

ORNITHOLOGICAL LITERATURE

COMPARATIVE BREEDING BEHAVIOR OF FOUR SPECIES OF NORTH AMERICAN HERONS. By Andrew J. Meyerriecks. Publications of the Nuttall Ornithological Club No. 2, 1960: 6 × 9¼ in., viii + 158 pp., 15 pls., 39 figs., 20 tables. Paper, \$2.00; cloth, \$3.00. (Order from Massachusetts Audubon Society, Drumlin Farm, South Lincoln, Mass.)

This interesting work is concerned primarily with the hostile and sexual displays of the Green Heron (*Butorides virescens*) and the interactions of birds showing these displays during pair formation. Various maintenance activities are also described as a basis for understanding the origin of the sexual and hostile displays. Pairing behavior of the Green Heron is thoroughly documented and much information is condensed into "ethograms." Comparative information on pairing behavior is given in somewhat less detail for the Great Blue and Great White Herons (*Ardea herodias*), the Reddish Egret (*Dichromanassa rufescens*), and the Snowy Egret (*Leucophoyx thula*). In addition, the presence or absence of 61 behavior patterns found in herons is shown in chart form for all North American herons except the bitterns. One of the real values of this chart is its exposure of the many gaps in the knowledge of our common herons. The author includes a discussion of evolutionary trends in heron behavior as related to sociality, polymorphism, sexual dimorphism and pair formation, coloration of soft-parts, and size and activity.

The primary contribution of this paper is the description of displays and pairing behavior of the Green Heron, based on some 3,000 hours of observation. One can only hope that this study will serve as a backbone for further detailed studies of herons throughout the world comparable to the work being done on many species of gulls. Unfortunately there is still no detailed account of the later breeding behavior in the Green Heron.

The pairing of the Green Heron starts with the attraction of a female to the territory of a male. As reflected by a series of displays, some of them mutual, the hostile tendencies in both birds are gradually overcome by sexual tendencies. The territory of the male is gradually reduced to the nest itself, which is at all times the heart of the territory. The female approaches the nest gradually, and the pair bond is established when the female stands on the nest and both birds express their sexual drive through the Stretch Display, Billing, and Feather Nibbling. Meyerriecks has analyzed this stage of the breeding period in detail and with great clarity.

A number of "ethograms" are presented, showing graphically the actions and reactions of two birds for a particular time interval (usually about an hour—almost three hours in one case). One weakness of the ethograms, and of the entire study, is the lack of definite individual or sex recognition, since color banding was not employed. Sexing was based on "observed behavior and soft-part color."

Commenting on the value of behavior studies for systematics, the author states that "when groups of species are closely related, the ethologist usually has little difficulty in determining those displays which are homologous." Homology, of course, is the criterion by which we must judge the degree of relationship, and the difficulties of interpreting similarities of certain behavior patterns cannot be denied. Meyerriecks mentions the physical similarity between the Stiff-necked Upright Display of the Green Heron and the Aggressive Upright Display of the Great Blue Heron. As he points out, these displays are probably of different origins and therefore not homologous, and they serve different functions. Because of the relatively limited number of distinctive positions which a bird can assume, it is not surprising that certain nonhomologous displays would show fortuitous similarities. It is clear that behavior studies must be thorough and critical to prevent misinterpretation.

Behavior patterns, like anatomical structures, show geographic and individual variation which must be known to allow meaningful comparison with other forms. The author should be applauded for describing variability wherever possible. Thus, he shows that the advertising call of the male Green Heron exhibits geographical variation in pitch and pattern, and he gives a quantitative description of individual variability in the Stretch Display. Whether the geographical variation in call is inherited or learned has yet to be determined.

On the basis of comparative behavior Meyerriecks supports the idea that the Great Blue and Great White Herons are conspecific, and, contrary to Bock (Amer. Mus. Nov. No. 1779, 1956), that *Dichromanassa rufescens* and *Leucophoyx thula* are congeneric.

In criticism of this work I feel that, whereas the section on the Green Heron is firmly based on fact, the section on the other three species is based on relatively few observations. The portion on evolutionary trends is highly speculative and its inclusion is not wholly appropriate. This space might better have been used for critical comparison of the behavior of the four species studied. The drawings illustrating displays are adequate but uninspired, and it is disappointing to find that most of the photographs show maintenance activities rather than displays. Finally, the work might better have been entitled "Comparative *Pairing* Behavior of Four Species of North American Herons."—RICHARD L. ZUSI.

A FIELD GUIDE TO THE BIRDS OF TEXAS. By Roger Tory Peterson. Published for the Texas Game and Fish Commission by Houghton Mifflin Company, Boston, 1960: 4½ × 7½ in., xxxii + 304 pp., 60 full-page plates (36 in color), numerous text figures, 2 maps, 13 pages of silhouettes. Available only from the Texas Game and Fish Commission, Austin. \$3.00 postpaid.

No longer must resident and visiting bird students in Texas burden themselves with two or three bird guides. This attractive and colorful book, the most recent in the Peterson field guide series, is a welcome addition to the small list of worth-while works on identification of southwestern birds. Covering 542 species, it is almost as valuable to workers in the neighboring states as in Texas. (A hasty check reveals inclusion of all but 15 or 16 of the regularly occurring birds in southwestern New Mexico and southeastern Arizona.) The volume is so superior to anything else currently available that it is already enjoying widespread use by bird students visiting New Mexico from all parts of the country. All Texas bird students of my acquaintance are busily wearing out their copies and have been doing so for several months. The popularity of the new guide is indicated by the following statement in the 2 May 1960 issue of *Time*: "Without advertising, and despite a sales system that seems designed to discourage all but the most determined customers, the Texas *Field Guide* has sold more than 6,000 copies—better than some bestselling novels." Not until the long-awaited revision of Peterson's "Field Guide to Western Birds" is available will field students leave the Texas Guide home on their shelves.

Peterson has once again demonstrated his ability to condense volumes of information into small quarters. The main problem in preparing any field guide is space; but in this small book, only 14 pages longer than his eastern Guide, 487 species are discussed in the main text. Each is given the familiar concise treatment typical of Peterson's other books, with additional brief comments concerning habitat, nest, and eggs. An additional 55 accidental species and two hybrids are described in an appendix. Subspecies are ignored unless two or more distinctive races occur in Texas. In such cases the forms are discussed under a single species heading in the text. Subspecific names on the plates vary slightly; the two figured forms of Rufous-sided Towhees are labelled "Eastern type" and

"Western type"; the races of Gray-headed Junco are termed "*caniceps form*" and "*dorsalis form*"; the two figured Fox Sparrow subspecies are simply designated "Typical form" and "Western form." The text, however, usually names the races occurring in the state.

Vernacular names are those of the AOU Check-list, 5th edition. Earlier "official" names are given in parentheses as are certain other names used in Richard Pough's "Audubon Bird Guides" or by *Audubon Field Notes* for several years but which never had been sanctioned by the AOU. These appear in quotation marks. The family accounts are somewhat longer than those in other Peterson Guides, including brief remarks on food, habits, and the number of species in the world, in North America, and in Texas.

Some of the plates are the same as those in the author's eastern Field Guide (e.g., terns, waders, rails, waterfowl, hawks, shorebirds, owls, spring warblers, and confusing fall warblers). Two-thirds of them, however, are new, and some of these will be used in the new edition of "A Field Guide to Western Birds." Among the 19 wholly new color plates are particularly good illustrations of flycatchers, vireos, thrushes, and sparrows. To my way of thinking the colorful oriole and tanager plate and the plates of the vireos and streaked sparrows are the best. These, and many others, not only are the finest pictures available for identification purposes but are artistically executed despite being field-guide-type profiles.

Reminiscent of the European Field Guide are the small flight pictures of the Mockingbird, Loggerhead Shrike, and Phainopepla (Plate 45). I have noticed one slip of the brush: on Plate 53 the rump of the Red-faced Warbler should be bright white, not gray.

Some persons would perhaps argue that strict accidentals (and even hypotheticals like Anna's, Costa's, and Allen's Hummingbirds) in Texas should not have been figured in color alongside regularly occurring species. However, in each such case the reader is adequately informed in both picture captions and text of the bird's apparent status. With these cautions I believe their inclusion has made the book more useful. Figuring the stragglers and hypotheticals in color has served the additional purpose of allowing the same plates to be used again in the forthcoming edition of the western Field Guide.

The Golden-crowned Warbler is figured in color but other Mexican species hypothetical in Texas, such as the Clay-colored (Gray's) Robin and Ruddy Ground Dove, are not illustrated. These and the other accidentals are, however, carefully discussed in Appendix I, which lists the details of all records "when the existence of a bird in the state list hangs on a hypothetical sight record." It should be noted that Peterson has wisely excluded very unlikely species (Black Catbird, Abert's Towhee, Short-tailed Hawk, and others) which probably have been erroneously assigned to the Texas list. It is barely possible that at least one of the Sulphur-bellied Flycatchers reported from Texas could actually have been the very similar *Myiodynastes maculatus* which occurs regularly in southern Tamaulipas along with *M. luteiventris*. This possibility is not mentioned, and the statement that no other flycatcher has a streaked breast of course applies to the AOU Check-list area only.

Although the book is written in nontechnical language and with emphasis on the ease of distinguishing species in life, Peterson has nevertheless been cautious and helpful in his statements dealing with certain difficult groups. It will be reassuring to many readers who have despaired over melanistic buteos to learn that "even the seasoned expert gives up on some of the birds he sees," that distinguishing the Olivaceous from the Double-crested Cormorant when the two are not together is "one of the *real problems* of Texas field ornithology," that it is impossible to identify all individual juncos, etc.

Probably it is inevitable that a few minor field problems (such as the beginner's difficulty in distinguishing young Black-throated Sparrows from Sage Sparrows in late

summer) would be overlooked or omitted in order to conserve space; but it would be misleading and unfair to dwell on the very few such minor omissions in a volume which covers so much and in such a highly satisfactory manner.

In summary, the book in every way meets the standard of excellence we have learned to expect from Roger Peterson. Any misgivings one may have had about the value of a major field guide to only Texas birds will be dispelled upon using this book in Texas or the adjoining states. It appears to have been a worth-while venture in every respect.
—DALE A. ZIMMERMAN.

ZULU JOURNAL: FIELD NOTES OF A NATURALIST IN SOUTH AFRICA. By Raymond B. Cowles. University of California Press, Berkeley and Los Angeles, 1959: 6 × 9¼ in., xiv + 267 pp., photos., map. \$6.00.

I cannot praise this book too highly for it is not the usual story of an American naturalist's adventures in a faraway land. Indeed, it is a classic of its kind and should be read by everyone with an interest in the field aspects of biology, in conservation, and in the human problems which beset Africa today.

Dr. Cowles, a Professor of Biology at the University of California in Los Angeles, is a scientist of broad interests with the enviable ability to express himself lucidly. His text is absorbing in content, masterfully composed, and a joy to read. It never strains to be sensational or funny; it is never dependent on pictures, although there are 32 pages of good photographs in the middle of the book.

Born in the Hluhluwe Valley of Natal, South Africa, a son of missionary parents, Dr. Cowles spent his boyhood there and later returned three times, the last in 1953. His many personal impressions and experiences obtained in that country over a span of some fifty years provide the substance of "Zulu Journal." In it he has shifted attention away from the big mammals—so often the dominant elements in accounts of outdoor Africa—and emphasized instead the smaller wildlife. Of these he writes feelingly, with careful attention to form, color, vocal sounds, and behavior. He is constantly heedful of each animal's role in the ecological scheme and has the happy facility of letting the reader share with him the excitement of each observation and discovery. I shall not soon forget his vivid description of the nuptial flight of termites nor his account of how termitaria are utilized by monitor lizards as nesting sites.

There is much about birds that is highly illuminating. This is especially true of the chapter, "Bird Life and the Seasons," which covers a variety of such topics as the parasitic habits of the Lesser Honey Guide, the unique nesting behavior of hornbills, and the clustering of colies and their evident ability to hibernate.

Dr. Cowles is ever mindful of man's relationship to wildlife, both as one element in the fauna and as a potential destroyer, and he voices grave concern lest *Homo sapiens*, through overpopulation and "lack of adequate future subsistence," will bring disaster to both wildlife and himself. The final chapter, "Man," is a penetrating appraisal of Africa's human problems and their impact on that continent's wildlife, today and in the future.

Though Dr. Cowles remarks in his introduction that his book is not a biological treatise, it is nevertheless about biology and beautifully illustrates many a biological principle. Furthermore, it makes Africa seem the challenging place for research that it is and may cause readers to wonder why, to use the author's words, "Europe and its laboratories have an apparently greater appeal for our vacationing sabbatics than Africa with its fascinating possibilities of random discoveries."—OLIN SEWALL PETTINGILL, JR.

WILDLIFE IN AMERICA. By Peter Matthiessen. The Viking Press, New York, 1959: 7 × 10 in., 304 pp., 8 col. pls., 16 bl. & wh. pls., over 100 drawings, 1 map. \$10.00.

This handsome volume embodies the most eloquent plea for conservation I have ever read. If it could only become required reading for all Congressmen and state legislators, and all appointive officials empowered to promote conservation, our wildlife—what there is left of it—might still have some chance of survival.

"Wildlife in America" is primarily a historical review of our vertebrate animals in the face of the white man's onslaught from early times to the present. It is not pleasant reading, this story of how one species after another has retreated toward extinction, but it is by no means dull, for the author, a talented novelist, writes with facility, force, and color. While being carefully factual in all matters of history, ecology, and biology, he manages to give a stirring account of the greed and shortsightedness that have caused the decline of so many species and to arouse one's dismay and resentment at the apathy of most public officials and citizens toward corrective measures. In order that the animal subjects about which he writes may not be just so many names, he has cleverly worked in numerous commentaries that give them significance and personality—and at the same time excite the reader's interest and sympathy. Mr. Matthiessen's superb text is supplemented substantially by the illustrations—notably the excellent line drawings (averaging one to every other page) by Bob Hines. Practically all species mentioned are pictured. Several chapters in the book deal at some length with the rise of conservation organizations and their bitter struggles, more often lost than won, to stave off the seemingly inexorable trend of species and their habitats toward destruction.

Of great worth as reference material are two appendices, one listing the vertebrate animals north of Mexico that are rare, declining, and extinct, and the other listing chronologically all legislation affecting North American wildlife.

Besides the more than 100 line drawings, the book has eight color plates showing examples of historic work by wildlife illustrators from Catesby to Fuertes, and 16 plates containing black and white reproductions of photographs and early drawings of American wildlife. These embellishments, together with the splendid format, fine quality of paper, and so on, account for the high cost of the book. I hope that eventually an edition at lower cost will be produced so that the book will enjoy a wider sale and its plea for conservation, consequently, a wider readership.—OLIN SEWALL PETTINGILL, JR.

OUTDOOR REFERENCE GUIDE. Compiled by Amelia Reynolds Long. The Stackpole Company, Harrisburg, Pennsylvania, 1959: 7 × 10¼ in., 288 pp., 24 full-page photos. \$7.50.

This is essentially an abridged encyclopedia for outdoorsmen. Different animals, plants, minerals, "natural wonders" (e.g., Mammoth Cave), weather phenomena, geographical features (e.g., quagmire), and terms used in sports are listed in alphabetical order, followed by brief descriptions or explanations in simple language. In many instances some pertinent fact is given to enliven reader interest. The book is more suitable for browsing than for reference, as it does not attempt thorough coverage. For example, it includes only 11 New-world warblers. Sumptuous in size and attractively bound, "Outdoor Reference Guide" should make a decorative addition to one's living room table or fireside book shelf at the summer cottage.—OLIN SEWALL PETTINGILL, JR.

CHECK-LIST AND BIBLIOGRAPHY ON THE OCCURRENCE OF INSECTS IN BIRDS' NESTS. By Ellis A. Hicks. The Iowa State College Press, Ames [1959]: 6 × 9¼ in., 681 pp. \$8.50.

This book has two check-lists, one of insects (18 orders) found in birds' nests and one of birds (26 orders) in whose nests insects have been found. Both lists contain many hundreds of references to a 68-page bibliography. There is also an index to taxonomic groups of insects and birds above species.

The work represents an effort by the author "to assort and consolidate information" gathered from publications pertaining to insects and birds. His task has been prodigious for the specialized information needed has been widely scattered in books and journals the world over. Primarily an entomologist, he has nevertheless had to become conversant with ornithology in order to process his data. That the result of his effort will be helpful to entomologists and ornithologists alike, I have no doubt. I only wish that, besides assorting and consolidating his information, he had also been more discriminating.

Unfortunately many of the insects listed as occurring in birds' nest are neither parasitic on birds nor directly associated with their nests. They are simply insects reported from nests—occupied or long since abandoned—that could just as likely have been found in clumps of dead grass, heaps of forest-floor debris, crotches of trees, tree cavities, or countless other situations. To cite one example: under Robin, *Turdus migratorius*, there are listed such free-living insects as thrips, springtails, midges, and asparagus beetles along with numerous insect parasites. No distinction is indicated. It is left to the user of the book to decide or determine which of these insects properly belong in nests.

In the ornithological check-list many insects are listed as found in nests of *undetermined* bird species and, in numerous instances, of *undetermined* genera, families, and orders. I seriously question the worth of this procedure, particularly since it has necessitated many more pages and thus increased the bulk and cost of the work.

The primary usefulness of the book to ornithologists lies in its accumulation of references to some of the more important literature on insects living in birds' nests as parasites or associates.—OLIN SEWALL PETTINGILL, JR.

This issue of *The Wilson Bulletin* was published on 15 March 1961.