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ORNITHOLOGICAL LITERATURE

IDENTIFICATION GUIDE TO NORTH AMERICAN PASSERINES. By Peter Pyle, Steve N. G. Howell, Robert P. Yunick, and David F. DeSante. Slate Creek Press, Bolinas, California, 1987:278 pp., 219 numbered text figures, 7 tables. $19.50.—With the exception of a few comparatively minor detractions, this book represents a superb effort on the parts of its authors. It contains an impressive amount of information which, we think wisely, was not cramped into the small pocket book format of its European counterpart. At about 9 × 6 inches, or somewhat larger than most field guides, it still manages to condense information that most bird handlers typically have scattered through several three-ring binders, reprint files and reference books. Also, by choosing a larger format, the authors have been able to avoid the telegraphic style and many of the abbreviations that make "Identification Guide to European Passerines" (Svensson 1970, 1975, 1984) less readable. Armed with this new reference, many bird handlers, and particularly those less experienced, can breathe a collective sigh of relief—the best and most current identification, ageing and sexing methods are at their fingertips.

The book begins with a very well written introduction that includes sections on Bird Topography, Measurements, Wing Formula, Skulling, Molt, Plumage, Juveniles and Soft Parts, Feather Shape and Wear, Growth Bars, Breeding Characteristics, and Directions for Use (of the guide). The introduction is followed by accounts that treat 276 species, plus 20 additional subspecies or hybrids. The book was apparently in press prior to publication of the 36th supplement to the A.O.U. check-list of North American birds (Auk 104:591–595), since it assigns subspecies, rather than species status to the Yellow-green Vireo (*Vireo flavoviridis*).

Brief but useful summaries of familial or subfamilial characteristics (e.g., general wing morphology, patterns of molt, generalized ageing and sexing criteria) are provided in the appropriate places throughout the guide. Also interspersed among the accounts are seven tables which provide summaries of measurements and/or key characteristics for distinguishing among four eastern and four western *Empidonax* species; between Alder (*E. alnorum*) and Willow flycatchers (*E. traillii*), Tropical (*Tyrannus melancholicus*) and Couch's kingbirds (*T. couchii*), Red-winged (*Agelaius phoeniceus*) and Tri-colored blackbirds (*A. tricolor*), and among the juveniles of six species of *Ammodramus* sparrows; also information on the waxy appendages and/or tail band width of Bohemian (*Bombycilla garrulus*) and Cedar waxwings (*B. cedrorum*). Short sections of text are provided on Identifying *Empidonax* Flycatchers and Ageing and Sexing *Dendroica* Warblers.

Each account gives the English and scientific name, a four-letter code derived from the former, the A.O.U. number and recommended band size for each species and subspecies. Bird-banders should note that the four-letter alpha codes in this book are not necessarily those accepted by the Bird Banding Laboratory. The body of each account does not take the form of a dichotomous key (unlike most previously published ageing and sexing information about North American species), but rather provides sufficient information on the timing and extent of molt and skull pneumatization, and on age- and sex-related plumage and morphometric criteria, so that users can deduce the correct assignment of an individual bird to species (when there are potentially confusing look-alike species) and to age and sex class (when such distinctions can be made reliably). Finally, the reader is given a list of references which either were the sources of, or which provide further details about the identification criteria outlined in each account. It will be clear, however, to anyone familiar with the literature, that the experience and expertise of the authors have given rise to much new information.

Careful use of this guide (i.e., heeding the numerous wise cautions and good advice given by the authors in the introduction and throughout the text) will no doubt increase the frequency and accuracy of bird handlers' attempts to identify, age, and sex passerines, including both live birds in-hand and study skins in museum collection. Anyone who is used to the dichotomous key format will have to adjust to making decisions based on a combination of perhaps several variable criteria, but the authors have made every effort to provide all the information necessary to ease this transition. In particular, we recommend that the introduction to this book be read thoroughly; in fact, we consider this to be essential for the accurate application of the specific information provided elsewhere in the guide.

Among the few detractions that we noted are several that could have been avoided with a more careful proofreading of the manuscript. There are, for instance, a surprising number of outright spelling errors, in addition to numerous typos. On p. 25, the authors write, "Some individuals *disburse* [italics ours] from their breeding grounds . . . ," instead of *disperse.* Calendar is misspelled "calender" seven times on pp. 26–27. At least one text reference, Willoughby (1986), could not be found in the "Literature Cited" section, and not all figures are correctly cited in the text.

From a content standpoint we have a few misgivings, but none seriously detracts from our overall opinion that this book is a laudable work. Figure 1, referred to in the section on Bird Topography, illustrates but does not identify the carpal covert (the short covert located adjacent and distal to the outermost greater secondary covert), and the alula covert (the short, proximal feather of the three-feathered passerine alula) is neither illustrated nor discussed anywhere in this work. We have found that these two feathers can be very useful (with practice) for ageing birds of many species that have a partial prebasic molt, since they are frequently the last feathers of the upper alar tract to be replaced at this molt. The contrast between a molted carpal covert and an adjacent, unmolted alula is often at least as distinctive as the contrast between molted greater secondary coverts and unmolted greater primary coverts (only the latter are described in this guide). When the alula covert is molted (e.g., in many Parulinae and Emberizinae), contrast can be seen between it and the unmolted alular feathers, even when the difference between molted greater secondary coverts and retained greater primary coverts is not so clear (e.g., in many brownish or greenish birds). Also, examination of the alula covert is particularly useful for species in which both the first-year and older birds undergo a partial prealternate molt involving some or all of the greater secondary coverts. As the authors point out on p. 19, both age groups in these species will show contrasts between coverts in the spring. Contrast between the alula covert and the other alular feathers, however, will still be characteristic only of first-year birds (= second-year, following the prealternate molt). In these birds three feather generations can sometimes be distinguished, when only two will be present in birds having undergone a definitive prealternate molt (i.e., after second-year birds).

Another feather group not identified in this work, but nonetheless of some use in ageing birds, is the upper middle primary coverts. We have found that these small feathers, seen by pushing the alular feathers aside, are not included in the first prebasic molt of some passerines, notably the *Catharus* thrushes. In about 20% of the Swainson's Thrushes (*C. ustulatus*) that we handled at our banding station (Powdermill Nature Reserve) in southwestern Pennsylvania last fall, the only retained juvenal coverts (i.e., those with the characteristic terminal spots) were upper middle primary coverts. While all thrushes can be aged by degree of skull pneumatization through the fall migration period, and while we endorse skulling as the single most reliable ageing criterion for most passerines in the fall, the presence of retained feathers in this group should increase the number of second-year birds that can be distinguished in the spring. We should point out, as the authors are careful to do, that

the distinctions between molted and unmolted feathers are rarely easy to make; they require, among other things, very well-lighted surroundings, careful scrutiny, and practice.

We have some concerns about a few of the identification criteria presented in this guide. We think that differences in rectrix shape and the color patterns of individual feathers between young and adult age classes are probably overemphasized, and the former, in particular, is overillustrated. We suspect that despite the authors' cautions, some readers may latch onto these characteristics (precisely because they are so prominently featured), without appreciating that they are among the more variable and less reliable criteria presented in the book.

Although the abundance of illustrations certainly contributes to the very attractive layout of this guide, we are not convinced that so many wing formula drawings were warranted. Most simply show that one primary is longer or shorter than another (information that is well enough conveyed in equation form in the Species subsection of each account), and they may give the incorrect impression to anyone who fails to read the authors' introductory instructions, that this measurement is taken on a partially opened wing. In fact, we have real misgivings about the inclusion in any form of so much wing formula information, given that pertinent data for North American passerines are scarce. If the authors acquired these data themselves, they make no mention of the sample sizes involved, nor of the full extent of intraspecific variation. Mulvihill and C. Ray Chandler (MS in prep.) have documented a significant amount of wing formula variation both between and within the age/sex classes of the Dark-eyed Junco (*Junco hyemalis*), including differences in the relative positions of certain primaries. As a means for distinguishing among look-alike species, wing formulae of North American passerines should probably only be applied to those few species for which adequate studies have been completed (e.g., Phillips et al. 1966. Bird-Banding 37: 153–171; Phillips and Lanyon 1970. Bird-Banding 41:190–197).

In as much as it facilitates the ageing and sexing of many North American passerines for which the criteria enabling such determinations were poorly known, this book should have a substantial impact on many bird studies, particularly on those studies of behavioral ecology heretofore unable to account for the influence of these important variables. While a few of the specific ageing and sexing methods outlined in this guide are open to question, and while the authors have not presented all known criteria, this is an excellent first edition. Any subsequent editions will no doubt benefit if readers follow the senior author's suggestion "... to publish contradicting, additional, or supporting information..., so that it may be incorporated into future editions."

We recommend this book highly to bird banders and to field and museum ornithologists, alike.—ROBERT S. MULVIHILL AND ROBERT C. LEBERMAN.

WILDLIFE 2000: MODELING HABITAT RELATIONSHIPS OF TERRESTRIAL VERTEBRATES. By J. Verner, M. L. Morrison, and C. J. Ralph (eds.). Univ. Wisconsin Press, Madison, Wisconsin 53715, 1986:470 pp., numerous numbered text figs., tables. $17.95.—"Wildlife 2000" is the proceedings of a conference held 7–11 October 1984, near Lake Tahoe, California, the objective of which was to present an up-to-date synthesis of models that predict the responses of wildlife to habitat change. This extremely attractive, well-produced volume has been well received by the wildlife management profession; the editors received an outstanding publication award from The Wildlife Society for this publication. The accolades are deserved. The symposium was purposely integrated in terms of research and management perspectives. Each of the six sections is summarized by both research and management points of view.

A majority of the 60 papers presented deal with birds. Although many chapters require a strong quantitative background, especially in multivariate statistics, many others do not. When one compares this publication with previous habitat-modeling symposia proceedings, one realizes what a superior contribution "Wildlife 2000" is, and how incredibly far wildlife-habitat modelers have come in a short time. There are very few redundant papers or "nonpapers" in this volume. The wide array of modeling procedures, statistical methods, and computer software developed and used by the authors is impressive; we have indeed learned how to build models. Whether or not we have learned how to build good models is another question.

Sections I and II encompass a variety of modeling concepts, techniques and applications, tests of model assumptions, and modeling pitfalls. Many of the chapters in Section I deal with descriptive models developed from literature search and expert opinion, such as the U.S. Fish and Wildlife Service's Habitat Evaluation Procedures (HEP) and the U.S. Forest Service's Wildlife Habitat Relationships (WHR) models. Descriptive models are usually not field validated and have been criticized because of their poor predictive ability, yet widely accepted alternatives have not been developed. A variety of other approaches, mostly multivariate, are covered in the bulk of the rest of these sections. Capen et al. (Chapter 26) present an excellent description of study design and use of discriminant analysis and more robust logistic regression models to classify used and unused sites for four songbird species. They observed good results when jackknife and cross-validation procedures were used within the same data set. However, an independent data set showed poor classification when applied to the derived models. These results point out an important problem with developing wildlife-habitat models from data at a single site, namely, that a model developed in one area will reflect the peculiarities of those data, be they real or statistical outliers (i.e., the model is overfitted). The development of models that are applicable over a wide geographic range is considerably more difficult.

Section III, "When Habitats Fail as Predictors," provides ample evidence that there are many situations where habitat alone is simply not enough to predict the presence or abundance of a species. Long-term studies by Rotenberry (Chapter 31), Gaud et al. (Chapter 32), Diehl (Chapter 33), and O'Connor (Chapter 34) all report extreme yearly fluctuations in bird numbers apparently unrelated to habitat change. Most researchers, however, probably recognized the importance of long-term studies to examine wildlife-habitat or any other ecological relationship, and would place little faith in a habitat model developed from one season in the field.

Section IV, "Predicting Effects of Habitat Patchiness and Fragmentation," is a natural successor from the previous sections; many similar types of models are developed except that explanatory variables include such names as island area, insularity (Rosenberg and Raphael, Chapter 38), and core area (Temple, Chapter 43). Other papers in this section (Seagle, Chapter 40; Urban and Shugart, Chapter 39) discuss the relatively new area of "landscape ecology" that involves the study of habitat mosaics. I suspect that wildlife/habitat relationships will be examined on this scale with greater frequency in the future.

Section V, "Linking Wildlife Models with Models of Vegetation Succession," involves using dynamic computer simulation models to depict forest successional change, then linking wildlife-habitat models to the characteristics of the predicted ecosystem changes, primarily in light of various timber production and harvesting scenarios. This final section of research papers leaves one feeling optimistic about the potential of habitat modeling. However, forest succession models for wildlife planning are only as good as the wildlife-habitat models that are used to link with them. Most of the chapters in this section use planning models like HEP or WHR models to link with successional models. Yet if one does not place much faith in these descriptive models, then how much faith can one have in more sophisticated

models that incorporate them? Or, it may be that descriptive models can be valuable in planning scenarios that do not require the high confidence levels, precision, and certainty of models used in scientific research.

This dichotomy is reflected in the sectional summaries written from the manager's and researcher's viewpoints. Several managers express the valid point that models that are not as accurate as we would like are still practical to use and therefore of value. Others express the concern that more sophisticated modeling methods are outdistancing the ability of managers to use them. It may well be that managers will continue to use descriptive models, enhanced in utility by such features as expert systems (Marcot, Chapter 23) and successional simulation models. Researchers are likely to continue to use more sophisticated models that are more appropriate for their needs on individual study areas. This dichotomy is not necessarily a bad thing, especially if descriptive planning models can be improved through use of scientific models by testing hypotheses, assumptions, and components of the former.

In summary, then, "Wildlife 2000" is a timely, attractive, well-edited and well-produced publication that is of value to researchers and managers alike. My only criticism is that, while an impressive array of techniques and software is presented, I wonder how good many of these models are. Model building is an iterative process in that, after specifying and fitting the model, diagnosis and validation serve to respecify and improve the model, and in testing the new model the procedure is started anew. Of the numerous models introduced in the first two sections, very few are validated using independent data from another area, if at all. Also, several models are developed using only 1–2 years of data. It is apparent that not many of the models presented in these sections have progressed very far in the overall modeling process. In fairness, though, the objective of at least some of these studies when they were initiated years ago was not to build wildlife-habitat models. Rather, in the course of their work researchers developed some interesting modeling ideas that they wished to impart to their colleagues. Others undoubtedly collected data specifically for a topic they wished to present at this symposium and did not have time to collect more data. Modeling is still a new area in wildlife ecology. When the next symposium on habitat modeling appears several years from now, I have no doubt that huge advances will be made over these and other problems.

Just one final word on value; the quality of the content of "Wildlife 2000" is obvious. In addition, the publication is presented in an attractive style, hardbound, for an extremely reasonable price. How did the editors do it? Or, more to the point, why haven't other symposium editors been able to do it? You know what I am referring to; these publications often have photocopied text, frequently with different type in different papers, and are loaded with typographic errors. But add a hard cover, and the publishing company asks a price several times more than this volume. Both the editors of this volume and Wisconsin Press should be congratulated, if for no other reason than giving impoverished biologists a break.—ROBERT J. COOPER.

AN INTRODUCTION TO BEHAVIOURAL ECOLOGY. By J. R. Krebs and N. B. Davies. 2nd Edn. Sinauer Associates Inc., Sunderland, Massachusetts, 1987:389 + ix pp., 118 figures, 33 tables. $19.95.—In 1981, John Krebs and Nick Davies published the first edition of a textbook based on their lectures in behavioral ecology at Oxford and Cambridge. That first edition filled an important niche, because it was written for students who were already familiar with the basic concepts of ethology and ecology, but were focusing squarely on questions about the function and evolution of behavior. The original text found an approving audience, as evidenced by its four printings. In 1987, the second edition became available

on the North American market, and this thoroughly revised version should be as well received as their first effort.

In revising the text, Krebs and Davies have retained the 13 chapters of the first edition and have added two new ones that are detailed discussions of competition for resources, and altruism. After first describing the aims and methods of studying the survival value of behavior, the authors discuss, in separate chapters, the theoretical ideas and empirical results of studies dealing with how "well-adapted" animals make decisions, how fighting strategies and territoriality result from competition, the causes and consequences of group living, mating decisions, parental care, alternative reproductive strategies, cooperative breeding, and the ecology of signaling behavior. The concluding chapter re-evaluates the plausibility of some of the authors' main premises (e.g., the evolution of selfish genes as opposed to groups) and the value of optimality models in understanding the evolution of behavior.

Each chapter in the current edition has been carefully revised. For example, where researchers have continued a particular study, the authors have thoroughly reworked the text to include their most recent findings (e.g., Woolfenden and Fitzpatrick's study of Florida Scrub Jays, *Aphelocoma coerulescens*). In addition, there are many examples of new studies that have been incorporated into the text (e.g., Alatalo and associates' studies of polygyny in Pied Flycatchers, *Ficedula hypoleuca*). With over 500 references, half of them different from the first edition's, the bibliography is about one-third larger than the earlier one. Given the rate at which information is accumulating in this young field, the value of this text as a timely synthesis cannot be overstated.

From a technical viewpoint, the second edition has been improved in several ways: the size of the print is larger, typographical errors have been largely eliminated, several new photographs have been added, and the quality of those reproduced from the first edition has been improved. Where appropriate, the authors have introduced new figures and tables to complement the revised text, and several expanded discussions of difficult concepts have been added. Finally, color has been used to highlight titles and graphs in the current edition, making it quite a handsome text.

The most appropriate audience for the text will remain an upper-year undergraduate class. The inclusion of "topics for discussion" at the end of each chapter can be used to stimulate class debates, and the division of the book into 15 chapters makes it convenient for use in a one-semester course. The text could equally well serve as a "handbook" of terms and basic ideas for a graduate level course in behavioral ecology. Students at either level will find the relaxed, conversational, writing style enjoyable, and the authors' discussions of even rather difficult concepts clear.

In summary, the second edition of Krebs' and Davies' text is a fresh and timely synthesis of the literature in a rapidly changing field, presented in an attractive and enjoyable format. The text is a valuable aid for teaching an undergraduate class, and it can be recommended without hesitation.—T. E. Dickinson and N. J. Flood.

A Saltwater Marsh Hen in Arizona. By Richard L. Todd. A Federal Aid Project W-95-R Completion Report. Arizona Game and Fish Department, Phoenix, Arizona, 1985: xii + 290 pp. No price given.—It is unfortunate that the subtitle of this offset-printed, paper bound management report, "A History of the Yuma Clapper Rail (*Rallus longirostris yumanensis*)" was not used instead of the above title. The report is aimed at administrators and wildlife biologists whose decisions will affect this threatened freshwater-adapted subspecies of the "clapper" rail. In six chapters 20 to 60 pages long (plus a brief seventh concluding discussion) the author summarizes what is known of the Yuma Clapper Rail.

He reviews the King-Clapper complex and concludes that although he believes that one "polytypic biological species" is involved, to facilitate comparisons, he treats King and Clapper rails as distinct species! The wise reversion to using established common names for subspecies both makes such comparisons lucid and permits being consistent. Tables of measurements—including weights—are presented for series of rails from the Colorado River valley and from adjacent populations of the coast of Mexico with the hour and minute when the bird was collected, but without identifying the museum where they were deposited or giving specimen numbers!

Chapters two to five form the bulk of the report. They deal with ecology, special investigations (population sizes), and historical trends of the Yuma Clapper Rail. Defining the relative importance of the various habitats used by the rails (vegetation components are described in detail), and documenting the often contradicting "conservation" forces affecting those habitats, usually destructively, is the most important contribution of the report. The author rather well demonstrates that the Yuma Clapper Rail was simply overlooked by earlier collectors—including Grinnell—who concentrated on the larger lakes and marshes of the Colorado River valley. The population has not witnessed a recent expansion into man-made habitats, but probably was always there, and indeed is now living in largely imperiled habitats.

Little new life history work has been done on the subspecies, and there are a lot of references to other populations of Clapper Rails to fill in lacunae.

Chapter six is on research and management recommendations. Interesting is the simple suggestion that the wintering range of the subspecies, and the taxonomic relationship of *yumanensis* to *rhizophorae* and *nayaritensis* of the contiguous coast of Mexico be determined! Would this journal publish such a taxonomic manuscript? The author also suggests that radio telemetry be used to study life history and movements of this secretive bird. One heartily concurs with the author who concludes with his hope that this report will help in efforts to manage and to increase protection of this restricted subspecies.

The report is illustrated extensively. I'm sure the original photographs were excellent, but the reproduction by photo-offset is poor and the illustrations are all middle gray. The author must be disappointed. There are 33 pages of references cited. It is a useful compendium of Clapper Rail literature and a vital report for all involved in the management of wetlands.—ROBERT W. DICKERMAN.

BRUNO LILJEFORS THE PEERLESS EYE. By Martha Hill, Doubleday and Company, Garden City, New York, 1987:174 pp., quarto (27 × 29 cm.), 58 black-and-white illustrations, 112 in color. $60.—The spirit of Bruno Liljefors, and that of author Martha Hill as well, is well expressed in her account of seeing, for the first time, one of Liljefors's originals:

> Upon opening the heavy main door (of the Thiel Gallery), the visitor ascends a broad, dark wood staircase leading to the sky-lighted main galleries. Halfway up, he is distracted by a flash of white from the side. Turning to confront a sixteen-foot-long canvas on the opposite wall, he sees forty eiders, life size, whirring across the wintry sea, their blurred wings riffling the trough of a wave. The black-green sea is chilling, and so is the sensation of wind. The impact of this monumental vision leaves the onlooker breathless as he surveys the phalanx of birds flying past, finally noticing the few brown females which at first were eclipsed by the dazzling nuptial plumage of the drakes. This feeling of sudden encounter, of witnessing an event in nature without intruding—this is the incomparable art of Bruno Liljefors.

Martha Hill, who has long served as picture editor of Audubon magazine, has done a masterly job in bringing to the English-speaking audience the art of this Swedish painter of

birds and mammals. Widely considered the finest of all wildlife artists, he is little known in the United States. By using Liljefors's letters, journals, and publications as well the several books about him by art critics, she has succeeded in following his development as an artist very well. I am impressed with her diligence and dedication, because virtually all of the source material was in Swedish, which she had translated. She made several trips to Sweden to confer with museum curators and private owners of Liljefors paintings. The product is both informative and readable. It is in the form of what I would call essays, rather than chapters, each one enjoyable by itself.

Hill traces the life of the artist from his birth in 1860 to his death in 1939 and the resurgence of public acclaim in 1960. His popularity is still rising, so much so that in recent years individual paintings have sold in Sweden for more than a hundred thousand kronor. Of the many interesting tidbits which make the book so interesting, I select just a few as illustrations. Though Liljefors began his art work and training as a child it was not until he was 47 years old that he became a smashing success financially, when a one-man show sold for enough so that he could purchase the archipelago Bullerö, with its 365 rocky islets, rich with sea life. He made it his private wildlife sanctuary, employing a caretaker to patrol and prevent the shooting of wildlife, including his favorite sea eagles, on which a bounty was paid at that time. The area is a nature reserve today.

He was represented in the Swedish exhibits at two major world fairs, the Field-Columbian Exposition at Chicago in 1893, with 17 paintings, and the Louisiana Purchase Exposition at St. Louis in 1904, where his 19 paintings won several gold medals. This type of acclaim, however, did not translate into enough money for a comfortable living for his large family (eleven children), and his wife was quoted as scorning gold medals and wishing for cash. However, he did have several good friends who were helpful in arranging sales of his paintings, and who bought many themselves. Among them were banker Ernest Thiel, the king's son, Prince Carl Eugene, and artist Anders Zorn.

Hill discusses the fact that most curators of fine art refuse to recognize animal paintings as worthy of their attention, and relates her experience in trying to persuade the Metropolitan Museum in New York City to put on a Liljefors exhibit, but brings out that in Sweden several art museums bought his paintings, and the National Museum of Art in Stockholm has 552 Liljeforses in their archives. They represent all of his favorite subjects, foxes, hares, black grouse, ducks and geese, and both golden and sea eagles.

Anyone interested in bird art will find this fine book rewarding, both for its information and for the beautiful reproductions of so many Liljefors paintings.—GUSTAV A. SWANSON.

RESTORING AMERICA'S WILDLIFE 1937–1987. Edited by Harmon Kallman, Chief Editor; C. Phillip Agee, Associate Editor; W. Reid Goforth, Assistant Editor; J. P. Linduska, Assistant Editor; Steven R. Hillebrand, Art Editor; and Mann Rollison, Photographic Editor. United States Department of the Interior, Fish and Wildlife Service, 1987. 394 pages, hardbound. $20.00 postpaid in the U.S. from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402-9325 Stock Number 024-010-00671-44. Fifty years ago, the Congress passed what is considered by many the most important of all conservation laws, the Federal Aid in Wildlife Restoration (Pittman-Robertson) Act. This book reviews its programs as seen by 35 authors. Usually considered primarily a funding provision, the P-R Act has conferred far broader benefits, upgrading the effectiveness and professionalism of the state wildlife agencies as nothing else had ever done.

The provisions of the P-R Act are fairly simple: an 11% excise tax on sporting arms and

ammunition is collected by the federal government and distributed to the states for wildlife restoration work. Each project is conducted by the state, which is reimbursed for ¾ of its cost by the fund. The U.S. Fish and Wildlife Service has exercised central supervision so successfully that the Act has been amended to add other sources of income, from excise taxes on handguns and on archery equipment used for hunting, and to inspire a parallel Act in 1950, the Dingell-Johnson Act for Federal Aid in Sport Fisheries Restoration. These two important measures are shining examples of good and effective federal intervention.

Why has the P-R Act been so important? First, of course, is the money it has distributed to the states: in 1986 alone over $100 million. During the first fifty years the states received more than $1.5 billion. To use my home state as an illustration, Minnesota's 997 Wildlife Management Areas, totalling more than 500,000 acres, were purchased in large part with P-R funds participating. Minnesota has generally spent almost all of its P-R funds on land acquisition and development, with hunter education about 4% and research only about 1.3%.

The benefits other than funding were equally important. When the P-R Act was passed in 1937 the typical state wildlife agency was strongly political, with staff appointments reflecting largely politics rather than professional training or competence. Major activities were law enforcement, game farming, and predator control. The P-R Act made drastic improvements. Important requirements were that eligible projects be "substantial in character and design" and that staff employed must be the best qualified that were available. The quality of state wildlife programs and personnel were quickly improved nationwide.

Individual chapters deal with more than a dozen species of wildlife which have increased remarkably with improved management resulting in part from the P-R programs. One deals with the Giant Canada Goose (*Branta canadensis maxima*), thought to be extinct by Delacour when he described it in 1951. Then 25 years ago a small nonmigrating population was discovered on Silver Lake in Rochester, Minnesota, where it had been fed and protected by Dr. Charles Mayo and others. Since then an active restoration program has succeeded far beyond expectations, and the Giant Canada is again a nesting species by the thousands in the Great Plains states and elsewhere.

Other wildlife successes under the Federal Aid programs include the Wild Turkey (*Meleagris gallopavo*), the white-tailed and mule deer (*Odocoileus virginianus* and *O. hemionus*), Wood Duck (*Aix sponsa*), black bear (*Ursus americanus*), pronghorn (*Antilocapra americana*), elk (*Cervus canadensis*), mountain lion (*Felis concolor*), beaver (*Castor canadensis*), bobcat (*Lynx rufus*) and sea otter (*Enhydra lutris*). All of these species are now more numerous and many of them have been restored to areas from which they had been exterminated, and P-R projects have usually been a key to the success. Some states have conducted much of their non-game wildlife work under the P-R Act.

The account of the initiation of the Act includes some fascinating and little known details. Congressman Willis Robertson agreed to sponsor the bill only if 29 words which he pencilled into the draft were added: ". . . and which shall include a prohibition against the diversion of license fees paid by hunters for any other purpose than the administration of said State fish and game department. . . ." This provision alone has saved for the state wildlife agencies many millions of dollars, because it was a common practice for state legislatures to use hunters' license fees for other purposes.

The book can be recommended enthusiastically to anyone interested in wildlife conservation, and it is suitable for display on your library table, it is such an attractive production, lavishly illustrated with more than 200 photos and maps, most of them in color. It is amusing that President Reagan and Interior Department Secretary Hodel, who had nothing to do with the Act, are honored with full-page color photos and prefatory remarks.—GUSTAV A. SWANSON.

SONGBIRDS IN YOUR GARDEN; How to Attract, Feed, and Enjoy Birds in Your Garden or Backyard. By John K. Terres, illus. by Matthew Kalmenoff. Harper and Row Publishers, Inc., New York, New York, 1987:xiv + 306 pp. $9.95.—To review this reprint of Terres' classic work, which went through three editions between 1953 and 1977, I compared this inexpensive, semi-hard-cover Perennial Library edition with my copy of the original to see what changes have been made over the years. The new edition is about ⅓ larger in page size and is 32 pages longer, but most of the increase is in wider margins (the type bed is identical in page width, but it is 4 lines longer) with many more, often delightful, marginal illustrations, and amplified appendices. But is this edition worth buying today? At its price, I think so.

After the obligate Foreword by Roger Tory Peterson, a Preface by Terres, and an Introduction by Edwin Way Teale, the book begins with a "new" (not in the first edition) chapter on the history of bird feeding, augmented by the author's own stories about feeding. It then continues, almost unchanged, through chapters on how to feed, make birdhouses, help birds at nesting time, provide water, care for young birds, attract hummingbirds, plant garden ornamentals that are used by birds, make sounds to attract birds, build a bluebird trail (a new chapter), and a list of problems and how to solve them. The book ends with almost 100 pages of appendices, an updated list of references, and a good index.

This has always been a very personal book, filled with Terres' stories about his experiences with birds. Therein lies its charm. To some extent, however, a 1980s reader may also find it quaint, filled with anthropomorphisms and "cute" tales, a friendly and useful book, possibly entertaining, possibly over the hill. In spite of Terres' cosmetic updating, the book's basic age shows and thereby lessens its utility. For instance, feed prices have been updated to 1986, and honey water is no longer a recommended feeder food for hummingbirds, but many items such as range changes (e.g., by Carolina Wrens [*Thryothorus ludovicianus*] and Bewick's Wrens [*Thryomanes bewickii*, pp. 58–59] have not been modernized, only a few of the birds' names have been brought into conformity with the 1983 A.O.U. Check-list, and I doubt if submersion heaters for heating birdbaths in winter are still available for $2.00, even if it's wise to use them. Most of the datedness of the book, however, is apparent in what was omitted: I cannot imagine discussing bird feeding today without mention of that finch "magnet," thistle (niger) seed. Nor are some of the other seeds now generally available (e.g., safflower and the different types of sunflower seeds) even mentioned. There is much about "squeaking" and imitating birds' calls to attract them but nothing on tape-recorder playback. The section on feeding orphaned young birds is still poor, as is the discussion of preventing window kills and birds fighting their reflections in windows—subjects that come up constantly in questions from the general public. The book's organization also would have been improved if the problems noted in the last chapter and those in the Hints and Suggestions appendix had instead been inserted in the appropriate places in the main text, such as placing squirrel-proofing in the chapter on feeders, and cleaning in the birdhouse chapter. I suspect that a publisher was unwilling to pay for a thoroughly revised edition, resulting in new material being relegated to add-on appendices. They are, however, indexed adequately. The book also has a strong Northeastern bias, understandable in view of Terres' own experiences and the personal nature of this book, but that is largely counteracted by the detailed, coast-to-coast listings of suggested plantings and food and nest-site preferences in the appendices.

On the positive side, the book retains its basic worth—clear instructions for feeding and attracting birds and for making birdhouses (even I, certainly no carpenter, have successfully built a few from Terres' plans), interspersed with delightful tales of his years of experience in caring for the needs of wild birds, and a nice collection of new line drawings that greatly add to the appeal of the book. At $9.95, it is a bargain reference source as well as enjoyable reading for almost anyone.—MARY H. CLENCH.

STATUS AND DISTRIBUTION OF THE FLORIDA SCRUB JAY. By Jeffrey A. Cox. Florida Ornithological Society, Special Publication No. 3, 1987:109 pp., 36 figs., 7 tables. $8.00 from FOS, 1701 N.W. 24th St., Gainesville, Florida 32605.—In Florida, Scrub Jays (*Aphelocoma caerulescens*) form a disjunct eastern population that is restricted to habitats on soils of white, well-drained sands. As much of this land has been cleared for citrus and housing developments, Scrub Jays are listed as a threatened species in the state. The author did a comprehensive, state-wide survey by thoroughly searching for Scrub Jay records in the literature, in egg and skin collections, in the Bureau of the Biological Survey files, in the Breeding Bird Survey files of U.S. Fish and Wildlife Service, and through correspondence with people working in Florida. In addition, in 1981 he conducted extensive field surveys of all known or suspected locations for Scrub Jays.

The monograph is organized alphabetically by Florida counties. For each county Cox discusses the historical distribution and the current distribution of jays. Each county has a map with numbered locations for each former and current population. At the end of each county summary, a listing by each numbered locality is given which includes details of the exact site, its habitat, and number of jays seen. A separate section is provided for Ocala National Forest, which spans parts of three counties, and is given special attention because of its importance as jay habitat. A follow-up survey could be done from the information provided in these summaries.

Cox estimates the total population of Scrub Jays in Florida at 15,600 to 22,800 birds, an estimated decrease of 50% from late 1800s levels. More than 80% of these birds are on Merritt Island/Cape Canaveral and Ocala National Forest lands. Clearly the preservation of the species is dependent on correct management of these areas by the appropriate federal agency. Scrub Jays have been extirpated from five counties and show substantial decreases in most others. He recommends the purchase of several pieces of private property that would add important populations into protected ownership.

The book is well organized but rather dry reading. Lacking from the book and important for the conservation of Scrub Jays is a thorough discussion of the size of prime Scrub Jay habitat required to preserve a population. He appears overly optimistic that some small populations will survive. For those interested in Florida Scrub Jays or conservation of important scrub habitats it will be an important reference.—G. THOMAS BANCROFT.

HINDLIMB MYOLOGY AND EVOLUTION OF THE OLD WORLD SUBOSCINE PASSERINE BIRDS (ACANTHISITTIDAE, PITTIDAE, PHILEPITTIDAE, EURYLAIMIDAE). By Robert J. Raikow, Ornithological Monographs, No. 41, published by the American Ornithologists Union, Washington, D.C., 1987:viii + 81 pp., 37 numbered text figures, 3 tables. $12.50 ($9.50 to AOU members).—This is the latest in a long series of myological descriptions of higher landbirds by Robert Raikow, one of the most prolific recent authors of avian comparative anatomy. It is an important piece of work because it is the first detailed description for the hindlimb musculature of the Old World suboscine families. The emphasis is equally distributed between pure description and phylogenetic analysis. It is typical of Raikow's work.

Raikow's description and analysis are clearly defined and logical. The work is not presumptuous. Raikow provides a very level-headed discussion of his methodologies and their limitations. Anyone who questions Raikow's conclusions has all the material available to him in this monograph to follow step by step, from the collection of data on through the analysis. His statistical methods are robust and widely available. He discusses alternative and consensus trees. His phylogenetic conclusions gain credibility by their general congruence with those of Sibley and Ahlquist's DNA solution hybridization studies, as Raikow notes

himself, together with the biogeographical plausibility of his conclusions, which he did not discuss. Ironically, Raikow relies on the corroboration of genetic distance data for support of his conclusions, at the same time downplaying its significance as a competing alternative to morphological studies.

Virtually any phylogenetic analysis is guaranteed to elicit some opposition, and the present study is no exception. Raikow's treatment of the suboscines most clearly differs from the classifications of other ornithologists in his treatment of the broadbills (Eurylaimidae). Most early authors treated broadbills as a major subdivision of all of the passerines or of the suboscines. Olson (Ibis 113:507–516, 1971) believed that eurylaimids are closely related to the cotingas (Cotingidae) of the New World. Raikow found little to unite the Eurylaimidae as a family. He disagrees with Sibley, Williams, and Ahlquist (Notornis 29:113–130, 1982) that the New Zealand Wrens (Acanthisittidae) are suboscines, but he agrees with Sibley and Ahlquist (Ornithol. Monogr. 36:396–428, 1985) that the remaining Old World suboscines comprise a monophyletic group. This latter opinion certainly makes the greatest amount of sense from a biogeographic point of view. In such a scenario, similar environmental and behavioral selective factors resulted in parallel evolution between the Old World suboscines and New World suboscines, for example between the antpittas (Formicariidae) and the pittas (Pittidae), and the cotingas and the broadbills. Unlike Sibley and Ahlquist (1985), Raikow does not resolve the branching order of the New World suboscines. His phylogenetic reconstruction is potentially consistent with the controversial hypothesis that tapaculos (Rhinocryptidae) and the Australian Menurae are similar because of retained primitive characters (Feduccia and Olson, Smithsonian Contrib. Zool. 366:1–22, 1982; see also Bock and Clench, Records Australian Mus. 37:243–254, 1985). Raikow makes no mention of this.

The only serious deficiency in this paper, as in all of Raikow's descriptions, is his neglect of osteology. There are no figures of the bones showing muscular origins and insertions. When bones are included in illustrations of dissections of muscles, they are practically amorphous. This is particularly unfortunate because the people most likely to use this paper as a reference on a continuing basis are paleontologists. In contrast, few other systematists are likely to read carefully the descriptive parts of this monograph more than once, if even that.

Raikow discusses a few nonpelvic, nonmyological characters in a very cursory fashion. He did not address several of the diverse characters cited by Olson (1972) in support of a relationship between the broadbills and cotingas. Nonetheless, Raikow cannot be faulted for omitting such data from his analysis, which is expressly pelvic myology.

The only breach of logic I noted was minor, and it would only be perceived by paleontologists. Raikow rejects the notion that the presence of a plantar vinculum in the Eurylaimidae is primitive because it "conflicts" with the bulbous stapes and acetabular gap of the iliotibialis lateralis muscle, which are synapomorphous to suboscines. These characters are not necessarily in conflict. Retention of primitive characters in the broadbills does not imply convergence in other characters or lineages, if oscines evolved from an extinct group of suboscines (i.e., fossil and extant suboscines combined are paraphyletic, not monophyletic) and that eurylaimids were the first family to diverge from the other extant suboscines (which are definitely monophyletic). There are certain other characters (e.g., the condition of the flexor hallicus brevis shared only by the Eurylaimidae and Philepittidae) that suggest the divergence of the Eurylaimidae was relatively recent among the radiation of suboscines. These do conflict with the interpretation of the plantar vinculum as a primitive character. Thus, Raikow comes to the conclusion that is consistent with his data, but possibly for the wrong reasons.

This is a publication of high quality that will remain significant through the centuries as a descriptive reference. It will be most important to, but liked least by, paleontologists.—P. HOUDE.

VOICES OF ALL THE MOCKINGBIRDS, THRASHERS, & THEIR ALLIES. FAMILY MIMIDAE. By John William Hardy, Jon C. Barlow, and Ben B. Coffey Jr. ARA 12, ARA Records, P.O. Box 12347, Gainesville, FL 32604-0347, 1987: Monaural tape cassette. $10.—ARA Records continues its highly successful progression through the avifauna of the Western Hemisphere. We have here recordings of all of the 34 members of the family Mimidae. Most species are represented by two or even three examples of recordings obtained by some 21 people besides the three co-authors. The endangered *Ramphocinclus brachyurus* is represented by the song of an aviary bird. The usual high standards of ARA obtain and all the cuts are good to excellent.

Not only are most of the species in this family accomplished singers, but some are notorious mimics of other sounds. Many of the recordings illustrate this mimicry. The recording of the Northern Mockingbird (*Mimus polyglottos*) contains at least six imitations. I note with some interest that some of the island forms such as the several Galapagos mockingbirds (*Nesomimus*) and the Socorro Thrasher (*Mimodes graysoni*) have simple, rather unmusical songs.

The wrap-around cassette label contains notes on the technical data of the recordings, including the recordist, and a series of comments by Hardy characterizing the songs and pointing out which species are known mimics.—GEORGE A. HALL.

AUDUBON WILDLIFE REPORT 1987. By Roger L. Di Silvestro (ed.). Academic Press, New York, 1987:xix + 697 pp., many black-and-white photos, maps and graphs. $39.95.—This is the third volume in a series of annual summaries which emphasize the wildlife management activities of various agencies of the Federal Government. Neither of the previous volumes was reviewed in *The Wilson Bulletin.*

Part One is an account of "The Featured Agency," in this case the Bureau of Land Management. The two earlier volumes had featured the U.S. Fish and Wildlife Service and the U.S. Forest Service. An informative overview of the responsibilities and activities of the Bureau is given with emphasis on current problems.

Part Two discusses 14 other federal programs or agencies in less detail. Included are the Endangered Species Program, the Wetlands Protection Programs, the Animal Damage Control Program, the National Wildlife Refuge System, as well as the Forest Service and the National Park Service. One section discusses International Wildlife Conservation. The emphasis in these accounts is on the current problems and activities of each Program. These accounts are both timely and informative.

Part Three discusses 15 species (7 mammals, 3 birds, 2 fish, 1 butterfly and 2 plants) that are either endangered or of some concern. The three bird species are the Wood Duck (*Aix sponsa*) written by Frank Bellrose and Robert Heister; the Red-cockaded Woodpecker (*Picoides borealis*) by Jerome Jackson; and the Piping Plover (*Charadrius melodus*) by Susan Haig and Lewis Oring. These accounts include an outline of some of the natural history of the species, a Historical Perspective and sections on Current Trends, Management, Prognosis and Recommendations. The selection of forms seems rather odd. Some like the plover and the woodpecker are truly endangered, the running buffalo clover (*Trifolium stoloniferum)* is known in the wild from only one small population, but others such as the black bear and the elk are popular big-game species in no apparent danger.

A series of 13 Appendices provides a set of directories for the various agencies as well as other useful information including a listing of the Federal Endangered and Threatened Species.

On the whole, this is an attractive publication that contains much of value and interest.

The price is low for a book from this publisher, but even so, the ephemeral nature of most of the material makes this a publication recommended for libraries and not for personal purchase.—GEORGE A. HALL.

BIBLIOGRAPHY OF ORNITHOLOGIAL TRANSLATIONS—REPLY TO BLEDSOE.—I am thankful that Bledsoe, for his review of Current Ornithology, vol. 4 (Wilson Bull. 100:149–150, 1988), took the trouble to examine all 1030 of the citations listed in Chap. 7, "A Bibliography of Ornithological Translations." He found that references to the Rallidae were incorrectly listed. All but one of these references (i.e., 54, 71, 261, 412, 830) unaccountably migrated to the Anseriformes subject listing from their original location in Gruiformes, where they should be replaced, at least until someone undertakes a phylogenetic study of the order. A few other, less egregious, errors crept into the subject indices, in particular ref. 616, which should be listed under Turdidae. Future updates to the Bibliography will report errors as we find them. Bledsoe's estimate of errors, however, is misleading, but nonetheless does point out the problem with undertakings of this kind, that of bibliographic accuracy.

In his search for typos, Bledsoe seems to have forgotten that this is a bibliography not of original research, but of translation citations. Common names of birds are not well standardized in Eastern Europe, and depending upon the abilities, experience, and background of the translator, can be further obscured when brought into English. Thus, "chernysh" refers to *Tringa ochropus, Melanocorypha yeltoniensis,* or *Lyrurus tetrix*—three different families; "chaffinch" has been used to refer to a sylviid, an emberizid, or fringillid, and is often confused with "chiffchaff"; "common sandpiper" may be used for many scolopacids; and "sparrow" almost any small passerine. Back formation of binomials when they are not given in the article, similar to what Bledsoe did in his review, further compounds the errors. In these cases, the only recourse is to the original article, but this is often not possible; we were able to examine less than one-third of the citations listed. Where possible, we let the subject indices reflect the actual nature of the articles, but did not alter citations. We regret that we were unclear about this. As we indicated in the Bibliography, the subject indices are rough charts to this literature, much like the sailing rutters of medieval Europe. With caution and some imagination, ornithological translations can serve as valuable adjuncts to research and windows upon the ornithology of other countries.—DOUGLAS SIEGEL-CAUSEY, *Museum of Natural History, University of Kansas, Lawrence, Kansas 66045-2454.*

BRIEFLY NOTED

ATLAS OF VICTORIAN BIRDS. By W. B. Emison, C. M. Beardsall, F. I. Norman, and R. H. Loyn. Graphics and Analysis by S. C. Bennett. Victoria Department of Forests and Lands and the Royal Australasian Ornithologists Union, Melbourne, Australia, 1987:271 pp., many maps and graphs. No price given.—Maps for the occurrence of 697 species in the state of Victoria are given. Separate maps indicate the confirmed breeding distribution. American atlasers should note that only an occupied nest or dependent young out of the nest were accepted as criteria for confirmed breeding.—G.A.H.

ATLANTE DEGLI UCELLI NIDIFICANTI IN PROVINCIA DI FORLI. By Ugo F. Foschi and Stefano Gellini. Museo ornitologico "F. Foschi," Provincia di Forli, Italy, 1987:175 pp., many maps. Price not given.—Maps for the breeding distribution of 125 species in the Italian province of Forli are given. No English summary.—G.A.H.