack dispute concerning the importance of intraspecific competition in shaping variability in island populations of a species and interspecific competition in shaping the composition and structure of finch communities on the various islands.

Chapter 1 is an overview of the book, including a brief history of the scientific study of the finches: Darwin's perplexity due to insufficient materials with accurate place names; the evolutionary views of Harry Swarth and Erwin Stresemann, neither of whom had any notable experience with the live finches; and the historical importance of Stresemann's allopatric model of speciation for the finches, later adopted by Lack who inferred a process of species differentiation beginning in allopatry and continuing in sympatry through the process of interspecific competition. Grant freely admits that inferences about historical events in finch evolution cannot be inferred "*with accuracy*" (Grant's emphasis) from contemporary patterns of distribution, thereby acknowledging one of the criticisms levied by his arch critics, E. P. Connors and D. S. Simberloff.

Succeeding pages of the book treat of the following: general characteristics of the finches (Ch. 2 and 3); morphological patterns of the finches, including developmental features (Ch. 4 and 5); ecology of the finches, including food habits and bill shapes, fluctuating food supply, breeding ecology, mate choice, and avoidance of hybridization (Ch. 6 through 9); and an explanation of the evolutionary divergence of the group (Ch. 10 through 15). Chapter 16 is a recapitulation of the book with generalizations.

The book has a familiar "ring" about it because it mirrors in many ways the general plan set forth by Lack in his now famous 1947 classic, "Darwin's Finches." Grant covers much of the same ground as did Lack, even measuring once again the same museum specimens, performing similar (but much improved) field experiments on species recognition using stuffed specimens. Proceeding from where previous workers have left off, Grant's team has coordinated a multifaceted assault on Darwin's finches with an emphasis on their ecology, behavior, population dynamics, and evolution. The undisputed success of the effort is attributable to intensive, long-term field studies, employing imaginative experimental design and sophisticated statistical analyses.

Among the many new findings summarized in this volume, the following were of special interest to this reviewer.

Differences between species in size and proportion of adults arise during development by different patterns of relative growth. Relative growth in bill dimensions is fastest in those dimensions most pronounced in adults. The large billed ground finch (*Geospiza magnirostris*) appears to be unique in growing along an altered trajectory during the fledgling phase; initially bill depth increases faster than bill length as in other species, then the order of these rates is reversed.

The latter part of the dry season is identified as a period of potential food limitation for the finches. Seed biomass was lower on all islands at this time of year. Since the diets of coinhabiting species on an island overlap then, the species are in competition for food, although competition is reduced as a result of the divergence of diets in the latter part of the dry season.

Finch populations differ in the degree to which they vary in continuously varying traits such as bill and body sizes. The directions of selection, as in *G. fortis* on Isla Daphne Major, change with the forces of selection so that small size and large size are alternatively favored. Over a long period of time the net effect of these oscillations is directional selection and may be roughly equivalent to a weak form of stabilizing selection.

Regarding species recognition and mate choice, through field experiments it was shown that with male and female discrimination of stuffed specimens, the bias is toward conspecifics. Both head and body size appear to be used in combination for correct species identification. Experiments using playback of recorded song indicate that *Geospiza* males know the difference between the songs sung by other members of the population, and the songs sung by other species in the same environment, even when these songs are structurally similar to their own. Song acts as a long-range auditory signal, and appearance, especially bill morphology, acts as a short-range visual signal, each transmitting information about the identity of the sender.

Addressing the basic problem as to how the finch species evolved, by examining the various subsets of this problem, Grant states that what few solutions have been proposed range from the confident to the speculative. It is likely, on the basis of current information, that the 14 extant species of finches are the only ones to have evolved.

The results of electrophoresis do not confirm Lack's assignment of greatest age to *G. difficilis*; *G. scandens* would appear to be closest to the tree-finch group. Using the numerical values for biochemical differences between species, the ancestral warbler finch split off from

the ancestral stock about 750,000 years before present. It is not known how long the Galapagos were tenanted by the original colonists before this initial speciation occurred. No species is known to have arisen in the last 50,000 years.

Grant proposes a 5-step model for the derivation of 13 species on the Galapagos. In essence, the model is that proposed by Lack and based on the idea set forth by Stresemann, namely that the derivation of 13 species on the Galapagos from a single ancestor was initiated by small differentiations of allopatric populations of a single form, followed by enhancement of differences when two such populations made secondary contact on an island through the dispersal of members of one to the island occupied by the other. The enhancement of differences in sympatry was driven by natural selection acting against individuals of the two populations which were so similar that they competed with each other for food, and breeding with each other with reduced reproductive success. Successive speciation events produced species adapted in very different ways to exploiting the environment for food, with different lineages radiating in very different directions from the common ancestral stock. He rules out the sympatric model of speciation as requiring a most unusual set of circumstances, evidence for which has not been uncovered in Darwin's finches. According to Grant the allopatric model owed its broad acceptance to the clarity with which observations were shown by Lack to fit the theory.

Grant freely admits that competition (discussed at length in Chapters 11 and 12) has been and continues to be the most contentious part of the allopatric model. He presents evidence that his group has developed which purports to indicate that competition is occurring at the present time, and it raises logical and empirical difficulties with the argument that differentiation always occurred entirely in allopatry. As first proposed by this reviewer in 1961, certain features of Darwin's ground finches are explicable in terms of their food supply, in a manner consistent with the complete allopatric model. For example, food supply determines not only diets but also which species occur on an island and their approximate abundance. The question now revolves around the current distribution of the finches. Are these distributions and diets determined by food supplies, regardless of whether competition has occurred in the past or not? Testing the competition hypothesis is said to be difficult for two reasons. First, the hypothesis deals with events in the past, and since we cannot reconstruct those events precisely, we cannot test the hypothesis directly; it must be tested through predictions of the assumptions upon which it rests. Second, since Lack's arguments were not expressed clearly, Grant put them into a testable framework. The observations to be explained are the distribution of species and the inter-island differences in beak size and shape; the hypothesis is that distribution and morphology were causally influenced by interspecific competition for food. The main assumption upon which the hypothesis rests is that the feeding niche of a population is reflected in, and hence adequately indexed by, the average beak characteristics, especially bill depth.

How precise an indicator of bill-biting potential is bill depth? Preliminary unpublished research in progess by this reviewer suggests that the physical forces exerted by living Darwin's finches at their bill base and tip do not correlate systematically with dimensions of bill depth, length, or width, nor with any combinations thereof. Bill depth is but one component of a three-dimensional musculoskeletal complex, which by itself does not reflect the functional potential in any precisely predictable way. Yet measurements of bill depth form not only a significant part of the data base used by Grant and his coworkers as an index of expected population density of finches but also for the range of preferred seeds of the ground finches. Their analysis is restricted to seeds preferred during the dry season, with little knowledge of why certain seeds in the total array presented by an insular flora are preferred over others, irrespective of their relative abundance. Palatability, determined by the presence of toxic substances such as alkaloids could, theoretically, cause a shift in seed

size/hardness preferences, and this, in turn, through natural selection could affect bill depth modalities of populations, unrelated to competing neighbors. Thus there is reason to question the validity of certain assumptions on which their methods are based. Nevertheless it is claimed that their ecological data have generally upheld the competition hypothesis by consistent agreement with its predictions, and therefore allow the rejection of Bowman's alternative hypothesis that food supply alone has determined the morphological and distributional features of the finches. He asserts that competition has played an influential role in both allopatric and sympatric phases of the cycles of speciation of the ground-finches.

In a penultimate chapter, Grant discusses the phylogenetic relationships among the finch species. Phylogeny is inferred from estimates of selective forces involved in the transformation of one species into another. The so-called selective distances between species incorporate the time-dependence of morphological differentiation that arises from the retarding effects of genetic constraints upon the effectiveness of selection. As it turns out, the phylogenetic relationships inferred in this manner agree quite closely with those arrived at through a comparison of morphological phenotypes and biological properties.

Grant concludes the volume with a succinct capsulation of the principal points of earlier chapters, closing with a consideration of the extent to which the lessons learned from Darwin's finches can be applied to the problems of evolution in other groups of organisms.

There are a few minor criticisms of the book, and the first of these concerns the pagination, or substantial lack thereof. Over 123 pages out of a total of 458 (i.e., over 25%) are unnumbered. Concerning matters scientific, Grant claims that finches in other parts of the world do not have a tomium of the maxilla forming an abrupt angle with the zygomatic bar but rather that it "projects straight out of the head." Tree-finches are said never to build nests in cactus, which is not true for Isla Santa Cruz in the vicinity of Academy Bay. Grant implies that the island source of *G. conirostris* on Isla Genovesa is either Daphne Major or Santa Cruz, based on superficial examination of wide-band sound spectrograms of their songs. Yet Bowman has clearly demonstrated that, due to extensive parallelisms, song structure in Darwin's finches is a most unreliable clue to island source of colonists. The Galapagos mockingbird, *Mimus* (*Nesomimus*) *parvulus* is mislabelled *N. galapagoensis* on pages 268 and 272. Regarding the curious large-billed finches from the most northerly outpost of the archipelago, Isla Darwin, Grant states that they breed there, yet there is no evidence known to this reviewer to support this claim, and he is one of the handful of scientists to have ever set foot on top of the island during a breeding season.

Some things needing further study include a more intensive search for closest mainland relatives (sister groups) and extinct fossiliferous forms, clues to the nature of past changes in the Galapagos environment, and more detailed studies of life history characteristics of individuals and the dynamics of populations. With regard to the latter, the intensive field researches by Grant and his group, requiring patience, persistence and perspicacity, have yielded a bountiful harvest, showing once again how the small closely knit world of the Galapagos can be induced to yield insights into the origin of species.

The author and his research associates merit the highest of praise for the substance of this scholarly monograph which should prove to be a classical challenge and inspiration to a whole new guild of biologists.—ROBERT I. BOWMAN.

THE BIRDS OF MOUNT NIMBA, LIBERIA. By Peter R. Colston and Kai Curry-Lindahl. British Museum (Natural History), London, 1986:129 pp., 1 color plate, 8 color and 20 black-and-white photographs, 30 line drawings, 1 map, 1 other text fig., 3 tables. £17.50 (about $29.00).—To the west of Mt. Cameroon there are no highland areas until Mount Nimba is reached at the present northern edge of the Upper Guinea lowland forest on the borders of

Liberia, Guinea, and the Ivory Coast. Its summit in Guinea is still one of the highest points in West Africa (1752 m). Had it been in Liberia, it would by now have been drastically whittled down, as has the rest of the mountain there, due to mining of the rich iron ore deposits since 1963. Mining activities and consequent human population pressures in what had been a sparsely populated forest have contributed, and are still contributing, to the rapid destruction of huge areas of natural vegetation, especially lowland and highland types of forest.

On behalf of the IUCN, Kai Curry-Lindahl (KCL) persuaded the mining company to fund research on and around the mountain before it was destroyed: he has been Chairman of the IUCN Nimba Research Committee since then. This is the report on the ornithology, particularly on the large and virtually complete series of 3400 bird skins, mostly collected by me and my helpers in 1967 and 1968. Peter Colston (PRC) works in the Bird Room of the British Museum (Nat. Hist.) where the specimens are housed, but he has had no field experience in West Africa. The title implies that this is a study of the birds of the mountain, but this is misleading: there is no truly montane avifauna, and most of the studies were in the lowland areas at about 550 m.

The whole is reminiscent of those faunal papers which were a feature of *Ibis,* in which it might very likely have been published in former times, when it would certainly have been more accessible. The text is in two main parts: "Mt. Nimba," including a 4-page essay on the biogeographic context by Malcolm Coe (MJC), the first investigator (in 1964); and "The Birds" comprising the bulk of the text (83 p.).

The color plate by Philip Burton is of the two "new" species: *Melignomon eisentrauti,* here called Coe's Honeyguide, also known as Eisentraut's or Yellow-footed Honeyguide (*Melaenornis annamarulae*) here called Anna's Flycatcher, also known as the Liberian or Nimba Flycatcher. I prefer Yellow-footed and Nimba, respectively, though the last could conceivably be confused with the new race of Olivaceous Flycatcher (*Muscicapa olivascens nimbae*) described on p. 85. Burton has given the flycatcher a slightly notched tail when it is actually rounded. In the review copy, at least, the plate is much too dark as are the three color photographs of captive birds by MJC—one of the *Melignomon,* one of the Golden-bellied Wattle-eye (*Platysteira concreta*) and one of the Blue-spotted Wood-Dove (*Turtur afer*) incorrectly called Lemon Dove (*Aplopelia larvata*). The other color photographs and 19 of the monochrome by KCL and Coe are of habitats and their destruction; those with dates being particularly useful. The other black-and-white photograph is by me of the Bare-headed Rockfowl (*Picathartes gymnocephalus*) at a nest—the altitude should be 750 m not 1000. The line drawings, by PRC, are an entirely unnecessary indulgence; they add nothing and in most cases are inaccurate—particularly toes, posture and proportions. The map (unacknowledged, but specially drawn by Jozeph Grounewoud) shows the contours of the Liberian part of Mount Nimba before mining started. The other text figure shows breeding and moulting seasons of some passerines, with the data in a table opposite. The other tables present a summary of the "117" species found at Mount Nimba which were previously not known from Liberia. The Swamp Flycatcher (*Muscicapa aquatica*) should be deleted—it was based on an early Coe specimen misidentified at the BM (NH) as a Garden Warbler (*Sylvia borin*) (D. Goodwin, pers. comm.). On p. 17, *Andropadus ansorgei* should be corrected to *Criniger olivaceus.* Nomenclature follows the two BM Atlases (1970, 1978) and so the Red-fronted Antpecker (*Parmoptila r. rubifrons*) is incorrectly called *P. jamesoni* (of 1890) *rubifrons* (1872).

The species accounts are based on sight records and specimens, which are briefly listed, and impermanent colors and stomach contents are summarized from my field notes, followed by very brief notes on status and habitat. The 19-page appendix is a summary of weights and measurements of the specimens; weights were taken by me on a Dial-O-Gram scale

accurate to 0.1 g; some of the passerines weigh less than the 5 g generally accepted as the minimum passerine weight.

This collection has been called the best-prepared and most representative that the BM (NH) has received (by the late Con Benson, for instance), so I would like to correct the statements on p. 5. Almost all the birds were prepared by Joseph Mbonge Mwaki of Kenya who spent 18 months there in 1967–68 (not "for a period in 1968"). He trained Edward Yallah who gets the full credit here, although he has prepared the comparatively few specimens collected since then. An inspection of the skins pre-Mwaki, by Mwaki and post-Mwaki demonstrates his mastery of field taxidermy.

I am also reviewing this work for the new Afrotropical journal, *Tauraco,* in which I discuss the biogeography.

This hard-covered work is nicely produced and is virtually free of typos. For anyone with an interest in African and tropical avifaunas, this is a most useful set of data and another reminder that huge areas of irreplaceable natural areas are being destroyed.—ALEC FORBES-WATSON.

ARKANSAS BIRDS, THEIR DISTRIBUTION AND ABUNDANCE. By Douglas A. James and Joseph C. Neal, illus. by David Plank and Sigrid James Bruch. The University of Arkansas Press, Fayetteville, Arkansas, 1986:402 pp., 164 figs., including 31 black-and-white drawings, 19 color plates, and 19 color photographs of birds. $34.00.—Although this volume represents the fifth comprehensive work on the birds of Arkansas, the authors have pulled together something much more than a simple update on the knowledge that has accumulated since the last work of Baerg (1951. Univ. Ark. Agric. Exp. Sta., Bull. No. 258 [revised]). The current volume is not unlike (except for length) Oberholser's "The Bird Life of Texas" (1974. Univ. Texas Press, Austin) in that it includes chapters on the history of Arkansas ornithology, Arkansas birds and the environment, Arkansas birds in prehistory, and finding birds in Arkansas. The introduction lays the groundwork for the contents of the volume, explaining the various sources of information and how they are used, the role of each author in Arkansas ornithology, and the role of each in preparation of the book; it also compares the number of avian species reported in each of the five works on Arkansas birds and how those numbers may differ, not just because of new knowledge.

The chapter on history begins with the explorations of De Soto in 1541, highlights the discovery of Traill's (=Willow) Flycatcher (*Empidonax traillii*) by Audubon as the only species so described to science from the state, and then gives good coverage to the several important areas of Arkansas ornithology.

The chapter on birds and the environment is much more than an elaboration of the habitats that occur in the state. Climate, physiographic regions, and grouping of birds by habitat have a place in this chapter, but I found "Birds and their Habitats" far more interesting. This portion summarizes several studies on changes in bird populations with successional changes in woodland habitats of Arkansas.

I find the chapter on birds in prehistory interesting but somewhat of an enigma. Perhaps I am perplexed because this type of information, more of an anthropological nature than ornithological, pertains so much to birds in the Indian cultures of the area, rather than to the prehistorical presence of the birds in the state (although a table does summarize the presence of different avian species at the known archeological sites).

The three pages on finding birds in Arkansas gives too little information to be of much value to a person wishing to explore the avifauna to any extent.

The bulk of the book relates to the species account of the 366 species now known to occur, or to have occurred, within the boundaries of the state. The introduction to this

section defines the various terms used in the species accounts, explains why certain species have distributional maps, though most do not, discusses the maps on movements of banded birds, and lays a foundation for not considering subspecies: earlier work by Frances C. James "cast considerable doubt on the validity of the subspecies concept. . . ." This section also includes explanations of how various surveys and mapping techniques were used.

Each species account gives a brief statement of abundance and occurrence for the state. Following this, the authors discuss in greater detail seasonal abundance and distribution in which they frequently mention specific dates and locations in relation to arrival times, unusual numbers, or other facts of reported interest. A large number of the species have figures depicting the banding recoveries related to Arkansas birds; where over 150 such records exist, the authors have elected to use a clock-face mechanism for demonstrating the numbers from particular directions and distances. Unfortunately, 150 records is probably too high to begin this effort, as a number of the figures are obscured because of serious overlap. Nonetheless, this technique provides useful information and probably will be repeated in other state works if funds are available for the mass record search at the Bird Banding Laboratory.

The few species for which distributional maps are also presented have less than statewide distribution, and usually have rather unusual distributions or some other factor of interest. I found the *two* maps for *Picoides borealis* of particular interest in comparing the current situation with the distribution of 20 to 30 years ago. Even though *Icterus galbula* meets the authors' criterion of not having a truly statewide distribution, the species lacked so few counties, and with no perceived reason for absence from those few counties, that I wondered why the map had been included.

The 31 black-and-white drawings and over half of the 19 color plates are by David Plank; he generally shows good talent, and most of the drawings were made at specific localities in the state. However, his rendition of the Wood Thrush (*Hylocichla mustelina*) leaves much to be desired. All of his illustrations are of songbirds. Sigrid James Burch painted the remaining color plates, all of nonsongbirds. This artist either lacks the training of Plank or is slightly less skilled. The book also contains 19 color photographs by various persons.

Generally, this is an excellent work for a state book. It has several innovations that others might emulate. My most serious complaint lies not with the authors, but with the publisher: the binding is very poor on my copy, not standing up to even moderate use.—KEITH A. ARNOLD.

CONSERVING BIOLOGICAL DIVERSITY IN OUR NATIONAL FORESTS. By Elliot A. Norse, K. L. Rosenbaum, D. S. Wilcove, B. A. Wilcox, W. H. Romme, D. W. Johnston, and M. L. Scott. Prepared by the Ecological Society of America for The Wilderness Society. The Wilderness Society, Washington, D.C., 1986:116 pp., 20 unnumbered photos with captions, 1 fig. No price given.—National Forests are among the last places presenting long-range opportunities to maintain the integrity of forest life, but the National Forests are beleaguered by a philosophy of timber production as the major priority. This is a legacy of Gifford Pinchot, who along with President Theodore Roosevelt, was responsible for the establishment of the National Forest system. Since then, our National Forests have been a battleground between the philosophy of the wilderness, as espoused by John Muir, founder of the Sierra Club, and Pinchot's utilitarian philosophies. The utilitarian approach still dominates, as evidenced by the management plans developed for the various National Forests.

The public, for whom the National Forests are held in trust, views the forest in a different light. As a result, Congress has mandated certain modifications in management of National Forests to maintain and enhance other amenities: wildlife, recreation, biological diversity, and maintenance of viable populations of vertebrate species.

Many, if not most, of the initial recent management plans written fail to take this holistic approach. The planners either may not be sympathetic to an ecosystem approach to management, lack the knowledge and expertise to develop such plans, fail to utilize their own ecologists and wildlife biologists in the planning process, or ignore the whole issue by continuing their past ways as witness the problems of the Tongrass, the reluctance to maintain old growth in the Pacific Northwest and southern pinelands, keys to survival of the Spotted Owl (*Strix occidentalis*) and the Red-cockaded Woodpecker (*Picoides borealis*).

Legislation, however, mandates a public input into the National Forest management plans. The quality of this input varies. It is very difficult for the general public to assess critically these plans because it possesses even less ecological expertise than the planners. Yet public input can be effective as exemplified by the conversion of a strictly timber management, road-building plan for the Monongahela National Forest to one emphasizing wildlife and recreation.

This little book provides citizen conservationists, land managers, elected officials, and foresters a primer on ecological concepts relevant to forest planning. While the book will not make an expert out of the reader, it does provide enough ecological insights to permit a critical review of forest management plans, the purpose of this publication.

The book, well-written and easily understood, consists of nine short chapters. Chapter 1 explains the meaning of biological diversity and the reason for conserving it. Chapter 2 introduces the concepts of population, communities, succession, the role of long- and short-term disturbances, and the value of old-growth forest ecosystems. It introduces the basic ideas of population genetics, minimum viable populations, and fragmentation of habitats. Chapter 3 introduces the idea of ecosystem vs featured species management. Chapter 4, which should have followed Chapter 2, continues the discussion of habitat fragmentation and all its problems. Chapter 5 provides a brief review of silvicultural practices from thinning to harvesting.

Having provided this background, the authors move into the core of the matter, National Forest planning, the role of public participation, and the various legalities involved. Public participation in National Forest planning requires some idea of what to look for in these long-term management plans. The last chapters of the book tell you. They provide a balanced, nonadversative assessment, and ask the right questions. The list of questions posed is one that planners themselves should have on hand as a check-list. That would enable them to avoid oversights and meet the guidelines of forest management planning.

The last two chapters are case history studies. Chapter 8 is devoted to management or mismanagement of rare species and the conflicts between timber management and the wildlife species involved. The last chapter looks at the maintenance of biological diversity in the Yellowstone ecosystem involving the Park and adjacent National Forests.

Although the book is designed for those who have the opportunity to review National Forest plans, it has even wider application. It is the kind of primer on applied forest ecology relative to biological diversity that will provide keener awareness of the interactions between forest wildlife and their habitats and how they are affected by human intrusions. Anyone who is concerned about the future of birdlife and the effects of diminishing habitats should read this little book. It explains much about what is happening.—ROBERT LEO SMITH.

PATTERNS AND EVOLUTIONARY SIGNIFICANCE OF GEOGRAPHIC VARIATION IN THE SCHISTACEA GROUP OF THE FOX SPARROW (*PASSERELLA ILIACA*). By Robert M. Zink. Ornithological Monographs No. 40, American Ornithologists' Union, Washington, D.C., 1986:viii + 119 pp., 34 figs., 21 tables, appendix. $15.00 ($12.50, members).—All of systematics is divided into three parts. These include the inference of higher level relationships or phylogenetic analysis, the study of speciation, and the investigation of intraspecific variation. The latter

two areas were the major focus of systematists' interest during much of this century, but phylogenetic analysis has become dominant over the last 15 to 20 years. Its rise in popularity seems to be the result of theoretical and partisan disputes over methods, along with the development of new, including molecular, techniques for producing data. The investigation of speciation remains popular because of unresolved theoretical issues concerning modes of speciation, the dynamics of hybrid zones, and the definition of species. The debate about geographic variation is less audible in this era of macroevolution, heterochrony, and DNA sequences, but a few new issues have arisen here also. The theoretical issues that had traditionally been associated with intraspecific variation usually involved attempts to understand the beginnings of the process of speciation—issues such as the conversion of intraspecific variation to interspecific differences. Current interest also centers on the genetic basis for geographic variation, the time required for its evolution, and the relative roles of gene flow, natural selection, and random drift in its origin and maintenance. In this regard, the Fox Sparrow (*Passerella iliaca*) of the western U.S. is an exemplar of a species with remarkable, almost species-level, morphological variation among populations; it is the subject of Robert Zink's new AOU monograph.

Populations of Fox Sparrows in the montane chaparral of the Pacific Coast states and the riparian thickets of the Great Basin ranges vary in overall size, plumage color, and, especially, bill size and shape. For example, whereas mean body mass varies up to 30% among localities, mean bill widths and depths vary by as much as 50% among populations only a few hundred km apart. Two separate monographs (by Linsdale and Swarth) treated this variation in the 1920s. Zink's is the first comprehensive treatment of these birds since those earlier studies. It consists of statistical analyses of three data sets (skin measurements, skeletal measurements, and electrophoretic results) obtained from series of new specimens from 31 localities in California, Nevada, and Oregon.

Zink's approach was to search for patterns, in each of the three data sets, and then make inferences about causal processes by comparing these patterns. The electrophoretic data set indicated a lack of substantial differentiation among the morphologically diverse populations. In addition, clustering the genetic distances among samples resulted in a tree that made little geographic or ecological sense. These results led the author to conclude that either the divergence of the populations was recent or that there has been substantial gene flow among localities. Univariate and multivariate analyses of the skin and skeletal data sets were easier to interpret. The major components of variation in both cases were largely consistent with geography; that is, geographically proximal samples were morphologially similar. This was less true, however, of second order components of variation (second and subsequent principal components). Morphological variation was correlated with latitude and environmental variables, but was not consistent with the usual ecogeographic rules.

The investigation of intraspecific variation generally has become more statistically sophisticated over the last 20 years, and this study is no exception. In addition, it is the first monograph on avian geographic variation that treats electrophoretic and morphological variation in a single work. Zink is able to capitalize on that occasion; it was, for example, the contrast between the molecular and morphological data sets that allowed him to infer that the morphological divergence was recent and perhaps only ecophenotypic. His bold hypothesis that some or even much of the morphological diversity in the species may have been due to the influence of the local environment where the birds were fledged (the "Fran James effect") needs to be tested. This and the discussion of other topical issues, including the question of species status of well-differentiated forms (Zink thinks there are three species of Fox Sparrows), will be of interest to many readers.

Nevertheless, this is not the "compleat" monograph; besides the minor matter of a mix-up that resulted in Figure 18 being replicated as Figure 24, several omissions are worth

noting. First, *P. iliaca* is highly polytypic; of the three subspecies groups—*schistacea, iliaca,* and *unalaschcensis*—only the first was examined in this study. Inclusion of representatives of the latter two taxa would have permitted the examination of the concordance of molecular variation, morphology, and geography over larger geographic and temporal scales. It is possible, for example, that the discordance Zink found between morphological and molecular variation was the result of an insufficient signal-to-noise ratio in the electrophoretic data due to recency of common ancestry. Second, in examining concordance among character sets, it would have been useful to possess information on plumage color and perhaps even on song variation. Third, although summaries of electrophoretic variation in each population are given in tables, summaries of morphological characters are not. The first two additions would have required significantly greater research time, but they would also have improved the monograph. These are quibbles, however; this work is as good as any recent monograph on geographic variation. The real problem is with the current state of that science.

Studies of intraspecific variation lack the cachet of phylogenetic and speciation analyses. I believe this is due to a lack of well-developed goals and hypotheses. With the widespread availability of multivariate and other computer packages, systematists are well-equipped to describe patterns of variation, their magnitude, and their statistical significance—the tactical machinery for the study of variation exists. But there is no universally agreed upon set of questions to be asked, and no overall agenda or research program. It is symptomatic of the state of affairs in this branch of systematics that Zink's final discussion includes a series of unanswered questions rather than evidence supporting standard generalizations. This monograph does not tell a slick story; rather it accurately reflects present uncertainty. There is a challenge in this; those interested will want to read and reflect on this monograph.—GEORGE F. BARROWCLOUGH.

HAWKS AT MY WINGTIP. By Bill Welch. North Country Press, Thorndike, Maine, 1987: 148 pp., 39 black-and-white photographs and 22 figs. Soft cover, $7.95.—Mr. Welch provides an interesting narrative about following and studying hawk migration through the use of a powered glider during four fall migrations in New England. The book is easy to read and provides substantial information not readily attainable by ground-based observers. For example, we learn that Broad-winged Hawks (*Buteo platypterus*) have an air speed of about 25 mph while soaring in a thermal, and about 40 mph while gliding. Also the author provided air speeds (mph) of 41–58 for Turkey Vulture (*Cathartes aura*), 48 for Osprey (*Pandion haliaetus*), and 50 for a stressed Peregrine Falcon (*Falco peregrinus*). It was also confirmed that Broad-wings do thermal up into dense clouds and, more astonishing to me, that they emerge simultaneously to glide off in the migratory direction, rather than only a few at a time as they reach maximum soaring height, which (in New England) proves to be around 5000 feet. There is a comparison between thermal lift and ridge lift as it affects migrating hawks. We are also given hard data on glide ratios.

By way of criticisms, perhaps half of the photographs could have been deleted, as could most of the "Hawk Patrol" maps, the purpose of which is often unclear since reference to them in the text is seldom made. The author makes the curious statement that "the season for hawk migrations is documented" while "the exact dates are not." He also applies the term "penetrating" to the mode of flight commonly known as gliding. The statement "hawks are sometimes reported migrating in extremely poor weather . . . after a long period of unfavorable weather has delayed the usual migratory flights" seems oxymoronic. In the listing of hawkwatching sites, geographical descriptions are sometimes lacking, e.g., "Hawk Ridge, Minnesota." Some readers might not know that this site is in Duluth. There are a few, minor typographical errors; I counted three.

Also included are sections about the sport of hawkwatching, captive rearing, falconry, rehabilitating, and some personalities involved with raptors. There is a technical discussion on the mechanics of flight and four appendices dealing with hawkwatching, aerodynamic calculations (too technical for most laymen, including this reviewer), a glossary, and identification aids. The book is recommended reading for all raptor enthusiasts and students of avian migration.—DANIEL D. BERGER.

VOICES OF THE NEW WORLD CUCKOOS AND TROGONS. CUCULIDAE AND TROGONIDAE. By J. W. Hardy, George B. Reynard, and Ben B. Coffey, Jr. ARA 11, ARA Records, P.O. Box 12347, Gainesville, Florida, 1987: Monaural tape casette. No price given.—As the comments accompanying this tape note, the recording of cuckoo songs is a difficult and trying task. Cuckoos generally do not engage in song bouts, and there may be long intervals between individual songs. Despite this obstacle, this new recording from ARA Records gives us the vocalizations of 26 of the 33 New World cuckoos. Missing are four species of the genus *Neomorphus, Coccyzus cinereus,* and *Piaya melanogaster,* which are not known to have been recorded. *Opisthocomus* is included as a cuckoo (*fide* Sibley and Ahlquist) although the notes indicate that this is a debatable point.

The reverse side of the tape gives us the songs of the 25 New World trogons, which are easier to record than are cuckoos. Included are the only known recording of *Trogon comptus* and the recording of the Eared Trogon (*Euptilotis neoxenus*) made on its first appearance in the U.S.

The high standards, both of recording and reproduction, that we have come to expect from ARA are maintained here. Most of the recordings were made by the three co-authors, particularly the indefatigable Ben Coffey, but 14 others, including a Nobel Laureate, contributed one or more recordings. All are to be congratulated.

The recording data and other notes, usually found on the sleeve of a record, are here confined to the six 6 × 10 cm sides of the wrap-around cassette label. The fineness of print is guaranteed to send most people to their oculist. Besides the technical data, Hardy has made numerous comments on the possible significance of these vocalizations to the taxonomy of some of the species.—GEORGE A. HALL.

THE BIRDWATCHER'S DIARY. By Edgar M. Reilly and Gorton Carruth. Harper & Row Publishers, New York, 1987:218 pp., many sketches and maps. Soft cover. No price given.—If you are looking for an attractive gift for a fledgling birder friend this might be the answer. The diary portion consists of 52 lined pages available for keeping weekly observations and notes. However, the book is more than a notebook but is really a primer of bird watching and an introduction to ornithology.

For each week there is a short paragraph labeled "Activities" which suggests some things that might be done to expand one's knowledge of birds, and a section with map, labeled "Comings and Goings" that highlights particular species. There is also discussion of a topic ranging from Migration, through Classification and Behavior, to "Group Birding." These accounts, which are often several pages long, are good introductory chapters to a textbook on ornithology. A spot check of these accounts produced only a few ambiguities and no major errors of fact. Good references to further literature are given throughout, and a section called "Winter Nights Homework" lists books and journals that may be of value to the neophyte as he develops.

An attractive Checklist of the birds of Canada and the U.S., with spaces for annotations,

is provided. Throughout the book is profusely illustrated with maps and attractive sketches, although the artists are mentioned only in the Acknowledgments.—GEORGE A. HALL.

ABUNDANCE AND DISTRIBUTION OF THE BIRDS OF OHIO. Ohio Biological Survey, Biological Notes No. 19. By Bruce G. Peterjohn, Raymond L. Hannikman, Jean M. Hoffman, and Elliot J. Tramer. The College of Biological Sciences, The Ohio State University, Columbus, Ohio, 1987:iv + 52 pp., maps, and color photo cover. $5.00 (plus 20% postage and handling).—Ohio stretches from the foothills of the Appalachians to the beginnings of the prairies and there are a few relict boreal habitats in the northern part of the state. This alone would make for an extensive list of birds, but the number is further enhanced by the long Lake Erie shore which introduces an almost maritime flavor. Despite the legions of bird students in the state, there has not been a comprehensive treatment of these ornithologial riches since Dawson's book in 1903. There have been only abbreviated checklists in 1950, 1968, and 1983 and the long out-dated *Distribution of the Breeding Birds of Ohio* (Hicks 1935). The publication before us is not a comprehensive treatment but continues the checklist format with more extensive annotations than in the past. Distribution is given by regions of the state, defined in a map, and abundance according to well-defined terms. Complete data as to date and place are given for the rarer species. A total of 368 species has been documented either by specimens (348) or photographs (20) in the state. An additional 19 species have been accepted as "Hypothetical" on the basis of observation with good documentation. Another 32 species are on an "Unaccepted" list, being represented by sight records with poor documentation or were possible escapes.

The annotations are terse, averaging 3–4 lines per species, but are informative. The almost obligatory bar diagram showing seasonal occurrences is given with the added convenience of having different bars for different regions, usually North and South.

In keeping with the checklist format there is no discussion of the physiography or phytogeography of the state, but a map of landforms is included, as well as a map showing the counties and the regions used in discussing distribution. The preliminary material explains the criteria of acceptance in detail.

This is a most useful addition to regional lists but bird students in the Midwest will await the Ohio Breeding Bird Atlas for which the field work is currently being carried out and we can hope for a comprehensive treatment in the future.—GEORGE A. HALL.

ALSO RECEIVED

ILLINOIS BIRDS: CORVIDAE. By Jean W. Graber, Richard R. Graber, and Ethlyn L. Kirk. Illinois Natural History Survey Biological Notes 126, Champaign, Illinois. 1987:42 pp., maps and graphs and one black-and-white sketch. No price given.—This is the eleventh fascicle in the series of short publications substituting for a formal state bird book. Nine species of corvids are discussed of which three nest in the state. The accounts of the Blue Jay (*Cyanocitta cristata*) and the American Crow (*Corvus brachyrhynchos*) are full of interesting detail, including a listing of all known winter crow roosts in the state. When completed, this series will constitute perhaps the most complete state book in existence.—G.A.H.

POPULATION ECOLOGY OF THE MALLARD VIII. WINTER DISTRIBUTION PATTERNS AND SURVIVAL RATE OF WINTER-BANDED MALLARDS. By James D. Nichols and James E. Hines. U.S.

Fish and Wildlife Service, Resource Publication 162. U.S. Fish and Wildlife Service, Room 148, Matomic Building, Washington, D.C. 20240. 1987:154 pp., black-and-white photos, maps. No price given.—Winter distribution patterns and survival rates as determined from band recoveries.—G.A.H.

BIRD BEHAVIOR AND MORTALITY IN RELATION TO POWER LINES IN PRAIRIE HABITATS. By Craig A. Faanes. U.S. Fish and Wildlife Service, Room 148, Matomic Building, Washington, D.C. 20240. Fish and Wildlife Technical Report 7, 1987:24 pp., 10 maps and graphs. No price given.—A thorough examination of mortality at selected power lines in North Dakota. Waterfowl and gulls constituted 60% of the mortalities in spring and 4.9% in fall. Most mortalities occurred during migration seasons. Some recommendations to alleviate the problem are given.—G.A.H.

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