

much of value was learned. This volume summarizes the results through 1979.

The census method consists of driving a 25-mile route, with a 3-min stop every half-mile. During the 3 min all birds heard and those seen within a quarter-mile are recorded. The selection of the routes and the timing of the survey are prescribed in a rigid set of rules. In the 15 yr reported, over 2,000 runs were conducted. The data obtained have been analyzed in numerous ways, including the production of computer-drawn density maps.

In the introduction the authors discuss the method and analyze some of the errors and biases. They conclude that as long as the method is followed rigorously, and the same people do the counts year after year, most of these biases cancel out in making comparisons. While this is true in the main, the method is strongly slanted toward roadside and edge-inhabiting birds. Witness that the four most abundant species were Red-winged Blackbird (*Agelaius phoeniceus*), House Sparrow (*Passer domesticus*), Common Grackle (*Quisculus quiscula*), and European Starling (*Sturnus vulgaris*). Although the year-to-year comparisons for forest interior species might be valid, the true densities of these species may not be apparent.

The bulk of the text treats the status of 230 species. These data are given as plots of mean birds per route against year, with a trend line superimposed. Separate graphs are given for the eastern, central, and western regions. The text discusses the statistical significance of the plots and divides the data into finer categories, most often the 7 physiographic regions recognized or the 95 "strata," which are subdivisions of the regions. Often the center of distribution is identified. Maps accompany the text to show the densities of relative abundance for 31 species. Four colored maps show the changes in number of birds per route, number of species per route, and diversity across the continent and also give, for comparison, a plot of Christmas Count Data. Finally, there are detailed tables of the mean number of birds per route for each species in each state or province.

The results are mixed. I haven't made a species-by-species count, but my superficial impression is that more species increased over the period covered than decreased. This would appear contrary to common opinion. Range expansions, such as the movement of the Tufted Titmouse (*Parus bicolor*) and the Northern Mockingbird (*Mimus polyglottos*) into New York and New England and, in particular, the rapid and dramatic expansion of the eastern population of the House Finch (*Carpodacus mexicanus*), are vividly apparent. Both the titmouse and the mockingbird showed continental decreases despite the range expansions.

The data show clearly the disappearance of the Loggerhead Shrike (*Lanius ludovicianus*) and Bewick's Wren (*Thryomanes bewickii*) in the east. The effects of the hard winters of the late 1970's are reflected in the data for the Carolina Wren (*Thryothorus ludovicianus*),

the kinglets, and a few other species that winter in the southern United States.

The vireo and warbler populations were all found to be increasing, and this was attributed in the east to the spruce budworm outbreak and the ban on the use of DDT. Recent published work, however, including some by Robbins and his group, has shown that many of these neotropical migrants, particularly those of the forest interior, are declining. Is this contradicted by the BBS data? In reply to my query Chandler Robbins said that the dramatic decreases in the forest-interior birds have come since the 1979 closing date of this report. This may be so, but, as indicated above, I wonder if the BBS results are really reliable for these species. Some of my data indicate that the decline began before 1979, indeed perhaps before the 1965 opening date of this data set.

This minor quibble aside, the report is extremely valuable and anyone interested in populations or range changes will find much food for thought. While this study is intended to serve as a baseline for the future, one can only regret that a similar study was not started 30 years earlier.

The appendices include a copy of the instructions for making the counts, an explanation of the new method used to compute long-term trends, and a 12-page list of the many participants. The attractive cover shows a map showing 7 physiographic regions of the continent and a fine colored drawing of the corvid species characteristic of each.—GEORGE A. HALL.

Nearctic avian migrants in the Neotropics.—J. H. Rappole, E. S. Morton, T. E. Lovejoy, Jr., and J. L. Ruos. 1983. Washington, D.C., U.S. Department of the Interior, Fish and Wildlife Service. vi + 646 pp., 6 figures, 332 black-and-white illustrations (maps). Available from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Paper. No price given.—This publication represents a considerable effort by the authors to summarize existing information on nearctic migrants in the tropics. I believe it represents a major step toward the stated goal of "stimulating research, conservation, management, and policy making efforts that will result in conservation of New World biota in general and nearctic migrants in particular." Functionally, the book is divided into two parts. In the first 100 pages there are an executive summary, introduction, discussion of the ecology and distribution of migrants, outlook for migrants in the face of rapidly changing tropical environments, and research and management recommendations. The remaining 550 pages are a series of 9 appendices, including a list of the species considered, habitat use, food use, distribution maps, status by country, an annotated bibliography, author

index, list of researchers, and a summary (by Byron Swift) of wildlife laws in Latin American countries.

Although the appendices stand as an excellent source of raw data and reference material, my enthusiasm for this work does not extend to the 100 pages of text. After defining a nearctic migrant as a species that breeds, at least in part, north of the Tropic of Cancer and winters south of that line (about half of the 650 bird species that breed in temperate North America are nearctic migrants), the authors try to build a case for the fact that many of these species are in danger—in fact, “endangered” (p. 64). To do this, they argue that the nonbreeding season is important for migrants’ survival, that about a third of all migrants need forests, that forests are disappearing, and that migrant populations are declining. Unfortunately, the crucial nature of the nonbreeding season is based on only six references, none of which provides the kind of data from which such a conclusion could safely be drawn. The statement that a third of all migrants invade forested (vis-à-vis scrub or aquatic) habitats each year is based on the observation that a third of the species use predominantly forested habitats, but the kind of habitat-use information that one would need to determine the relative use of one habitat vs. another is simply unavailable. Finally, the alleged decline in migrant populations rests on the “gut” feelings of a handful of authors and unspecified references from one portion of the bibliography. Whether any migratory species is truly endangered because of tropical land-use practices is far from resolved, but I fear that the casual reader will get the impression that at least a third of the nearctic migrants could be classified as such.

Additional important issues are glossed over much too lightly in the text portion of this book. Most are capped with conclusions that carry more weight than they currently deserve. For example, the three explanations for why some migratory species use early successional habitats are neither exhaustive, nor mutually exclusive, nor tested in a scientific fashion. The authors assign example species to each category, nonetheless. I also had trouble following the logic behind the conclusion that the presence of winter territories indicates that “many migrant populations are limited during such times.” The discussion surrounding food use builds toward the empty conclusion that “Migrants, like residents, function as integral members of the tropical communities that they inhabit.” What, if anything, is a nonintegral or nonfull-fledged member of a community? The syntheses of two additional topics are much too cursory to justify the conclusions that “direct migrant-resident agonistic interactions are of minor importance in the ecology of either group,” or that “the main benefit derived from [mixed-species flocking] is most likely related to predator avoidance.”

Although most of the stated conclusions may be true, I feel that the authors generate an unwarranted air of precision and resolution about many of the issues. In the absence of time or space for truly critical syntheses, the authors might have posed these generalizations as questions in need of more thorough investigation, rather than as conclusions or established fact. Perhaps most regrettably, each of these conclusions appears in the executive summary and will probably be read as fact by many.

The text portion aside, the information in the appendices will prove indispensable to anyone who plans to work with nearctic migrants in the tropics. The list of migrant species seems quite complete, but my search for selected taxa found *Hylocharis leucotis* and *Oporornis tolmiei* to be missing from the list and all subsequent appendices. Because of the scarcity of information on winter habitat and food use, those two appendices represent valuable summaries with only minor gaps in information, as far as I can tell. The range maps are no more detailed than those found in field guides, but each has the added feature of presenting a complete winter range.

The bibliography of more than 3,000 references is clearly the meat of this publication. All facets of nonbreeding biology are included, except for navigation and orientation. About a fourth of the entries are annotated, with notes on the study location, study period, habitats, methods, migrant species involved, topics covered, and number of citations. The references were compiled from a computer search of literature published over the previous 10 yr, combined with perusals of the citations in those papers, the major bird journals, and reprints from researchers in the field. There are taxonomic, geographical, and other conceptual categories, but, unfortunately, cross-referencing is nonexistent. Should you look for Eaton’s paper on Cuban warblers under warblers or Cuba? (It’s under warblers.) Any of several cross-referencing schemes might have improved the utility of the bibliography. The confusion is compounded by 7 pages (433–439) that were bound out of place (should go after p. 479) in the two copies I have seen.

As there seems to be an ever-increasing interest in tropical migrants, and an outlook that the authors describe as dismal for many migrant species, I applaud their attempt to bring together the existing literature on the subject so that attention might become more rapidly focused on important issues. This kind of publication represents a tremendous synthetic effort. My reservations about the text portion of the book notwithstanding, it will prove to be indispensable for students of nearctic migrants, primarily because of the research time that will be saved through use of the appendices, especially the bibliography.—RICHARD L. HUTTO.