Wilson Bull., 90(3), 1978, pp. 468–473

ORNITHOLOGICAL LITERATURE

LAND BIRD COMMUNITIES OF GRAND BAHAMA ISLAND: THE STRUCTURE AND DYNAMICS OF AVIFAUNA. By John T. Emlen. Ornithological Monographs No. 24, 1977; xi + 129 pp. American Ornithologists' Union. $9.00 ($8.00 to A.O.U. members).—For five months each in 1968 and 1969, and during shorter visits in 1971, Emlen censused the birds at 25 sites, representing 22 habitats, on Grand Bahama Island. This monograph is an analysis of the data derived from that field study. Bird censuses were conducted using the Emlen strip-transect technique (Emlen 1971, Auk 88:323–342) and vegetation was sampled on each site using an adaptation of the system developed by Emlen (1956, Ibis 98:565–576).

Grand Bahama, about 100 km off the east coast of Florida, is a low-lying, pine-covered island with an area of 1200 km^2. Thirty-three land birds (excluding birds of prey) breed on the island and an additional 2 dozen species visit the island as non-breeders during the north temperate winter. About half of the breeding land birds have been derived from the Antilles and one quarter each come from North America and Central America via the Antilles.

The approach is an examination of community patterns at several levels under the following chapter headings: The Habitats and their Bird Communities; Bird Distribution through the Habitats; The Pine-Forest Community—Seasonal Changes; Spatial Distribution within the Pine Forest; and Guild Distribution within the Pine Forest.

Broad scale habitat patterns examined include community composition, structure, diversity, and density. Total vegetation volume was the best predictor of avian diversity. Total bird densities were not well correlated with vegetation volume or insect densities, raising questions about relationships between consumer and resource densities.

Emlen develops models on the dynamics of distribution in winter communities in an effort to account for changing abundances among habitats. On the one hand he suggests that species may be limited solely by the carrying capacity of the environment. Alternatively, he hypothesizes that social intolerance among conspecifics may hold populations below limits imposed by the carrying capacity of the environment. Not surprisingly, aggressive species showed more evidence of a socially saturated plateau than passive species. Further, sedentary species show abundance distributions among habitats similar to those predicted from the hypothesis of social saturation. Thus, the social saturation phenomenon, well-known from breeding season avifaunas, may be common in many species during the winter season.

Species present at high densities in their favored habitats tended to occupy a wide range of habitats, while species with low densities in their favored areas were more likely to be habitat specialists. As in numerous other studies, migrants outnumbered permanent residents in open habitats; for all habitats at least one-third of the individuals in winter communities were migrants.

Most of the monograph is devoted to an analysis of the avifaunas of three pine forest study areas. Seasonal changes in the avifauna were striking from January to June due to the departure of winter residents for North American breeding grounds and the passage of transients which wintered to the south. High densities of winter communities (permanent and winter residents) relative to those of summer communities were not associated with obvious changes in habitat complexity or food availability. Emlen concludes that food supply is "less critical as a limiting factor than commonly supposed" (p. 114). I wonder about the importance of food at other seasons. Or could the non-breeding status, and thus lower energy requirements, of permanent residents in the

winter permit the coexistence of winter residents? Decreased equitability of the winter community results from very high densities of a few wintering species and suggests that only certain guilds might be invasible during the winter.

The last two chapters examine the spatial and guild distribution of birds in the pine forest. Five foliage layers were not equally exploited by birds on the basis of space per se. Not surprisingly, individual species or groups of species showed preference for certain compartments of the habitat. The spatial distribution of permanent residents shifted after the departure of the winter visitors, but the magnitude and direction of the shifts suggests that they are not related to competition between the two groups.

In the final chapter, Emlen describes the guild distribution of pine forest birds. However, his "guild" differs from the traditional foraging guilds so common in the ecological literature in recent years. Emlen apportioned each species' energy requirements as a fractional proportion of their foraging activities on certain resource types and locations. Emlen's guild then is the sum of the energy requirements for all part-time as well as full-time exploiters of a specific food resource. Although the approach is not new (see Karr Pp. 161–176 in Golley and Medina (eds.) 1975, *Tropical Ecological Systems* for another example), the detailed breakdown of Emlen is more sophisticated because it is based on over 1900 observations of foraging activity. Sample sizes seem adequate for many species, but allocation of the Black-throated Blue Warbler among 3 guilds on the basis of 2 foraging observations seems to stretch credibility. However, Emlen deserves praise for rounding to the nearest 10% in contrast to other studies where similar (or less extensive) data bases are used to allocate foraging to the nearest 0.1%.

Emlen sampled insect densities in 5 foliage compartments in an effort to correlate insect abundances with the measured biomasses of birds in the same compartments. No positive correlations were found between food resources and avian consumer densities. This seems a sound approach but I fear that we do not have the ability to index resource densities important to the consumers. What size range of insects is really available (including that energetically exploitable by birds) at any instant in time? Does renewal time alone or integrated with instantaneous density have more significance in regulating community structure? Which season or geographic range is more likely limiting in different consumer groups? Does the importance of these factors change among years? In many respects problems relating to resource density are in their infancy, much like studies of habitat structure before the initial efforts at quantification by MacArthur.

Competition theory, a dominant theme in modern ecology, is both attacked and defended. For example, Emlen seems to invoke competition as the explanation for minimum interspecific overlap of food resources among the ground-gleaning herbivores (p. 94), but rejects competition as an important factor in the interactions of permanent and winter residents (p. 80). I would be happier with an attempt to show why competition is important in one circumstance but not another.

There is considerable food for thought in this monograph, but as is often the case in studies of avian communities, there is room for improvement. Migrants should be viewed not as invaders of a "balanced bird community" (p. 63) but as an integral part of that community. Why should equitability be a good measure of resource sharing (p. 106)? Why should rare residents be classed as visitors because of arbitrary frequency of encounter rules? Such problems of definitions are common in avian community studies. In these and other cases weak inferences are made on the basis of correlations. But this too is a common problem in studies of avian communities. The challenge for the future is the development of stronger tests of specific hypotheses using a manipulative-experimental approach. Emlen and the editors are to be congratulated for providing much of

the raw data in tabular form. They will be valuable long after the "speculations and interpretations in this monograph" are improved or replaced.—JAMES R. KARR.

WATER BIRDS OF CALIFORNIA. By Howard L. Cogswell, illus. by Gene Christman. University of California Press, Berkeley, California, 1977: 399 pp., 12 color plates, 47 numbered text figs., 2 maps. $5.75—For years the standard treatise on California bird distribution has been the classic *The Distribution of the Birds of California* by Joseph Grinnell and Alden H. Miller (1944). Although now more than 30 years out of date, it has remained the standard reference primarily because of the authors' careful evaluation of observational records in the literature and their rejection of all unsupported or suspect reports. Several recent authors have attempted to incorporate the vast amounts of data which have accumulated since the publication of *The Birds of California*. In this reviewer's opinion all such works to date have fallen far short of the mark for one or both of two reasons: either they have tried to reduce the large amounts of information available for each species into a few brief, generalized statements; they have not critically evaluated the data and carefully screened out erroneous and unsubstantiated records; or both.

Water Birds of California is the most recent treatment of bird distribution in California. As with other recent books on the subject, this book is more than merely a distributional analysis. There are sections on behavior, reproduction, and species recognition. Each species' world-wide range, occurrence in California, seasonal status, abundance, and habitat preferences, are also given. Fully one-third of the book (92 pages) is devoted to detailed graphic calendars which incorporate in coded form virtually everything known about each species' seasonal status, abundance, nesting habitats, periods of breeding, and extra-limital occurrences. The introductory chapters deal with subjects that are primarily of interest only to the beginner, such as instructions on how to observe birds in the field, the use of binoculars and telescopes, field note-taking, and identification of birds through the use of picture keys of representative family members. The picture keys, in my opinion, are much more practical than the various color keys, habitat keys, and other such gimmicks so popular in recent field guides that ignore basic taxonomic sequence and family groupings.

Whether or not this book is intended to serve as a field guide is unclear, although the use of color plates, numerous pen-and-ink drawings, and sub-sections on species recognition suggest that this is the intent. Unfortunately many of the birds illustrated are greatly misshapen or in otherwise unnatural positions (see, for instance, the shorebirds in Figs. 28–37 and especially in Fig. 36, and the jaegers in Fig. 38). There are other problems which seriously detract from the usefulness of these illustrations as identification aids. The first-year Double-crested Cormorant in Fig. 8 is all black except for a circle of white on its lower belly. The female Gadwall taking flight in Fig. 18 lacks the conspicuous white speculum. All of the Calidridine sandpipers in Fig. 36 are so badly drawn as to be almost totally beyond recognition. The Pomarine Jaeger in Fig. 38 has a bold black "X" across its back and a head pattern that more closely resembles that of a basic-plumaged Ancient Murrelet. The Craveri's Murrelet in Fig. 46 is actually a Xantus' Murrelet with its pure white under wing coverts. There are many similar examples. With the wealth of talented bird illustrators in California, it is inexcusable that anyone should feel compelled to publish illustrations of such poor quality.

But what about the text? The book contains much useful information on bird distribution in California, and it is evident that the author (there are no acknowledgments) spent many long hours gathering and organizing the staggering amounts of data available

in the literature. There is an impressive amount of detailed information in the Graphic Calendars on pp. 300–391 which has been summarized in the species accounts. Unfortunately, the author has used the available data indiscriminately. *Many, many* records in the published literature are erroneous or insufficiently documented. It is the duty of the compiler of such material to carefully sift through and reject, or query, all such false and suspect material. Because of the misinformation so prevalent in the literature, many commonly held misconceptions have arisen through the years. It is a pity that most recent publications have perpetuated these misconceptions. Most knowledgeable field ornithologists are aware, for instance, that a complete reliance on the literature will result in the false belief that Baird's and Pectoral sandpipers occur in California in spring and occasionally in winter. Many of these records are the result of misidentifications. A quick look at *Water Birds of California* revealed the following: Baird's Sandpiper—"Occ. Rare Nov.–Jan." (there are no valid records of this species for this period in California), and "Rare to *Fairly Common* late Mar.–May" (there are fewer than 10 acceptable spring records) [italics are those of the reviewer]; Pectoral Sandpiper—"Irreg. Uncommon or Rare . . . Apr.–May" (there are fewer than 10 spring records); There are many other similar problems throughout the text. For instance, according to the author, the Least Grebe "has nested at least twice and occurs irregularly in very small numbers along the lower Colorado River." He lists a total of 7 records for this species in the Graphic Calendar. Although all of these are published records, it is commonly acknowledged among field ornithologists in the state that there is only one valid record for this species in California. Another example: "Although the dark phase [of Reddish Egret] predominates in Texas, most of the California records are of the white phase." The white phase is unknown in the *dickeyi* subspecies of the Pacific coast.

In general, the author is much too generous in his usage of the terms "abundant," "very common," "common," etc. which he defines on p. 54 as follows: "Abundant = 1000 or more. . . ; Very Common = 250–999; Common = 50–249; Fairly Common = 10–49; Uncommon = less than 10, but frequently more than 3; Rare = 3 or less if Regular, but may be up to 9 if very Irregular." These categories refer to the number of individuals likely to be seen "in from one-half to one day, in the preferred habitat of that species, during a general search for various birds." Using these criteria I seriously doubt, for instance, that the Louisiana Heron (p. 100) is "uncommon" in coastal southern California; that the Gadwall (p. 126) is "abundant" in the Central Valley or "very common" in the Imperial and Colorado River valleys; or that the Semipalmated Plover (p. 178) is ever "very common" anywhere in California.

The Graphic Calendars in the appendix are exceedingly difficult to interpret, even after a careful reading of the 12 page introductory material (pp. 287–298). After much flipping back and forth between the calendars and introductory explanations I learned that "1 O, S, I*K* or I*G*, O*K*, U, *U*B, outer B, nearby dumps, T, c 1 B*I* >> 1 inner B, T, nearby L,B̀,M̂" for Western Gull distribution translates (I believe) as—ocean and seacoasts; specifically the ocean itself, sandy beaches and flats, rocks, cliffs, and grasslands of islands, and rocky cliffs along the mainland coast, urban areas around piers, buildings, industrial sites, bays, etc.; also outer bays and lagoons, and nearby dumps and tideflats. In central California, coastal bays, estuaries, lagoons and islands, with decidedly less preference for inner bays, tideflats, and nearby lakes, ponds, sloughs, salt-evaporating ponds and other impounded salt water and intertidal salt marshes. Nests on island and mainland seacliffs, grassland areas of islands and in urban bays and estuaries. End of translation. I suspect that most readers will not take the time to wade

through these Graphic Calendars; however, there is a wealth of information available for those who are willing to spend some time decoding them. Unfortunately, as mentioned above, they also contain numerous errors.

This book provides a great deal of information (and much misinformation) about water bird distribution, behavior, and breeding biology in California. The illustrations detract from its appearance and overall usefulness as a field guide, and the numerous factural errors weaken its credibility as a reference book on bird distribution. Nevertheless, it is probably the best single source of information on California water birds to appear since Grinnell and Miller (1944). Let us hope that forthcoming volumes in this series on land birds do not have Swainson's Hawks and Black-chinned Hummingbirds wintering in California!—H. LEE JONES.

THE AUDUBON SOCIETY FIELD GUIDE TO NORTH AMERICAN BIRDS: WESTERN REGION. By Miklos D. F. Udvardy, Alfred A. Knopf, New York, 1977: 855 pp. $7.95.—New books sell, especially those lavishly illustrated, regardless of intrinsic merit. This new approach to a field guide, unfortunately, is no exception. There are 3 innovations in this new guide: it departs completely from the phylogenetic arrangement of species, it uses photographs rather than paintings, and the text is arranged by habitats.

The text is well organized, concise, and informative. Udvardy is to be congratulated. The innovation here is in the arrangement of the species accounts by 20 habitat types. The divisions seem excessively fine and might more usefully be reduced to about 5 broader categories that would be less subjective.

Most users will be concerned with trying to identify a bird in the field by means of the photographs. The illustrations are variable in quality. Many are excellent and serve the purpose of field identification well. In particular the long-legged waders, the gull-like birds, the hummingbirds, and the hawk-like birds in flight are useful. Some of the plates are poor. The female Red-shafted Flicker (p. 234) has a golden crown. The White-breasted Nuthatch (p. 242) has blue flanks. Many of the perching birds are shown in such horribly worn breeding plumage or with such distorted colors that one can scarcely guess what species might be represented. Poor choices of abraided summer birds include the Pygmy Nuthatch, Rufous-sided Towhee, Gray-headed Junco, Gray Flycatcher, Mountain Bluebird, Golden-crowned Kinglet, and Bendire's Thrasher. Some species that should be greenish are figured too gray; all the kinglets, most of the *Empidonax* flycatchers, and vireos, some of the warblers, and the Green-tailed Towhee. The warblers are mostly too yellow where they should be greenish: Wilson's, Yellow, Nashville, Townsend's, Hermit, and Yellow-breasted Chat. But the Scott's and Hooded oriole females are far too green. And who could ever identify a female Wilson's Warbler or Common Yellowthroat from the figures on p. 266?

In a few instances I think better judgement might have been used in deciding what to illustrate. *Dendrocopos* woodpeckers, which differ only slightly between the sexes, have separate photos of the males and females. But the Williamson's Sapsucker, which is so strongly dimorphic that the sexes were originally described as different species, has only the male figured. Misidentifications are few. The "Poorwill" on p. 166 is a Common Nighthawk. A Laughing Gull (p. 67) is called a Franklin's. The Mexican Duck (p. 108) appears to be a hybrid.

The non-phylogenetic arrangement of illustrations and text probably has about as much to recommend it as does our present archaic sequence of sometimes polyphyletic orders.

In contrast to some of the really satisfactory field guides presently available, I doubt that this one will withstand the test of field use. My copy already has signatures pulling loose from the binding.—AMADEO M. REA.

FIFTY COMMON BIRDS OF OKLAHOMA AND THE SOUTHERN GREAT PLAINS. By George M. Sutton. University of Oklahoma Press, Norman, 1977: 113 pp., 50 color plates. $7.95—Rarely has the novice been introduced to basic avian biology so expertly and in such a lucid and delightful manner as in this little book (5 × 8¾ × ½ in.). Although the author stresses identification characters such as color, behavior, song, and type of habitat where a species is likely to occur, this book is much more than a beginner's guide. Information relative to each species' eggs, nest, incubation period, enemies, plumages, distribution, and status in Oklahoma is also a part of each description. Personal anecdotes are frequently related from Sutton's rich and varied experiences with birds for more than six decades. These are designed to provoke the reader, whetting his curiosity and inspiring him at every turn to probe a little deeper, learn a little more. Specific problems needing attention are frequently posed. The first line in the description of the Yellow Warbler, for example, is: "The midsummer distribution of this warbler in Oklahoma is puzzling." In the unique Sutton style, ecological lessons are interwoven into the species descriptions. Many plants and animals upon which certain birds depend for one reason or another are alluded to.

Several terms that the author is fond of using are not commonly met in print, for example: alas, rambunctious, frowziness, downright, indeed, meek, and sojourn. Words like these are an integral part of the charm that makes Sutton at once philosopher and raconteur *par excellence*.

A painting of each species faces its textual description. Some (e.g., Great Horned Owl, Ruby-throated Hummingbird, Redwinged Blackbird) exemplify an earlier, simpler style, and a few are very slightly out of register in my copy, but in general, the quality is exceptionally good. Many in the very audience that Sutton is attempting to reach may have difficulty recognizing the fledgling Blue Jay on page 49. Several plates are especially impressive, particularly the Yellow-billed Cuckoo, Hairy Woodpecker, Western Kingbird, and Dickcissel. It was pleasing to see the Western Meadowlark portrayed rather than the more commonly painted Eastern.

One of the author's greatest difficulties came in choosing which 50 birds to include. Probably no two ornithologists would have agreed on all 50. Better choices might have been the Cliff, rather than the Rough-winged Swallow and the Song, rather than the Lincoln's Sparrow, to name two. However, there is sound reasoning given for selecting each species. But no matter. The author could easily have reached into his vast store of knowledge and plucked out vivid recollections of virtually any Oklahoma bird!

I failed to detect a single typographical error in the text. This is a tribute to the author's meticulous care in proof-reading and to the attention given by the Press during reproduction. The type is clean, bold and large enough to be easily read.

The price might seem a trifle high for a book containing only 113 pages, but the paintings alone are well worth the price.

Many of George Sutton's books go out of print to become expensive, hard-to-find collector's items, attesting to his abiding popularity as writer and bird artist. This book is certain to become the standard primer throughout the region it encompasses, but many ornithologists will regret that it was not available 15 or 20 years ago.—JACK D. TYLER.