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ORNITHOLOGICAL LITERATURE

EDITED BY WILLIAM E. DAVIS, JR.

ARENA BIRDS: SEXUAL SELECTION AND BEHAVIOR. By Paul A. Johnsgard, illus. by the author. Smithsonian Institution Press, Washington, D.C. 1994: 330 pp., 38 color plates, 70 pen-and-ink illustrations. $39.95 (cloth).—Arena birds are those species that exhibit elaborate courtship behavior in well-defined, often communal areas called arenas. Familiar examples from North America include many of the grouse species, some duck species, as well as certain shorebirds such as the Pectoral (*Calidris melanotos*) and Buff-breasted (*Tringites subruficollis*) sandpipers. Familiar examples from outside of North America include the New Guinea and Australia birds-of-paradise and bowerbirds, the contingas and manakins of the Neotropics, and the European and African bustards. Other examples include species in such diverse groups as the parrots (the Kakapo [*Strigops habroptilus*] of New Zealand), the hummingbirds (the hermit species as well as others), African widowbirds and whydahs, and the Australian lyrebirds. Obviously, arena courtship has evolved independently in numerous taxonomically distant bird groups. It is one form of sexual selection, a pervasive evolutionary force in animals ranging from arthropods to apes. In this volume, Paul Johnsgard, known for his prolific popularized treatments of various of the world's bird families, has again attempted a broad review, this time not taxonomically oriented but evolutionarily oriented: arena courtship in birds.

Johnsgard's book is comprehensive and well referenced. It will prove important to students and researchers interested in sexual selection as manifested in arena courtship. A total of 460 references are included in the literature cited, making this volume clearly the best available review of this subject as it applies to birds. In addition, students will find the thorough 26 page glossary most helpful in that many definitions (Bateman's principle, handicap hypothesis, male dominance polygyny, sexy son hypothesis) are treated as short paragraphs, providing a very sound and quickly referenced summary of the complex terminology and conceptual hypotheses that currently pepper the field of sexual selection theory.

The book is divided into 12 chapters, most of which deal with specific taxonomic groups in which arena behavior is particularly dominant. The first two chapters are introductory, one to introduce sexual selection as an evolutionary process, the other to focus on arenas, courts, and leks. Both of these chapters try to provide a sound overview of relevant evolutionary theory, introducing (perhaps too briefly) the various models of sexual selection and the kinds of data sets that support sexual selection as an explanation for a particular courtship pattern. These chapters provide an adequate introduction to the field although they are best read after one has a relatively sound understanding of the principles of natural selection. Johnsgard gives perhaps an overly concise introduction to Darwin's thinking in conceiving of sexual selection (there is only a reference to "Descent of Man and Sexual Selection," none to "The Origin of Species," where the idea was first introduced) as well as to Alfred Russel Wallace's views on Darwin's theory. But one must remember that this is not a book on all of sexual selection but on only one form of it as shown in some birds.

There are seven tables in chapter 1 that will prove useful in gaining an overview of the numerous hypotheses that envelop this complex subject: models of sexual selection among birds, hypotheses that relate to male showiness among normally monogamous birds, hypotheses that relate to sexual monomorphism among nonmonogamous birds, costs and benefits influencing female mate choice strategies in lekking, costs and benefits influencing male clustering strategies, relative individual mating success among males of selected arena species, and examples of male age-related dominance/fitness ratios in lekking birds. Johnsgard's discussion is meant to summarize, although he does go into much greater depth when

discussing various species treated in the main body of the text. Chapter 2 is brief and also summary in nature. Johnsgard provides definitions of arenas, courts, and leks and attempts, as in the preceding chapter, to outline all of the relevant terminology in tabular form. Included in this chapter is a useful table listing all of the 60 arena bird species, describing for each its dispersion pattern (lek, exploded lek, mobile lek), color pattern (dimorphic, nondimorphic, reverse dimorphic), mass pattern (never clearly defined in the table but undoubtedly referring to males having greater, equal, or less mass than females), display types (aerial, ground, joint male, stage or arena, tree or shrub), and a principal reference source from the ornithological literature.

The remaining 10 chapters deal with specific examples. For example, chapter 9, "Manakins: spectacular soloists and dazzling duets," spotlights the 24 species of lekking Neotropical manakins, some of which have been intensively studied and for which much is therefore known. Even readers quite familiar with this group will find Johnsgard's treatment praiseworthy. He discusses well-chosen examples, provides excellent pen-and-ink diagrams of the behaviors he describes (a very useful feature throughout the book), and summarizes the essential hypotheses that have been advanced to account for the elaborate behaviors. Other chapters are similar in approach.

What is missing from the volume is a final chapter that insightfully brings together the numerous threads contained within the main body of the text. There is no concluding chapter of any kind. Missing, therefore, are comparisons among taxonomically distant groups, substantive discussions of convergent evolution, and suggestions about how such diverse taxa evolved independently into arena birds. There is, for instance, no real comparison of the ecology of Neotropical species such as the Guianan Cock-of-the Rock (*Rupicola rupicola*) with that of the various species of New Guinea birds-of-paradise, two cases in which a frugivorous diet has been suggested as influential in structuring the birds' reproductive ecologies. This quibble aside, anyone interested in this subject cannot but help to find Johnsgard's book of great use. It is a most thorough popular review of the literature, greatly enhanced by numerous well-crafted illustrations.—JOHN C. KRICHER.

MY DOUBLE LIFE: MEMOIRS OF A NATURALIST. By Frances Hamerstrom. University of Wisconsin Press, Madison. 1994: 316 pp., 72 black-and-white photographs, 42 line drawings. $16.95 (paper); $35 (cloth).—This autobiographical sketch consists of 90 snippets—recollections and reminiscences—mostly two-to-four pages in length, which provide a window into the life of an accomplished naturalist and conservationist. The first 85 pages or so deal with Frances's childhood—glimpses into the secret life of a bright, alert, questioning, secretive, naughty, awful, and sometimes manipulative child—the kind that drives parents and governesses to distraction but often produces accomplished adults. The descriptions, for example, of a child of six smoking cigarettes, cutting her new Christmas doll's hair, conducting a formal funeral for a Blue Jay, or cutting up her mother's white kid opera gloves to make jesses for her pet kestrel, are sometimes sad, sometimes humorous, sometimes poignant. There are undertones of strife against grownups who "forbade wild pets and tried to squelch my companionship with creepy crawly creatures . . ." She found grownups "either weak or not to be trusted." Another 20 pages deal with the metamorphosis of a tomboy into a young woman.

The remainder of the book deals largely with the prairie chicken work she shared with her husband of 59 years, Frederick, with occasional glimpses and hints of raptor research. We follow their lives in a series of deserted farmhouses in central Wisconsin during the Great Depression and war years—behavioral studies from blinds, harsh winters with frozen

pumps and prairie chicken censuses on snowshoes, graduate school with Aldo Leopold, a succession of 7000 "boomers," or helpers, with the chicken work, parenting under primitive conditions (two children), and local politics and conservation initiatives.

This book is well written, well illustrated, and provides an interesting perspective on some facets of ornithological research, particularly during the first half of the twentieth century. What were the two lives of this most interesting ornithologist/naturalist? Read this delightful book and find out for yourself—I highly recommend it.—WILLIAM E. DAVIS, JR.

ANNOTATED BIBLIOGRAPHY OF THE LOONS, GAVIIDAE. By Judith W. McIntyre and Norma G. Cutler. North American Loon Fund, Gilford, New Hampshire. 1995: 170 pp. Available in paperback for $12 plus $2 S&H within U. S. A. from: NALF, 6 Lilypond Road, Gilford, NH 03246.—This bibliography contains 1650 citations with the most recent 1994. The introduction lists 44 sub-categories (e.g., acid rain, food, predation) for which separate sub-bibliographies may be obtained. Anyone purchasing the entire bibliography is entitled to one free sub-bibliography, and additional ones at cost, ordered from the above address. Not available on disk. About half of the entries are annotated, and annotations run up to nine lines of type. This bibliography will be useful for anyone interested in loon biology or conservation.—WILLIAM E. DAVIS, JR.

ATLAS OF THE BREEDING BIRDS OF NEW HAMPSHIRE. By Carol R. Foss (ed.). Audubon Society of New Hampshire, Dover N. H. 1994. 459 pp., many b/w sketches, 241 maps. $39.95 (cloth).—This publication from a New England state continues the expansion of the breeding bird atlas shelf in libraries. The birders of the Granite State have produced a fine work which matches the high standards of the earlier Atlases.

The book follows the well-known format, with a page of text and a sketch of the species facing a map occupying a full page. The resulting large maps for a small state are perhaps the most easily interpreted of any in the atlases I have seen. The atlas blocks were set up on the standard 6 blocks per 7.5 minute topographic sheet, but as with several other states having limited manpower only one block per sheet was selected as a "priority block."

New Hampshire has varied habitat and the second greatest altitudinal range of any eastern state (from sea level to over 6200 feet.) This variety has been organized under 16 physical divisions. The Atlas workers found breeding evidence for 204 species with 176 of these "Confirmed". Twenty-one other species are listed as "Historically or potentially breeding" species which were not found during the atlas project. No attempt is made to consider populations using Breeding Bird Survey data or something similar as other state atlases have done.

The species accounts, written by a large panel of experts, provide a variety of natural history information, some it from New Hampshire publications but much of it from standard sources such as the Bent series. Besides the customary table summarizing the number of blocks for which "Confirmed", "Probable", and "Possible" status was obtained for the species, another table detailing the number of records meeting each of the criteria for confirmation (i.e., Nest Building, Nest with eggs, etc.) together with the range of dates for each. This useful information is not included in other atlases.

Besides the species accounts and the usual summary of the geography of the state, there are two essays that are unique for this atlas. A chapter entitled "Major Changes in Breeding Avifauna of New Hampshire Since Its First Settlements by Europeans in 1623" gives a

very lucid historical discussion of the effect of settlement and habitat change, as well as more recent range changes. Accompanying this is an appendix showing range maps for the period 1963–1980 of several species. Some of these have greatly disappeared in this short interval. Another fascinating chapter by Tudor Richards is a discussion of the occurrence of species along the great altitudinal gradient in the state. Richards attempted to count the species present at 500 foot intervals at stations throughout the state. He classifys his results results into seven avifaunal regions. The highest count was 134 species in the interval between 1000 and 1500 feet, and the lowest count was one species (Dark-eyed Junco) in the 5500–6000 feet interval.

I have only one minor negative comment. The maps of land elevations and forest types are done in a 6-interval "gray" scale. It is next to impossible to distinguish between the three darkest categories.

The field work for this atlas was completed in 1986, and the long delay in publication seems to be characteristic of the atlas business. Other states have experienced similar delays. In any event, this is a well-done compilation and welcome addition.—GEORGE A. HALL.

A BIRDER'S GUIDE TO COASTAL NORTH CAROLINA. By John O. Fussell III. Univ. of North Carolina Press, Chapel Hill. 1994: 540 pp., 10 black-and-white photographs, 44 maps. $16.95 (paper); $29.95 (cloth).—The purpose of this book is to describe and facilitate visiting the better birding sites along the North Carolina coast. It accomplishes this goal in fine fashion. The book is divided into three parts. Part 1 consists of three chapters, the first of which describes the climate, physiography, and habitat of the various sections of the coast. The second chapter provides general planning and travel advice and introduces birders to the pleasantries of ticks, fire ants, and poisonous snakes. Chapter 3 is a list of more than 350 species which may be found in the region, with annotations on status, season, and habitat and sometimes specific site information of from one to nine lines of text; a list of 41 accidentals is included. Part 2 is a site guide consisting of six chapters, five of which describe (from north to south) sections of the coast and associated "tidewater" or outer coastal plain. The sixth deals with pelagic birding. Each chapter has a map of the entire section of coast described, and detailed maps for particularly interesting sites. There is usually a section on logistics, and the text guides the reader on a "tour" of each site with distances described to the nearest tenth of a mile, notable birds enumerated, and habitats described. Telephone numbers, e.g., for pertinent wildlife refuge headquarters, are included, as are helpful hints about avoiding problems with hunting seasons. The text is highlighted by ample, common sense advice. For the site I had most recently visited (fall 1994), I found the directions and descriptions excellent; I assume that this is the rule rather than the exception. Certainly, the text reads smoothly and the directions are clear and detailed. Part 3 consists of more detailed descriptions of status, season, distribution, habitat, and special features of 141 bird species "of special interest." The accounts average a third to half a page, but some run to two pages. An appendix contains detailed bar graphs describing seasonal occurrence and status (common, rare, etc.) of all but accidental species. The graphs are large, detailed, and user friendly, with a status key on each pair of facing pages.

The book is generally well done, but is not without problems. It is a big book—it won't fit in your pocket or in most automobile glove boxes. This large size at least partially results from redundancy (which the author acknowledges) among the annotated bird list (chapter 3), the section on birds of special interest (part 3), and the bar graphs—triple coverage for 141 species. Integrating the annotated lists would probably have been a good idea. Nowhere in the book is there a map of the entire region to help a reader unfamiliar with the region

put into a visual context the physiography and habitat descriptions in the opening chapter. But despite these few detracting features, I would recommend the book and consider it indispensable for anyone planning to visit the North Carolina coast.—WILLIAM E. DAVIS, JR.

THE BIRDS OF KENTUCKY. By Burt L. Monroe, Jr. Indiana Univ. Press, Bloomington, Indiana. 1994: 145 pp., numerous color plates. $49.95.—"The birds of Kentucky" is an attractive "coffee table" book describing all birds known to have occurred in that state. The late author was the dean of Kentucky ornithologists and one of the grand men of our science. However, anyone looking for new or comprehensive information about the birds of Kentucky will be disappointed by this book. Why such beautiful tomes are done with such thin detail continues to bewilder me. On the other hand, the illustrations in the book are outstanding. William Zimmerman is one of the best illustrators of living birds in the world and the figures in this book demonstrate his abilities. It is unfortunate that not all species were illustrated. The reference section is comprehensive and well done. I wish the rest of the book was as thorough in its coverage.—C. R. BLEM.

THE CHRONICLES OF THE ROWLEYS. By Peter Rowley. Huntingdonshire Local History Society, Huntingdon, Cambridgeshire, England. 1995: 158 pp. Available in U.S.A. from Peter Rowley, 815 Park Avenue, New York, New York 10021. $25 (cloth).—This book provides glimpses of English life for about a century (ca 1780–1880) from the perspective of one family, the Rowleys. People with such phonic names as Owsley Rowley stride across the stage of English history. All of the chapters should be of interest to those with a general fascination for history, but one chapter, "The Rigid Squire and the Eclectic Ornithologist" (25 pages), is a biographical account of ornithologist Dawson Rowley (1822–1878). Dawson, under the influence of famed ornithologist Alfred Newton, compiled two massive volumes on the Great Auk (*Pinguinus impennis*) which, although never published, are apparently still extant. After Rowley abandoned the Great Auk project, he turned his attention to the publication of three volumes of *Ornithological Miscellany,* published in parts as a magazine beginning in 1875 and before his death in 1878. These issues apparently included hand-colored lithograph plates by John Gerard Keulemans.

The book is a scholarly work based on primary sources (mostly correspondence) and should appeal to those interested in the history of ornithology.—WILLIAM E. DAVIS, JR.

BEFORE THE ECHO: ESSAYS ON NATURE. By Pete Dunne. Univ. Of Texas Press, Austin. 1995: 152 pp., 20 line drawings. $19.95 (cloth).—In contrast to his previous books of essays, which dealt mostly with birds, this collection of 30 essays deals largely with other facets of the natural world. Most of the essays were first published in the New Jersey edition of the Sunday New York Times. The essays treat a variety of rather mundane subjects, such as the first snowfall of the year, confrontations with mice in an old farmhouse, or burning leaves in the fall. My favorite, "Before the Echo," deals with hunting, and is not a polemical anti-hunting statement but rather a consideration of hunting as a natural phenomenon. Many of the essays center on poignant reminisces of youth (e.g., catching fireflies), and most have a mildly polemical, but not offensive tone (after all, Pete Dunne is an environmentalist who has worked most of his professional life with the New Jersey Audubon Society). He does go after an occasional Sacred Cow, such as the grass lawns of suburbia.

Pete Dunne has become one of the premier natural history writers of North America, and his essays are beautifully written. You may not always agree with his biases, but the stories he tells and the yarns he spins are delightful. Even though there isn't much about birds, I would recommend reading this book to anyone interested in the interaction of people with the natural world.—WILLIAM E. DAVIS, JR.

BIRDS OF THE CAYMAN ISLANDS. Revised edition. By Patricia Bradley, photography by Yves-Jacques Rey-Millet. Caerulea Press, Italy. 1995: 261 pp., 77 color photos, 4 maps. No price given (cloth).—This excellent little guide has been substantially revised, and the status of individual bird species updated, with several new species added and the status of many changed. The photographs are much the same as in the first edition (1985), but there have been a few replacements and the number of habitat photos increased. In the copies I examined, the new edition photos were not as sharp as those of the first edition, but the color seemed to be more realistic, at least in some photographs. The maps have been redrafted and updated, and the bibliography has been considerably expanded. A new appendix provides a check-list of breeding birds with status and distribution for each of the three islands. Most of the minor errors mentioned by Jon Barlow in his thorough review of the first edition in *The Wilson Bulletin* (1987, 99:512–514) seem to have been corrected, although curiously, the subspecific designation *bairdi* for the local Jamaican Oriole (*Icterus leucopteryx*) is still misspelled.

This book should be indispensable to anyone visiting the Cayman Islands and remains an important component of Caribbean ornithological literature.—WILLIAM E. DAVIS, JR.

SWIFTS. By Phil Chantler and Gerald Driessens. Pica Press, East Sussex, U.K. 1995:237 pp. £ 26.—This field guide is similar to others on seabirds, waterfowl, sparrows, warblers, and shorebirds published by Houghton-Mifflin and Princeton Univ. Press. As such, this volume becomes an important addition to the library of those interested in knowing and identifying the birds of the world. The present book carries on the tradition of the others in that it is considerably more than just a field guide. The book contains a rich variety of information about swifts. It provides maps of the distribution of the swifts of the world, gives detailed descriptions of status, relative abundance, migration, breeding, adverse factors, habits and habitat, and describes problems of identification. I greatly enjoyed the sections on swift biology, the possibility of new (undescribed) species, conservation, and "how to watch swifts." The reference section is comprehensive and modern. The binding and format are excellent and the book is attractive.—C. R. BLEM.

CONTRIBUTIONS TO THE HISTORY OF NORTH AMERICAN ORNITHOLOGY. William E. Davis, Jr. and Jerome A. Jackson (eds.). Memoirs Nuttall Ornithol. Club. No. 12. Cambridge MA. 1995: vii +501 pp., many b/w photos. $40 (cloth)—This book is an outgrowth of a symposium on the history of North American ornithology given at the 1991 meeting of the Association of Field Ornithologists. The editors gathered the material of that symposium together with a number of invited chapters into an engaging and valuable preamble to a definitive history. The history of American ornithology is a neglected subject, and many current workers show a lack of interest in it, possibly because they lack any knowledge of

it. A history was contemplated as a part of the Centennial celebration of the AOU but this did not eventuate.

The bulk of the book consists of 11 chapters detailing the development of ornithology at as many noted centers of ornithological research: 7 museums and 4 universities (also with museums.) Since the authors of these accounts are usually noted and important participants in their subject institutions, the result is a set of fascinating stories. Thus we have the Academy of Natural Sciences of Philadelphia (by Gill); U.S. National Museum of Natural History (Banks); Harvard's Museum of Comparative Zoology (Barrow); Univ. of Kansas (R. Johnston); American Museum of Natural History (W. Lanyon); Field Museum (Lowther); Carnegie Museum of Natural History (Parkes); Univ. of California's Museum of Vertebrate Zoology (Johnson); Cornell Univ. (Butcher and McGowan); National Museum of Canada (Ouellet); and the Royal Ontario Museum (Barlow).

The format and content of these chapters varies from institution to institution. Some are straightforward historical summaries, but some include delightful anecdotes about people whom we all know by reputation, but who have lived before our time. Most of the accounts detail the major contributions of the institution, and some itemize the strength of their collections. The MVZ account contains a series of short biographies of many of the people associated with that museum, and also includes an "academic genealogy" of Joseph Grinnell involving a list 50 distinguished present-day ornithologists who are "academic grandchildren". The Cornell and Kansas Universities each has a list of the doctoral degrees granted in ornithology. The problems of the present day come into view in Henri Ouellet's low keyed description of the regrettable situation at the Canadian National Museum.

Most of the accounts are illustrated by excellent photographs. These range from formal studio shots, through group photos of departmental staffs, to informal shots in the field, highlighted by one of a group from the MVZ taking a bath in a Mexican stock tank at the end of an expedition. One impressive group photo taken in 1984 shows 40 people associated with the University of Kansas. I was most interested to see photos of Annie Alexander, C. E. Hellmayr, J. T. Zimmer, and Witmer Stone. (If the reader cannot identify these people, he will learn much from reading this book.) It is also interesting to see youthful photos of some of the "Elders of Our Clan", whom we perhaps knew only in their declining years.

In addition to these chapters there is a chapter on ornithological research within the U.S. Forest Service (by R. Conner) and one on the history of Canadian ornithology (by M. G. Ainley).

The three final chapters are more general. Edward Burtt and Alan Peterson discuss "Alexander Wilson and the Founding of North American Ornithology." Besides a brief outline of Wilson's life there is a detailed discussion of Wilson's contribution to the taxonomy of North American birds. Wilson claimed to have first described 51 species, but the AOU Check-list today gives him credit for only 20. Burtt and Peterson provide a table correlating Wilson's taxonomy with that of the present day. The authors then discuss in turn their ideas of Wilson's contributions to aspects of ornithology unrelated to taxonomy, his contributions to nature writing, and his influence on bird illustration.

In a chapter derived from a paper given at the 1990 WOS meeting François Vuilleumier and Allison V. Andors describe the "Origin and Development of North American Avian Biogeography." They argue convincingly that this history is a good example of Kuhn's "paradigm" model of scientific progress.

The final chapter by Davis and Jackson is an annotated listing of "The Literature of the History of North American Ornithology." About 300 references are discussed in a classified fashion, in which they hope to guide to researchers interested in the history.

In summary, this is an excellent beginning. I recommend it to all with no reservations. It may be a selfish thought to want more of a good thing, but I for one do. The reader can

think of several institutions (perhaps his own) which are not included. Other subfields of ornithology could profit by having historical reviews done. The present editors hint that they might prepare a second volume. Indeed, Dr. Jackson has hinted to me that they might eventually attempt a full scale history. Let us hope that they do.—GEORGE A. HALL.

A NATURALIST IN INDIAN TERRITORY: THE JOURNALS OF S. W. WOODHOUSE, 1849–50. Edited and annotated by John S. Tomer and Michael J. Brodhead. University of Oklahoma Press, Norman, Oklahoma. 1992: 304 pp., 26 figs., 4 maps. $29.95 (cloth).—In 1849 and 1850—over two decades after the Creeks had been forcibly resettled into Indian Territory (now the state of Oklahoma)—the Corps of Topographical Engineers finally surveyed the northern and western boundary of their new homeland. The individual selected to serve as surgeon-naturalist for the expedition was Samuel Washington Woodhouse (1821–1904), an assistant resident physician at the Philadelphia Hospital. Woodhouse had first become interested in natural history as a teenager. Soon he discovered the Academy of Natural Sciences of Philadelphia, where he spent long hours pouring through the specimen collections, interacting with some of the leading naturalists of his day, and learning the rudiments of ornithological theory and practice. A lack of employment prospects prevented the young man from seriously considering the idea of ornithology as a vocation. Instead, Woodhouse decided to pursue the more traditional careers of farming and medicine. However, he did not completely lose his taste for natural history, and when the opportunity to join the Creek boundary survey presented itself, the single, twenty-seven-year-old doctor quickly seized it.

By the mid-nineteenth century, the Creek Nation contained numerous scattered settlements, and Woodhouse was the first naturalist to undertake a systematic scientific inventory of the area. The expedition's slow pace and relatively light medical caseload allowed him ample time to examine the flora and fauna of the region. After two seasons in the field, Woodhouse brought back over two thousand specimens, including 15 animal forms which proved new to science. Among these were a new kind of Mourning Dove (*Ectopistes marginella* Woodhouse, now *Zenaida macroura marginella*). In 1849, Woodhouse also collected the skin of the previously undescribed Prairie Falcon (*Falco mexicanus*), but he failed to gain credit for the discovery because he carelessly mistook the specimen for a Peregrine Falcon (*F. peregrinus*). One year later, before anyone caught the mistake, the German ornithologist Hermann Schlegel named and described the Prairie Falcon based on another specimen taken in Nuevo León, Mexico. The editors of the volume at hand were able to track down this and many other interesting episodes associated with the expedition by examining surviving specimens at the Academy of Natural Sciences of Philadelphia, the National Museum of Natural History, the Museum of Comparative Zoology, and other natural history repositories.

In addition to many valuable specimens, Woodhouse also brought back three private journals which Tomer and Brodhead have carefully edited for publication. These documents contain fascinating descriptions of the survey party's experiences in the field, detailed accounts of medical practice on the frontier, as well as invaluable observations about the environment and people of the Creek Nation in the mid-nineteenth century. A lengthy introduction and careful annotations help to illuminate and place into broader context Woodhouse's sometimes cryptic entries. Included in the introduction are a thorough (though occasionally tedious) summary of early western exploring expeditions, a brief history of the Creek boundary expedition, an examination of the significance of Woodhouse's natural history work in Indian Territory, and a sketch of his life. The annotations run the gamut from discussion of current scientific names of plants and animals mentioned in the text to

identification of the people, places, and objects Woodhouse encountered on his journey. Tomer and Brodhead have done an excellent job of making these important journals accessible to a broad audience, although this reader would like to have seen a few more of Woodhouse's fine field sketches reproduced.

Shortly after his return from Indian Territory, Woodhouse returned to the field as a member of the Zuni and Colorado rivers expedition (1851–1852) and a private expedition to Central America (1853). For reasons that are still unclear, he devoted the remainder of his life to professional medical practice. Although his collections and publications were significant, they were soon overshadowed by the work of the well-funded and highly publicized Pacific Railroad Surveys of the 1850s. Woodhouse and his scientific contribution faded into obscurity. Tomer and Brodhead have done a great service in resurrecting the legacy of this important but forgotten naturalist.—MARK V. BARROW, JR.

THE EASTERN SCREECH-OWL: LIFE HISTORY, ECOLOGY AND BEHAVIOR IN THE SUBURBS AND COUNTRYSIDE. By Frederick R. Gehlbach, Texas A & M Univ. Press, College Station, Texas. 1994: 302 pp., a color frontispiece with no caption, ten chapters, 34 black-and-white photographs, 27 tables, 25 figs., $45.00 (hardcover).—This book is a personal narrative of 25 years of Gehlbach's studies of Eastern Screech-Owls (*Otus asio*) in central Texas. For eleven of those years (1976 to 1987), Gehlbach compared the life history of suburban and rural populations. Gehlbach's passion for these owls and for natural history in general surfaces throughout the book.

In chapter one—"On Studying Screech Owls," Gehlbach outlines the beginnings of what he terms the exploratory (1967 to 1975), or trial and error period, and the confirmatory period (1976 to 1991). There is also a brief overview of statistical procedures. Chapter two—"Landscapes," a straight forward description of the suburban and rural habitats—vegetation, nesting and roosting environments. Chapter three—"Food Supplies and Predation." Food niche, prey species, seasonality, and prey body mass are all calculated from cached prey, but no pellet analysis was conducted. Gehlbach provides data on hunting tactics and periodicity from direct observations. The brief discussion on mobbing is interesting, as Gehlbach convincingly correlates resident mobbers with their potential as prey. Chapter four—"Adult Weight, Coloration and Molt." Comparative weights of 80 males and 166 females provide ample samples for some of Gehlbach's analysis. In particular, the weight dynamics seem to be tied to weather and food fluctuations. There is a lengthy discussion on red and grey color morphs and speculation as to why. The molt data, although brief, seems adequately covered. Chapter five—"Eggs and Incubation." This chapter chronicles the start of the nesting season from egg laying and replacement clutches through clutch and egg sizes, laying intervals, incubation duration, and hatching. Of particular note, is the re-mating and re-laying by one female whose mate was killed by a car while she incubated one egg. She abandoned the egg after six days, re-mated three days later and re-nested about 12 days after that. Chapter six—"Chicks and Fledglings." In his longest chapter, Gehlbach uses male roosting proximity to nests as a barometer of egg hatching, brooding and fledgling. Hatch dates, sequences, brooding, nest microclimate, parental responsibility, growth rates, mortality, nest-cavity symbiosis, fledging and dispersal are all well covered. Two bits of information I found particularly interesting were; (1) "coincidental hatching" in which the typical asynchronous hatching of most owls was complicated by the fact that 13 (23.6%) and eight (14.5%) of 55 clutches, respectively, had two and three eggs respectively hatch within a 24 hour period (p. 105); and (2) "nest-cavity symbiosis", in which Eastern Screech-Owls bring live Texas blind

snakes (*Leptotyphlops dulcis*) back to the nest cavity and these snakes apparently eat insects that might compete with nestlings for stored food items. In fact, young in nests with these snakes grew faster and had better survival than nests without them. Gehlbach concludes this is probably coincidental and not selective. In any case it is very intriguing. Chapter seven—"Vocalizations." An overview of song types, hoots, barks, non-vocal sounds, and juvenile development is given. Gehlbach describes in which context and chronology the various sounds are produced. This perhaps is the weakest chapter. Chapter eight—"Lifetime Reproduction." Discussions on age and size, nest sites, mates, recruitment, and inheritance are provided. Most of the data, however emphasizes females because sample sizes were to small for males. Gehlbach summarizes this chapter by stating that about half the females each season are yearlings, of which about half disappear after their first attempt at breeding. Those yearlings that reproduce successfully are usually larger and tend to show site fidelity in following years. Life long monogamous pair bonds are the general rule, with few polygynous relationships. Interestingly, females began to have smaller clutches and fledged fewer young after about age five. Chapter nine—"Population Structure and Flux." Topics include age classes and survival, productivity, use of space, densities and cycles. This is a good overview of Gehlbach's marked individuals and comparative data between the suburban and rural populations are given. Survival is better in the suburbs, but surprisingly these owls have short life spans, except in a few cases. Breeding densities seemed to fluctuate in relation to environmental factors and predators, and Gehlbach concludes that the suburban owls exhibit a nine year cycle, similar to the 9.3 year lunar cycle. Chapter ten—"The Suburban Advantage." Gehlbach sums up the advantages that his suburban screech owls have over rural screech owls. The sections are pre-adaptations of Eastern Screech-Owls, connections, and prescriptions for the future.

Throughout the entire book, Gehlbach has carefully compared many aspects of these owl's life history. In short, the suburban birds seem to have an easier life than the rural birds. Whether this is really important for the screech-owl population of central Texas is for the reader to decide. In any case, this small owl seems well-adapted to a wide range of habitats and habitat modification due to people.

Although it appears that the book was intended to be readable for all audiences interested in natural history, it is not. It is a technical book. The book is beyond the interest of average bird watchers or naturalists. Even the serious researcher must review each page carefully to fully understand the message. Gehlbach's continuous emphasis throughout the text concerning the exploratory period gets a bit old. I agree that it often takes a few years to become familiar with the organism one is studying, but I believe that an eight-year exploratory period is not necessary. I also would have liked to see more reference to Van Camp and Henny (1975, The screech owl: its life history and population ecology in northern Ohio. North American Fauna 71). This was also a long-term study that could have provided a lot of comparative data to Gehlbach's work. Gary Ritchison and his graduate students have also published a number of good papers on Eastern Screech-Owl vocalizations and dispersal in Kentucky, but deserved more recognition. Perhaps less comparisons with Boreal Owls (*Aegolius funereus*) and more with other species of *Otus* also would have been preferable.

Should you buy this book? Absolutely. There is an incredible amount of information throughout the book. I recommend this book for anyone studying birds. Gehlbach's 25 years of screech-owl watching have given him much time to think of various ways to analyze data. There are many good ideas for other species. Although one may not agree with his methods or conclusions, these types of long-term data are rare. Although the book at $45.00 is expensive, it has a hard cover, includes a great deal of information and will last a long time—buy it!—DENVER W. HOLT.

THE BIRDS OF NIGERIA. By J. H. Elgood et al. British Ornithologists' Union Check-list No. 4 (second edition). 1994. 306 pp., hardback, 7 figs., 10 tables, gazetteer, 16 color plates of habitat and 48 of Nigerian birds. £21.00 (UK), £23.00 (overseas) including postage from British Ornithologists' Union, % The Natural History Museum, Akeman Street, Tring, Herts. HP23 6AP, UK.—Nigeria is among the ten most populous nations on earth, with a size and human density comparable to that of Pakistan. It is hardly a premier destination either for ecotourists or ornithologists. In 1976, the British Ornithologists' Union began to publish check-lists of avifaunas for little-known countries and regions of the world. "The Birds of Nigeria" first appeared in 1981, compiled by J. H. Elgood, a former professor of zoology (1949 to 1965) at Ibadan University in that West African nation, who described the country's only endemic bird species, the Ibadan Malimbe (*Malimbus ibadanensis*). When the first edition of "The Birds of Nigeria" sold out ten years after publication, the B.O.U. prevailed upon its author to spearhead its revision and updating, which happily appeared in his 85th year.

As a national check-list, this work is exemplary. Not only does it contain an annotated list of about 900 species reported in the country to date (884 being admitted to the official list), but it also has excellent summaries of Nigeria's environment—its topography, geology, climate, weather, and vegetative zones. Migration and breeding both are insightfully categorized and summarized. It has a list of names of people who have recorded birds in the country, several maps plus an excellent gazetteer, a compilation of banding recoveries (none intra-African), and a comprehensive bibliography. In short, I found everything one might hope for in a work of this nature.

The color photos, including an attractive cover photo of a Red-throated Bee-eater (*Merops bullocki*), plus a lovely color painting of the endemic Ibadan Malimbe by Martin Woodcock, all are welcome enhancements to this second edition. Other changes since the first edition, in addition to adding and updating species accounts and various summaries, include the renaming and reordering of the avifauna to conform largely to "The Birds of Africa" series ("*BoA*", Academic Press 1982 ff). Appendices list the numerous changes to both scientific and English names between editions. *BoA* was a sensible choice for a taxonomic and nomenclatural model, but unfortunately it is not yet complete; the four volumes published to date cover only slightly more than 60% of Nigeria's species. Elgood and his team had access to some *BoA* work in progress, but for species towards the end of the systematic order, parts of the original nomenclature, including such quirky English names as Exclamatory Paradise Whydah (*Vidua interjecta*), can be found. It might have been better to have followed the well-researched taxonomy and nomenclature of Dowsett and Forbes-Watson's "Checklist of Birds of the Afrotropical and Malagasy Regions," Vol. 1 (Tauraco Press 1993), cited in the bibliography, for the remaining species.

If there is any overall problem with this work, it involves the authors' difficulty in restating the present status of Nigeria's birds after considering the massive changes in the Nigerian environment since Elgood left the country some thirty years ago. Much of the book is based on data gathered by him and several essentially contemporaneous expatriates, updated whenever possible by more recent material. Sadly, the latter is at best spotty. Details of evidence (existence and location of cataloged specimens, photographs, sight report documentation, etc.) to support many species' stated status also would have enhanced the check-list's authority. A more conservative assessment might have admitted somewhat fewer species to the official list, and more current information if available might have decreased the stated distribution and abundance of many species. In relation to this work's overall usefulness, however, these comments are minor.

When asked to update his original section on Nigerian vegetation, Ronald Keay revisited the country and reported wryly, "There is no vegetation left in Nigeria!" With most local

biological work to date having been undertaken by foreigners, the importance of a work such as "The Birds of Nigeria" cannot be understated. It perhaps was not coincidental that the Nigerian Conservation Foundation (NCF) was formed locally shortly after the first edition was published. The NCF has been instrumental in establishing the framework for sound national conservation policy. This second edition gives a concise statement of the present conservation situation. One can hope that now expanded, improved, and more attractive, this new edition will inspire more direct local interest in the country's birds and their protection.

B.O.U.'s support of basic efforts like compiling check-lists worldwide may have more ultimate impact on protecting the earth's birdlife than any other modest single measure I can think of. I salute both the B.O.U. and the authors of "The Birds of Nigeria," as should we all. At less than $40 in hardback, this book is a worthwhile bargain for any student of West African avifaunas. Its purchase also further encourages the B.O.U. to continue its fine program.—P. WILLIAM SMITH

ADDENDUM TO "BIRDS OF CONIFEROUS FOREST ON MOUNT GRAHAM, ARIZONA," Wilson Bulletin 107(4):719–722

Audio evidence recorded by the author, Joe T. Marshall, and engineered by Michael A. Wascher, is available gratis as a 66-min stereo recording to accompany this article. The 17 tracks are arranged from lower to higher elevations along Swift Trail, Mount Graham. Besides nearby birds, other species heard in the background at each altitudinal station are listed in an accompanying printout. Send written or electronic mail requests stating your scientific or other interests in Mt. Graham birds to Joe T. Marshall, National Museum of Natural History, Room 378, Washington, D.C. 20560-0111 (email: mnhvz113@sivm.si.edu). Indicate whether your preference is to borrow a digital audiocassette, borrow a CD, or receive one of a limited supply of analog audiocassettes.

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