

ORNITHOLOGICAL LITERATURE

SPECIES LIMITS IN THE INDIGOBIRDS (PLOCEIDAE, *VIDUA*) OF WEST AFRICA: MOUTH MIMICRY, SONG MIMICRY, AND DESCRIPTION OF NEW SPECIES. By Robert B. Payne. Misc. Publ. Mus. Zool. Univ. Mich. No. 162, 1982: 96 pp., 29 figs., 5 tables. Price not given.—In the indigobirds of southern Africa, male plumage is a blackish color with green, blue or purple gloss. Females of all species have streaked “sparrow” brown plumage. Males of similar morphological type in a given area mimic the song of a single species of firefinch (*Lagonosticta*) on which the female indigobirds are brood-parasitic, and there is a high degree of assortative mating as females tend to mate with males having bill and foot color similar to their own. It is therefore possible to determine nonarbitrary species limits in this complex of morphologically similar forms.

The situation in West Africa is less clear, however, because while males vary in plumage color, female indigobirds seem to be indistinguishable, and some criterion other than that of assortative mating must therefore be found for determining species boundaries for coexisting populations of indigobirds. Payne and others have found in earlier studies that young indigobirds mimic the mouth pattern of the young of their host firefinch species. Because this is a genetically determined trait rather than an acquired one, it could be a useful means of distinguishing local populations of indigobirds. In the present study Payne used this criterion to establish the occurrence of genetic differences among the indigobirds associated with different species of firefinch hosts, and further looked for association in indigobirds of distinct male breeding plumage and mimicry of a single firefinch species' song. By applying these two criteria Payne was able to determine with considerable confidence the limits of five species of *Vidua* in West Africa, including *V. raricola* and *V. larvaticola* spp. nov.; these latter two had previously escaped attention because of morphological similarity to other forms. A thorough discussion of the abundant nomenclatural problems is given as well as maps showing distribution of the indigobird species and their firefinch hosts, sonagrams, photographs of nestling mouth patterns and a very useful gazetteer.

In cases of disjunct populations Payne primarily used song mimicry to link these populations with known species of indigobirds: they were considered conspecific with species A if they mimicked the same firefinch song as A even if they were morphologically dissimilar to A. In general, all indigobirds that mimic the song and the mouth pattern of nestlings of a single species of firefinch were considered members of a single species of *Vidua* regardless of geographic occurrence and external adult morphology. Males singing the same mimetic song in a local area tend to be similar in breeding plumage, however.

It is possible to identify most museum specimens of male indigobirds taken in the areas studied intensively even when nothing is known about the song behavior of the birds prior to collection. This is not true of females, however, and specimens from areas where little field work has been done are best left nameless until further studies of indigobird behavior and morphology in such areas clarify species relationships.

Although the species concept most widely accepted at present is the biological one, that interbreeding organisms constitute a single species, it is frequently impractical to apply this concept in determining species limits, and some form of the morphological species concept is most commonly applied. Indigobirds generally resist the application of both concepts, however, and Payne's extensive field work and careful analysis have resulted in an approximation that is both more appropriate to and revealing of the unusual biology of his animals.—MARY C. MCKITRICK.

BIRD POPULATIONS IN EAST CENTRAL ILLINOIS: FLUCTUATIONS, VARIATIONS, AND DEVELOPMENT OVER A HALF-CENTURY. By S. Charles Kendeigh. Illinois Biological Monograph No. 52. Univ. Illinois Press, Champaign, Illinois, 1982: 137 pp., 32 text figures, 10 tables, 4 appendices. \$14.50.—Long-term studies of bird populations hold a special place in modern ornithology because so few researchers have had the opportunity or persistence to amass such records and because of the obvious value such studies have in understanding the dynamics of the studied populations. As rare as long-term population studies are, long-term studies of entire bird communities are ever rarer, and continuous uniform records spanning as many as 50 years, such as Kendeigh presents in this monograph, are nearly without precedence.

The major value of this unique volume may be that it presents in tabular form so many data in such straightforward and easily interpreted ways. Breeding birds of seven forests (a habitat restriction not alluded to in the title) were censused by spot-mapping, and winter populations were indexed by counts over known distances (Christmas bird counts) or known areas. The close agreement over the years of these three population estimates is interesting to note.

In addition to presenting the results of these population estimates in species-by-species accounts, Kendeigh interprets the year-to-year variations and fluctuations within the bird communities with respect to several environmental changes that took place on the study area: maturation of forests, succession, loss of elms to disease and the resulting temporary flush of wood-boring insects, range expansions and contractions, and local extirpations. These interpretations are cautious, and the monograph is free of much of the speculation that usually accompanies explanations of complex population fluctuations. On a few points, however, Kendeigh may have been too cautious. His brief discussion of how his results relate to the current puzzle over the declines of many forest-dwelling neotropical migrants seems very superficial, in view of the obvious relevance of his data.

Kendeigh's study areas are isolated stands of forest in an agricultural landscape and so should be of special interest to island zoogeographers who have rarely had such a complete data set with which to play. Many ornithologists will be curious to see how the particular species or group that they study has fared over the past 50 years in Illinois. Others who may make use of the data will be grateful for Kendeigh's foresight and perseverance in compiling such a unique record.—STANLEY A. TEMPLE.

THE BARN OWL. By D. S. Bunn, A. B. Warburton, and R. D. S. Wilson, illus. by Ian Willis. Buteo Books, Vermillion, South Dakota, 1982: 264 pp., 31 photographs plus one color frontispiece, all captioned, 11 numbered text figures, 39 tables. \$32.50.—Of the total number of pages of this book, 6.0% are allotted to introductory material (including a preface), 10.6% to "Description of adaptations," 3.4% to "Voice," 10.2% to "General behaviour," 8.7% to "Food," 16.7% to "Breeding," 6.8% to "Movements," 11.0% to "Factors controlling population, and possible conservation measures," 12.9% to "Distribution in the British Isles," and 5.3% to "Folklore." The remaining 8.4% is made up of three appendices, a list of references, and an index. There is a surprisingly small number of typographical errors and mistakes, and most of these correspond to misspellings of taxonomic entities (e.g., Scarabacidae, Accipiterinae, Charidrifformes, *P. duodecimeostatus*). In the first paragraph on p. 105, a contradiction can be found between the statement in the text and the results referred to in Fig. 6 (p. 106). Table 33 is mistakenly referred to in the text as Table 34 (p. 163), and the reference to the real Table 34 is missing (p. 164). Two instances of antiquated taxonomy are found in Appendix 1 (*Citellus* for *Spermophilus*, and *P. catenifer* for *P. melanoleucus*).

No statistical treatment has been given to the results in any of the tables, and the most sophisticated statistics to be found are percentages, medians, and means (without associated dispersion statistics). A wealth of raw data is spread throughout the book.

On the dust jacket, it is said that this book is “. . . a detailed, balanced account based on intimate knowledge of the Barn Owl in varying habitats in Britain, comparing, as appropriate, this race's behaviour with that of sub-species in other areas of the world.” I agree with the first part of the statement. Throughout most of the book I was impressed with the very detailed account of the several aspects of the behavior of British Barn Owls (*Tyto alba alba*). I found the chapters on voice (#2), general behavior (#3), breeding (#5), and movements (#6) to be the best. Both the introductory chapter (#1) and that on food (#4) are of somewhat lesser quality, though in this latter case I may be biased in my judgement because my own competence is with this aspect of owl biology. Chapter 7 becomes rather amusing when one reads that among the major factors controlling British Barn Owl populations are “Unorganised shooting and game keeping” and “Taxidermy.” In this same chapter several other ecological factors are considered, and on the average it is a very interesting one to read. Chapter 8 deals with population status and historic trends of the Barn Owl in the British Isles, and I think that the overly detailed accounts presented in there (on a county by county basis!) should have not been included in the book because of their mainly local interest. The last chapter (#9) on folklore I found of limited interest and unnecessary. Appendix 2 “Development of young Barn Owl” is very informative, and Appendix 3 “Watching the Barn Owl” gives some interesting hints on conducting behavioral observations of this bird. What I miss the most is a chapter dealing with the ecological place of the British Barn Owl in the context of the local assemblage of owls. The treatment of the Barn Owl in this book is strictly autecological, and knowing that so much has been done on other British owls I would have liked to see a general and summary comparison between them and the subject of this book.

Regarding the promised comparisons of the natural history of *T. alba alba* with that of the other subspecies in the world (see quotation of flap cover above), I must say that they are biased and not very extensive. Most of the comparisons are made to the continental European *T. alba guttata*, and to the North American *T. alba pratincola*. This situation is perfectly reflected in the references listed. Of the 218 titles cited, 51.8% correspond to work done in Britain, 22.5% correspond to North American publications, 19.3% to work done in continental Europe. South America, Africa, and Asia, altogether account for only 6.4% of the references listed. No paper is cited from the good work being done in Australia. In the preface (p. 14) it is said that “Whilst D.S.B. and A.B.W. were searching for subjects to observe, Robert Wilson was combing diligently through the literature for helpful references” Apparently, Wilson did a good job in reading the British and continental European literature (there are references up to 1979 and 1980), but his readings of the North American literature did not keep pace with the local production (the most recent reference is from 1977). I am not thoroughly familiar with the African and Asian Barn Owl studies, but it seems to me that something has to have been done since 1970–1972 (the most recent dates in the bibliography). The only reference cited from South America is dated in 1962, but I am aware of at least two papers published in a major U.S. ornithological journal during 1979–1980, and of one published in 1976 in a European journal. Perhaps these criticisms sound too harsh, considering that the Barn Owl is perhaps the most studied single species of owl in the world, and that there are hundreds of research papers scattered through many obscure journals. However, with the publication of “Working bibliography of owls of the world” by Clark, Smith, and Kelso (1978), ignorance of the relevant literature is not a good excuse anymore.

The main point I wish to make here is that a broad-based comparison of the natural history

of the Barn Owl in different parts of the world is still missing and is badly needed. This book provides a very detailed data baseline on one of the ± 35 Barn Owl subspecies, but unfortunately it runs short of making a thorough comparison with even the other two best known subspecies (*T. a. guttata* and *T. a. pratincola*). A definitive treatment of the Barn Owl on a world basis has not come out yet, but I think that this book is a good and encouraging step toward that aim. It is on this basis that I do not hesitate to recommend it to all researchers working on this bird.—FABIAN M. JAKSIC.

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ORNITHOLOGICAL NEWS

BIRD BANDING RESEARCH GRANTS

The Eastern Bird Banding Association and the Western Bird Banding Association are each offering research grants of \$250 in aid of research using bird banding techniques or bird banding data. Applicants should submit a resume of his or her banding or ornithological background, the project plan, and a budget to the Joint Selection Committee Chairman: *Robert C. Leberman, Powdermill Nature Reserve, Star Route South, Rector, Pennsylvania 15677*. No formal application forms are available, and the amount requested should not exceed \$250. Deadline for applications is 15 March 1984.

HAWK MOUNTAIN RESEARCH AWARD

The Hawk Mountain Sanctuary Association is accepting applications for its fifth annual award for raptor research. To apply for the \$500.00 award, students should submit a description of their research program, a curriculum vita, and two letters of recommendation by 30 September 1983, to James J. Brett, Curator, Hawk Mountain Sanctuary, Route 2, Kempton, Pennsylvania 19529. The Association's Board of Directors will make a final decision late in 1983.

Only students enrolled in a degree-granting institution are eligible. Both undergraduate and graduate students are invited to apply. The award will be granted on the basis of a project's potential to improve understanding of raptor biology and its ultimate relevance to conservation of North American raptor populations.