



EDITED BY CARL D. MARTI

The following critiques express the opinions of the individual evaluators regarding the strengths, weaknesses, and value of the books they review. As such, the appraisals are subjective assessments and do not necessarily reflect the opinions of the editors or any official policy of the American Ornithologists' Union.

*The Auk* 116(4):1156–1158, 1999

**Tundra Plovers: The Eurasian, Pacific and American Golden Plovers and Grey Plover.**—Ingvar Byrkjedal and D. B. A. Thompson. 1998. T. & A. D. Poyser, London. xxxiii + 422 pp., 1 color plate, 58 black-and-white plates, 129 figures, 16 tables, 14 appendices. ISBN 0-85661-109-3. Cloth, \$39.95.—*Tundra Plovers* is an ambitious and rewarding comparative treatment of the four species in the genus *Pluvialis*. Both authors came to their fascination with tundra plovers through boyhood encounters with the Eurasian Golden-Plover (*P. apricaria*), Ingvar Byrkjedal in Norway, and Des Thompson in Scotland. Over the decades since those initial encounters, they have conducted field work at a variety of sites with all four species, most extensively with the Eurasian Golden-Plover. The book combines a wealth of the authors' original observations, data, and analysis from their own field and museum work with a rich review of the literature and published work of other plover biologists. These are presented in a scholarly fashion, but with frequent narratives of the experiences of the authors that convey the attraction, adventure, and satisfaction of studying these birds. *Tundra Plovers* is authoritatively documented and beautifully illustrated, a combination that recommends it to both the professional ornithologist and the amateur bird enthusiast.

The main text is organized into 14 chapters covering the major topics of taxonomy, plumages, phylogeny, biogeography, breeding distribution and population trends, breeding schedules and social behavior, sex roles and parental behavior, migration, nonbreeding distribution, behavior and ecology, diet, and conservation. Each chapter ends with a brief summary listing the main points of the chapter. An extensive bibliography contains about 1,000 references, including valuable coverage of the Russian literature. Unlike recent North American literature, the authors elected to omit the hyphen from golden-plover, a treatment we also favor.

The structure of the book enhances readability by allowing a continuous narrative seldom interrupted

by details that can be kept in the background. Fourteen appendices are used to provide detailed presentations on plumages, phylogeny (a 20-page paper that includes Godtfred A. Halvorsen as first author with Byrkjedal and Thompson), populations, nest-site habitats, vocalizations, and various other features of tundra plovers. The text contains no footnotes, use of Latin names is minimized, and the 16 tables are removed to a position at the end of the book. Scholars wanting to follow points in detail may wish the tables accompanied the text, but we believe the gain in reading comfort outweighs this need. Tables are positioned at the end of the book, after the appendices and references. This seems a surprising choice at first, because the tables are more closely allied to specific portions of the text than are the appendices, but the result is that flipping pages to find a table is made easier by this location.

*Tundra Plovers* is an extraordinarily attractive book for one so filled with hard ornithological information. The numerous black-and-white photographs of plovers, nests, and tundra habitats help to convey the beauty of these species and the places where they breed. Ingvar Byrkjedal has added numerous pen-and-ink drawings that show plumages and postures in excellent detail, and each chapter is introduced by another of his drawings, along with a quotation appropriate to the chapter's content. The many range maps (which are based partly on information gathered from 4,400 specimens from numerous museums) show not only the breeding and nonbreeding distributions, but also breeding activities and migration timing by date for the entire range of each species.

A book of this scope and detail is not without faults, of course. As noted, the bulk of the authors' field work is with Eurasian Golden-Plovers; their work with American Golden-Plovers (*P. dominica*) and Pacific Golden-Plovers (*P. fulva*) is limited to single-season, single-site studies for each species by Byrkjedal. Because *Tundra Plovers* emphasizes the results of that original work, it sometimes fails to con-

vey the full range of what is known about these species from other regions. Several sections dealing with American and Pacific golden-plovers do not incorporate information from the *Birds of North America* account of these species (O. W. Johnson and P. G. Connors 1996). Examples include no mention of a distinctive flight chase call given by the American Golden-Plover during display and territorial defense on the breeding grounds; a generalization that both American and Pacific golden-plovers breed in vegetation 1.5 cm tall, ignoring information from western Alaska where Pacific Golden-Plovers usually nest in much taller vegetation; and a statement that American and Pacific golden-plovers behave similarly and conspicuously when disturbed at the nest, overlooking the fact that Pacific Golden-Plovers nesting in western Alaska often are much warier than American Golden-Plovers. Other omissions include a description of "the only long-distance ringing recovery" of a Pacific Golden-Plover that ignores three other records, a discussion of juvenal plumages that fails to mention the distinctive juvenal rectrices of Pacific Golden-Plovers, and range maps of American and Pacific golden-plovers that do not show recently discovered breeding grounds in southwestern Alaska.

The text is occasionally confusing, as when a plate showing a plover at a nest allowing close approach by a human is linked to the statement "the virtual absence of shyness to hunters in American Golden-Plovers led to a drastic population decline in their numbers;" the breeding behavior pictured has nothing to do with the described response of birds in migrating flocks. The authors should have pointed out that their autumn migration maps for American and Pacific golden-plovers appear to reflect mostly the movements of juveniles that migrate later than adults. A figure on geographic size variation suggests incorrectly that Pacific Golden-Plovers occur in northeastern Alaska. We wish the authors had avoided the inappropriate use of the term "eclipse" for the appearance of scattered breast feathers in a supplemental molt in golden-plovers during the chick-rearing period. An introductory question "Why does the Pacific Golden Plover . . . occur so sparingly at the western tip of Alaska?" seems inconsistent with the authors' own estimate of 107,000 to 241,000 pairs breeding there.

Certain to be controversial are the surprisingly high global population estimates for each species, which are presented in millions of breeding pairs: Eurasian Golden-Plover, 1.1 to 1.9; American Golden-Plover, 1.0 to 2.5; Pacific Golden-Plover, 1.1 to 2.6; and Black-bellied [Grey] Plover (*P. squatarola*), 1.4 to 3.2. These exceed published estimates by as much as a factor of 20 for the American Golden-Plover! We commend the authors for making these estimates, because they are an important and difficult step in any conservation planning efforts, but we suspect

that the estimates are too high for some of the species. This must surely be the case for the American Golden-Plover; too few birds are reported on the wintering grounds in South America or during spring migration in the central United States to account for such a high figure. It is probably also the case for the Black-bellied Plover; the details of the calculation (the authors list geographic subpopulation estimates) show 73,000 to 166,000 pairs breeding in Alaska. This makes us wonder how we could have missed them; in our own experience of studying other species over 11 summers (PGC) and 6 summers (OWJ) at numerous sites within the mapped breeding areas of Black-bellied Plovers in Alaska, we have encountered fewer than 20 breeding territories!

So what could be the explanation for overly generous estimates? The authors' technique in making the estimates is straightforward, if daunting in practice. Drawing on published data and their own studies, they determine densities for core breeding areas and for marginal areas, construct global maps of the core and marginal breeding areas, and then multiply densities and areas. This method assumes that chosen densities apply over large scales, but it will fail if the densities are not representative. Published densities, of course, usually apply over the relatively small scales of an individual study site. Study sites, as we know, are chosen for a variety of factors, but among the most common is the availability of a high density of birds of the target species. Our own work includes published maps of American and Pacific golden-plover breeding territories in western Alaska that are in the range of the authors' core breeding densities, but we know that vast areas of intervening tundra supported much lower densities than the chosen sites. It is likely that the densities used by the authors for core areas apply only to a fraction of the mapped core areas. But please note that we do not demonstrate the courage to put forth any numbers of our own to substitute for the estimates published in *Tundra Plovers*. The authors' willingness to present these numbers is likely to generate lively discussion among the many biologists involved in shorebird conservation planning and thus will serve as a stimulus to refine our estimates of global population sizes.

*Tundra Plovers* presents some new identification characteristics for separating American and Pacific golden-plovers, traits that surprised us and sent us shuffling through slides to look for the described differences: (1) the short neck and large head of the American compared with the slender neck and smaller head of the Pacific; and (2) the bill, projected backward, reaching well beyond the eye in the Pacific but barely across the eye in the American. These differences had never occurred to us while observing birds in the field, and our slides leave us skeptical that they are too variable to be relied upon, but they certainly have raised our curiosity.

These cautionary comments should not discourage any reader from reaching for this book. Various omissions do not negate the wealth of information presented here in a highly readable form. Much of the information is new, and the comparative approach across all four species adds great value to the single-species treatments. Elaborate appendices and tables summarize a vast array of data, and the bibliography is an outstanding compilation of the literature on the genus *Pluvialis*. The great number of photographic plates and attractive, detailed drawings capture the beauty of the tundra plovers, and the text conveys the excitement and accomplishment of studying them.—PETER G. CONNORS, *Bodega Marine Laboratory, University of California, Bodega Bay, California 94923, USA* AND OSCAR W. JOHNSON, *Biology Department, Montana State University, Bozeman, Montana 59717, USA*.

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**Handbook of the Birds of the World, Volume 4, Sandgrouse to Cuckoos.**—Edited by Josep del Hoyo, Andrew Elliott, and Jordi Sargatal. 1997. Lynx Edicions, Barcelona. 674 pp., 70 color plates, 236 color photos, 837 distribution maps, 13 figures and tables. ISBN 84-87334-22-9. Cloth, \$185.00.—Producing a comprehensive guide covering every known species of bird is a monumental undertaking and one that would be considered a fool's quest by many. Yet, with the publication of this 4th of 12 volumes (with a 5th to be released in July 1999), the editorial team continues to make impressive headway toward this almost unimaginable goal. Fortunately, the sheer magnitude of the task has not caused this team to lose the attention to detail that is needed to make the series a useful tool for scientific investigation. The editorial team also must be credited with another major accomplishment, the production of a work with text of great scientific merit and the aesthetic appeal of the finest coffee-table book. This impressive combination ensures that this series will be a standard reference for scientists and aficionados for decades to come.

Volume 4 covers 837 species, including sandgrouse (Pteroclididae), pigeons (Columbidae), cockatoos (Cacatuidae), parrots (Psittacidae), turacos (Musophagidae), and cuckoos (Cuculidae). The forward by Jürgen Haffer is a comprehensive review of the various species concepts and the difficulties of assigning taxon names to the continuum of forms produced by evolution. The wave of modern molecular studies and new proposals for higher-level avian taxonomy (as well as the current trend toward a broader accep-

tance of the phylogenetic species concept) are also discussed. This section, although a useful review of concepts in its own right, serves predominantly to alert the reader that the authors are aware of the revolution in systematics. It also serves to justify the decisions to take a conservative approach when dealing with larger taxonomic issues and to adhere to the biological species concept in the hopes of maintaining some taxonomic stability and facilitate communication among ornithologists.

The main body of the text comprises chapters dealing with each of the aforementioned bird families and written by experts on each group. These chapters range from 18 pages (turacos) to 60 pages (parrots) and deal with the family as a whole, including a distribution map and sections entitled "Systematics," "Morphological Aspects," "Habitat," "General Habits," "Voice," "Food and Feeding," "Breeding," "Movements," "Relationship with Man," and "Status and Conservation." Each family text concludes with a bibliography that provides a list of references that are cited fully at the end of the book. In these lengthy introductions, each topic is developed and discussed in a qualitative manner, providing an overview that will be useful to the novice and expert alike. The systematics section highlights recent changes within families and historical problems with taxon names. The other sections provide overviews of the natural history of the family. Each is richly embellished with examples, including interesting anecdotes and in-depth case studies, to illustrate the norm and extremes within each family.

The section "Relationship with Man" allows the authors freedom to discuss a wide range of interactions. For the cuckoos and pigeons, quotes from Shakespeare illustrate the influence of these birds on our culture, whereas discussions of the pet trade dominate this section for parrots and cockatoos. The section on conservation gives a general summary of which species are extinct, critically endangered, threatened, etc. The work of the sponsor organization, BirdLife International, figures prominently.

These family texts provide a wealth of detailed information valuable to the scientist and serious aficionados but written in an entertaining style that makes the information accessible to any educated reader. The exceptions to this generally accessible writing style are the systematics sections, which get rather dense as the history of generic divisions is discussed in detail. It seems an unfortunate choice to begin the family accounts with these rather difficult systematic sections while the more generally accessible topics more likely to grab the interest and attention of the lay reader remain buried in the back.

The largest shortcoming of the family introductions, and of the book in general, is the failure to reference the information as it is presented in the text. For example, the Golden Parakeet (*Aratinga guarouba*) is cited as an example of a cooperatively breeding

species, but the lack of citations in the text leaves the reader picking through the 86 references at the end of the parrot introduction to verify the original source for this information.

The most striking feature of the family accounts is the unrivaled content and quality of the photographs. They continuously draw the eye and almost force the reader to turn the page and see what is next. After marveling over their beauty, it becomes obvious that most of the photos serve to illustrate important aspects of the behavior or ecology of the family, providing visual information that nicely complements the text.

Following the family texts are the individual species accounts. Each contains a wealth of information covering a broad range of topics. Names are given in English, Latin, French, German, and Spanish, providing a readily accessible standard for all of these languages. Alternative English names are also given and included in the index, allowing species to be located rapidly by Latin name or a variety of different English names. The taxonomy section gives the reference to the original species description, a brief history of the changes in nomenclature, and whether or not the species is part of a superspecies complex. The distributions of all subspecies and the references to their original descriptions are also provided.

The section "Descriptive Notes" gives the length, body mass (when known), plumage descriptions by sex and age, and a very brief discussion of subspecific variation. For the cuckoos the voice is also described. The plumage descriptions do not indicate which features are diagnostic for the species, limiting the usefulness of this volume as an identification guide (not that anyone would be tempted to carry a set of these oversized tomes into the field). The discussion of subspecific variation receives little attention. For example, this topic for the Eared Dove (*Zenaidura macroura*) is reduced to the statement "races differ in coloration."

Other topics covered in each species account include habitat, food and feeding, breeding, movements, status and conservation, and a bibliography. Egg color and dimensions are presented only for cuckoos. The descriptions are mostly qualitative but frequently are supplemented by quantitative information where available. The breeding section is particularly useful because it contains qualitative descriptions of nest sites and quantitative information on nesting season, clutch size, incubation period, and nestling period (when known). Range maps are presented showing wintering, breeding, and year-round ranges for native species only. Exotic populations are largely ignored.

The information compiled in this volume (and others in the series) should provide extremely useful to ornithologists. For example, the quantitative information including the range maps, measurements, clutch size, incubation period, and nestling

period tempts scientists to investigate the correlations among such traits for the myriad of taxa presented.

The volume contains approximately 7,000 references representing an impressive amount of research. Errors and omissions undoubtedly exist, but from my reading they are few and far between. Unfortunately, as mentioned above, the sources for information in the species accounts are not cited in the text but lumped together in a bibliography section at the end of each species account. This leaves the reader with lists of up to 150 references to pick through in an effort to find the original source for a fact of interest. It is lamentable that the most complete literature review for the birds of the world will not be easily accessible by future generations of ornithologists.

Seventy color plates provide at least one and often two or more illustrations per species. Nearly all illustrations are of perched birds in profile with no background artistry. The uniformity of the positions facilitates easy comparisons among species both within and between plates. This makes the plates useful identification aids, partially making up for the failure of the text to point out diagnostic differences among species. There are no illustrations of open wings, so diagnostic features of flying birds are lost. This is particularly important for parrots and pigeons because members of these groups are often seen as they fly past an observer.

Eighteen artists produced the plates in this volume. The editors acknowledge that this number is more than ideal, but variation in styles is kept to a minimum. All of the plates are drawn in simple field-guide style with no shading. Only among the parrots do differences in artistic styles begin to intrude and detract from the uniformity of the volume. Slight errors can be found (tail of the Yellow-chevroned Parakeet [*Brotogeris chiriri*] and the red of the Red-and-green Macaw [*Ara chloroptera*]), but in general the book provides an aesthetically pleasing and extremely useful collection of illustrations. This usefulness is enhanced by illustrating every extant species.

By combining an extensive literature review, readable text, and vast amounts of both qualitative and quantitative natural history information, this work warrants inclusion in the libraries of every university and serious ornithologist. In addition, the expert illustrations, detailed range maps, and habitat descriptions make it useful for bird watchers whose travels take them beyond the areas covered by conventional field guides. Given that these features are supported by a highly readable text and stunning photographs, I must recommend it to anyone interested in either the beauty of birds or the science of ornithology.—DONALD J. BRIGHTSMITH, *Department of Zoology and Center for Tropical Conservation, Duke University, Durham, North Carolina 27708, USA.*

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**The Handbook of Bird Identification for Europe and the Western Palearctic.**—Mark Beaman and Steve Madge. 1998. Princeton University Press, Princeton, New Jersey. 872 pp. ISBN 0-691-02726-9. Cloth, \$99.50.—This long-awaited identification manual (hereafter *HBI*), has finally appeared, being presented as “the region’s most comprehensive guide ever.” Its main aim has been described as “a detailed, up-to-date guide to the field identification of every species occurring in the western Palearctic, bringing together as much knowledge as possible in a single volume.” Indeed, the volume covers an impressive 872 species in the main text, 505 nonpasserines and 367 passerines (as opposed to 536 and 401 in Snow and Perrins 1998). All species officially recorded through the end of 1996 are fully treated (thus, the Swiss record of a Marbled Murrelet [*Brachyramphus marmoratus*] could not be included, nor are Great Auk [*Pinguinus impennis*] and Passenger Pigeon [*Ectopistes migratorius*]). Furthermore, an appendix briefly mentions 14 recent additions, 6 species awaiting formal acceptance and 50 omitted species of doubtful origin, although only one of these is illustrated. I consider that a major shortcoming for such a pretentious identification handbook.

The main part of the book consists of 525 pages of detailed species accounts, with sections on identification, voice, and status and habitat, supplemented with sex/age and geographic variation if appropriate, and occasionally with information on hybrids, taxonomy, and unusual variants. Additionally, each family has a general introduction applicable to all of its members. It is regrettable, however, that no attention is paid to potential vagrants that have occurred in the past but have now been rejected (e.g. Chestnut-banded Plover [*Charadrius pallidus*] in Israel, Asian Dowitcher [*Limnodromus semipalmatus*] in France, and Lincoln’s Sparrow [*Melospiza lincolni*] in Germany and Sweden), nor to the many known introductions (e.g. parrotbills [*Paradoxornis* spp.] in Italy; Budgerigar [*Melopsittacus undulatus*] in Britain, the Balearics, and Morocco; and Black-rumped Waxbill [*Estrilda troglodytes*] in Spain). Nevertheless, the text is very well written, as would be expected from Beaman and Madge, being brief for common species and extensive for the more difficult. The information accords well with many recent identification papers, although the bibliography is not very helpful in locating these additional sources.

Taxonomy is said to follow Voous (1977), with the deviations mentioned in the introduction, but the authors treat Saunders’s Tern (*Sterna saundersi*; erroneously called Saunders’s Gull on p. 444) as a subspecies of *S. albifrons*, contra Voous (1977) and Snow and

Perrins (1998). Furthermore, several North American names differ from those used in recent AOU checklists, and thus we have *Egretta alba*, *Mergus albellus*, and *Hesperiphona vespertina*.

The 287 full-page color plates are divided into 13 different sections throughout the book and thus are often separated from the matching texts, which requires some habituation but works fine. Additionally, 56 species (mostly last-decade additions) are illustrated individually within the text. The plates have been painted by six artists (Hilary Burn, Martin Elliot, Alan Harris, Peter Hayman, Laurel Tucker, and Dan Zetterström) and range from fair to excellent in catching the main field marks. A further nine detailed illustrations covering the usual look-alikes are added within the species accounts. Altogether, the number of illustrations reaches about 4,300, but for many polytypic (or polymorphic) species only a few forms are illustrated, leaving Fuertaventura Houbara (*Chlamydotis undulata fuertaventurae*), Cape Verde Kestrel (*Falco tinnunculus alexandri* and *F. t. neglectus*), Cape Verde Peregrine Falcon (*F. peregrinus madens*), Canary Islands Blue Tit (*Parus caeruleus teneriffae*), and Eastern Goldfinch (*Carduelis c. major*) unfigured. Furthermore, individual variation, which often is considerable, is not always covered in full, but we find rare plates of dark-morph Gray Partridge (*Perdix perdix*), second-summer Mediterranean Gull (*Larus melanocephalus*), Turkestan Eagle-Owl (*Bubo b. turcomanus*), and six subspecies of Chiffchaff (*Phylloscopus collybita*).

The 639 clear and attractive three-color distribution maps cover about 70% of the species, which should be quite sufficient. The accuracy (and thus reliability), however, is questionable, and therefore they should be used with care (or not at all). Pied Wheatear (*Oenanthe pleschanka*) does breed in eastern Turkey (50 to 1,000 pairs), and the Water Rail (*Rallus aquaticus*) last bred in Iceland 30 years ago. The Common Raven (*Corvus corax*) is quite common in Iceland, and the Curlew Sandpiper (*Calidris ferruginea*) is a regular winter visitor to west Africa and the Canary and Cape Verde Islands. Furthermore, the categories “breeding bird” and “summer visitor” are not differentiated, so that Honey Buzzard (*Pernis apivorus*), for example, appears to be absent from Greece, where it actually is a widespread but scarce summer visitor and passage migrant. In addition, no information is given on arrival and departure dates for migratory species, nor likely months for vagrants, thwarting the planning of the best period for a visit to Europe. And although this publication was never intended to be a definitive distributional handbook (for which one should consult Hagemeijer and Blair 1997), the maps seem to be prepared long ago, fully ignoring the new borders created by the breakup of the U.S.S.R. and other recent splits.

In contrast to the extensive and very useful introduction on morphology, molt and age terminology,

and identification, the appendix is rather brief and would have benefitted from expansion over the last four blank pages. The "Further Reading" section is quite limited, too, but is up to date. The index of English names fortunately also lists American equivalents and both (scientific and English) indexes conveniently point to the plates and text.

Judged as a book, this is indeed a magnificent and beautiful publication that will provide many hours of good reading. As an identification handbook it is incomplete, and I would not trade it for my Snow and Perrins (1998). As a field identification tool, it has two main drawbacks, its large size (17 × 25 × 5 cm and 2,220 g) and its relatively limited information on subspecies and distributional data. Thus, it will find a serious competitor in the various editions of good old Heinzel et al. (1972-1995). Nevertheless, although at a stiff price, it makes a fine standard reference to keep close at hand for everyday use, whether at home or in the field.—OSCAR VAN ROOTSELAAR, *Eekwal 15, 6871 LT Renkum, The Netherlands*.

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**The Birds of Sonora.**—Stephen M. Russell and Gale Monson. 1998. University of Arizona Press, Tucson. 344 pp. ISBN 0-8165-1635-9. Cloth, \$75.00.—The avifauna of Mexico has been the subject of intense interest in ornithological circles in recent years for several reasons. One is the enormous growth of the ornithological community within the country; other reasons include the increased collaboration between Mexican and foreign ornithologists, conservationists, and bird watchers. The picture of geographic distributions of Mexican birds is still incomplete, so the appearance of key publications is always welcome.

State monographs are invaluable sources of detailed information about species and biodiversity patterns for scientists, conservationists, and deci-

sion-makers in the country. A milestone was provided by Binford's excellent monograph on the birds of Oaxaca (*Ornithological Monographs* No. 43, 1989), which resulted from decades of field and museum work. Other recent works have provided valuable information for additional regions, in particular the broad overview of Howell and Webb (Oxford University Press, 1995). For this reason, it is a great pleasure to see the results of more than 30 years of field work in Sonora by Steve Russell and Gale Monson in published form, especially given that the only previous survey of Sonoran birds was that of Van Rossem (Louisiana State University Press, 1945).

The book is fancy, hardcover, and contains beautiful color and black-and-white illustrations of some noteworthy species by Ray Harm. In the introductory section, the authors offer a broad overview of the geographic and ecological features of the state, explicitly intended to be superficial. Some of the information, however, is too superficial to be useful. For example, the map of mountain ranges just indicates major elevations of sierras on a map of rivers, making perception of the complex topography of Sonora very difficult.

The core of the book is the more than 300 pages of species accounts in which the authors detail the distribution of all birds occurring in mainland Sonora based principally on their personal experience and field work. This geographic restriction results in the omission of such important regions as Isla Tiburón and the Sonoran Islands in the Gulf of California. The authors have assembled a great quantity of occurrence records, sight records in particular. Records from scientific collections, however, are not reviewed exhaustively; Russell and Monson included many records from major United States museums, but no records from foreign museums are mentioned. Especially lacking are recent records of specimens in Mexican collections, like the Instituto de Biología of the Universidad Nacional Autónoma de México (to which the authors refer only as a depository of the Mexican share resulting from extensive field trips), the British Museum, and the National Museums of Canada (which hold the majority of Allan R. Phillips' specimens).

A major contribution of the book is the set of detailed distribution maps for each species, with symbols indicating seasonal occurrences. This feature proves very useful in most of the accounts, although maps can become a little confusing when many records and seasonal statuses are included (e.g. *Zenaidra* spp. and *Cardinalis sinuatus*).

My principal criticism is the scope and intended audience of the book. After a careful reading, it was not clear to me if the book was directed at scientists or aficionados. It lacks the full-color illustrations expected of a field guide, so my impression is that it lies somewhere between the two audiences. Species accounts are uneven in depth and sometimes filled

with a great amount of anecdotal information (e.g. *Fregata magnificens*). All the same, the information provided is first-hand, and in most cases it gives an excellent overview about the seasonal, ecological, and geographic status of species. Perhaps what contributes to an overall superficial "feel" of the book is that taxonomy and geographic variation (subspecies) could have been treated in more depth, and associated patterns of distribution and seasonality could have been made clearer. This issue is treated unevenly throughout the book. For example, the Wild Turkey (*Meleagris gallopavo*), Yellow-rumped Warbler (*Dendroica coronata*), and Dark-eyed Junco (*Junco hyemalis*) are treated in depth, but the breeding and migratory populations of the Mourning (*Zenaida macroura*) and White-winged (*Z. asiatica*) doves and the Hooded Oriole (*Icterus cucullatus*) are not. Appendix 2, the gazetteer, details all localities mentioned in the text and others from Van Rossem's monograph that were poorly understood at that time; this section is carefully documented and will be extremely useful for anyone interested in the faunistics, ecology, and conservation of Sonoran birds.

The illustrations by Ray Harm deserve special comment, including three color plates: two parrots on the cover, and a magnificent painting of a Black-throated Magpie-Jay (*Calocitta colliei*) as a frontispiece. The black-and-white drawings inside are well done, giving a correct idea of the birds and their behaviors. However, some illustrations lack the correct proportions of structures. For example, the Heermann's Gull (*Larus heermanni*) is a little bow-headed, and the central rectrices of the Magnificent Frigatebird (*Fregata magnificens*) are a little short. In general, the illustrations of the passerines are excellent.

Besides these minor and moderate drawbacks, I consider *Birds of Sonora* to be a must in any museum or university library that treats Neotropical biodiversity. This sort of publication stimulates development of more detailed understanding of biodiversity patterns and provides an excellent foundation on which future work can be based. I thank A. Townsend Peterson for help in the translation.—ADOLFO G. NAVARRO S., *Museo de Zoología, Facultad de Ciencias, Universidad Nacional Autónoma de México, Apartado Postal 70-399, Mexico D.F. 04510, Mexico.*

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**Migration and Survival of the Birds of Asia.**—H. Elliott McClure. 1998. White Lotus Co., Ltd., Bangkok, Thailand. xi + 472 pp., 96 color plates, several black-and-white photographs, 418 figures (maps, ink drawings), 147 tables. ISBN 974-8434-20-2. Paper,

\$65.00.—This is a comprehensive summary of an extensive banding effort that took place throughout various regions in Asia during the 1960s and early 1970s. The project was a result of an initiative by the United States military and related agencies to investigate possible links between the movements of migratory birds and seasonal outbreaks of various zoonoses (e.g. haematozoa) throughout the Palearctic region, including South Korea, Japan, Okinawa, Hong Kong, Taiwan, The Philippines, Thailand, Malaysia, Singapore, and India. The eight-year Migratory Animal Pathological Survey program was initiated in 1963 in Japan by a U.S. Army colonel and the author (who passed away in 1998; see Memorial in this issue), who used his background in entomology and wildlife management to design and coordinate this ambitious program. The book is divided into three sections. Part 1 provides a brief history of the program's development, a review of the geopolitical problems associated with working in many countries within the region (particularly China), and a brief overview of the region's paleohistory and the development of its major migratory pathways. Part 2 summarizes a report of a meeting that occurred in the project's fifth year. Part 3, the majority of the text, contains extensive species accounts of banding and recovery records and includes numerous tables and maps.

The volume's greatest strength is as a single source for the huge amount and great diversity of data collected over the program period. This book is filled with an impressive amount of data from more than 1,000,000 birds of 720 species in at least 67 families. The data include descriptions of the habitat where the major banding activities occurred, the number of individuals banded and/or recovered, recapture rates, survival rates based on time elapsed between banding and recovery, and maps illustrating movements by individuals based on banding recoveries. Data such as body mass and size, age, and sex were included for some species. However, it is unclear why some species were selected for inclusion in sex and age tables and others were not, particularly because there has always been great interest in differential patterns of migration associated with age and sex.

The book was first published in 1974, and the current edition includes some updated information for a few of the species accounts. Unfortunately, however, the review of the evolution of migration and the general migration terminology have not been updated since the first edition. The author refers to terms used by Lack (*The Natural Regulation of Animal Numbers*, 1954), Emlen (in *Recent Studies in Avian Biology*, 1955), and Urdvady (*Dynamic Zoogeography*, 1969) to describe the biological basis of migratory behavior and the various definitions that were once used to describe spatial and temporal patterns in migratory movements. The terms have become outdated be-

cause we now know much more about movement patterns of birds and the degree of interplay between genetic and environmental components resulting in the expression of migratory behavior. For example, there are no references to the terms used by Peter Berthold and others since the early 1980s to define populations where all of the members migrate from the breeding grounds entirely (annual migrant), or where some members leave while others within the population remain (partial migrant), as formally defined by Terrill and Able (*Auk* 105:205–206, 1988). In addition, the more appropriate and informative terms “obligate” and “facultative” have been widely accepted as best referring to migratory behavior expressed as a result of endogenous factors influencing its onset and duration, and to migratory behavior that is modified in response to exogenous factors such as weather and food availability, respectively. Instead, McClure has retained the rather vague and seemingly useless term “typical migrant” to refer to one whose migratory behavior is “stimulated by some external factors which [activate] the physiological change necessary to bring about migration” and the term “weather migrants” to refer to those whose “movements occur in direct response to improvement or deterioration of environmental conditions.”

Although a need for clearly defined terminology may not seem important to lay readers, this illustrates the weakness of the volume in providing important information to those working in the field of bird migration. On the other hand, although terminology used in the book is outdated, the author does provide, within the species accounts in Part 3, clear definitions of his descriptions of the types of movements that migrants can make. More problematic, perhaps, is that many of the English names or newly revised families have not been updated (e.g. Baikal Teal [*Anas formosa*] is still referred to as the Spectacled Teal), and one may have to do a little extra hunting in the index to find the particular species of interest in the text.

The author provides a speculative (though entertaining) narrative of the paleohistory of continental drift and the influence of these land patterns on the evolution of bird migration. In particular, McClure describes the impact (physical as well as biological) that India made on the development of the region after it broke away from Africa and Antarctica and moved to its present site. Throughout his rather lively narrative, McClure describes the proposed changes in climate and the characteristic flora and fauna of the region throughout the Paleocene to the present. The author refers to India as “hovering off the coast of Asia” prior to the Miocene, but as the continent came “thundering in” it gave greater opportunities for wintering areas for birds already wintering along eastern and southeastern Asia. However, with the “impact” of India came the formation of the Tibetan plateau and the Himalayas, causing the re-

direction of major river basins and presumed migratory pathways for many migrants now forced to winter toward Africa. Although much of what occurred during the periods in question may still be speculative, the writer’s style almost evokes sympathy from the reader for the birds as they seemingly faced these frustrations in seeking viable wintering areas, a chronologically impossible situation in reality but an imaginative description nonetheless.

The strength of the book clearly lies in the huge data base of birds banded during the period. A species index with English and Latin names provides corresponding page numbers where a brief narrative of the natural history and habitat use, the number of birds banded and recovered, and many anecdotes on the behavior of individual birds can be found. McClure often summarizes recovery data within these accounts and frequently raises the question as to whether a particular pattern was indicative of an area being used as a wintering or stopover site. Based on recovery data, McClure also suggests that some areas were under greater hunting pressure than others and that some species were more prone to hunting than others. This is the sort of information that would be useful to those concerned about monitoring population changes of birds in Asia. Certainly, a data base of previous stopover-site usage by these migrants recorded in the 1960s would contribute to uncovering changes in land use and population declines when these data are compared with current patterns. However, in a quick search of Birdlife International’s Asian bird website, I found that the few species accounts of current *Red Data Book* species compiled by Birdlife International for the region that were also listed in McClure’s book contained no reference to the book. One is left to wonder why McClure may have been overlooked by this group, particularly those working on identifying important endemic bird areas in Asia.

Although it is often unclear which banding information has been updated (only three new references were added since the 1974 edition), I found many of the details included in the individual species accounts interesting. For example, McClure discusses the influence of the pet trade on many bird species. Several individuals of different species of weavers were captured and sold at the Sunday Market in Bangkok, only to be found free again by pet dealers and resold at the same market, often three to four times over a period of several years (one wonders what the resale value on pet birds might be!). In addition, some species were bought in large numbers by Buddhist monks and released for “merit,” resulting in the recapture of the same birds on their original roost sites. These birds were also resold in the same market. McClure uses these anecdotes to illustrate the homing ability and site faithfulness of many of these birds, characteristics that may have contributed to their vulnerability in the pet trade. In addi-



tion, these characteristics may also be seen as adaptations that made the birds particularly vulnerable to habitat loss. As McClure predicted throughout his accounts, the pet trade has had a serious influence on bird populations. For example, the once-common Java Sparrow (*Padda oryzivora*) has been a popular target of the pet trade and currently is listed as a species of concern or as endangered in Asia.

The book is coffee-table size. Attractive pen-and-ink drawings of birds are nested within the movement maps of some species, and the 96 color photographs show many banders at work and several of the banding stations. These photos provide the reader with some idea of the terrain and the often-difficult conditions under which the data were collected. On the whole, the pictures of mostly hand-held birds are clear, but some suffer from over exposure or lack of focus. In particular, the photo of the Emerald Dove (*Chalcophaps indica*) does not do justice to its rich, truly emerald color; the green background and poor lighting allow only a hint of its actual beauty. Similarly, the photo of the stunning juvenile male fairy-bluebird (*Irena* spp.) suffers from the same malady in that the rich, deep blue of this bird is lost in the dark background.

In summary, the book potentially will be appealing to two very disparate audiences, but I doubt whether it will fully satisfy either of them. The professional ornithologist interested in the movements of Asia's avifauna will find the review of migratory behavior (Part 1) sadly outdated and of little value. The book does contain, however, important information on movement patterns for a great many birds banded in the 1960s and 1970s (Part 3), and these data would seem to be useful to conservationists today in assessing changes in land use and availability in the region. The lay reader may find McClure's review of migration in Asia interesting and a good introduction to the effect that continental drift has had on the development and distribution of the world's flora and fauna. However, it is difficult to imagine that, after having read the first and second parts, one would settle back with this book and a good glass of wine for an evening's relaxing read.—REBECCA L. HOLBERTON, *Department of Biology, University of Mississippi, University, Mississippi 38677, USA.*

ing group of birds in a single family (Sittidae) and genus (*Sitta*). These birds are common residents throughout Europe, Asia, and North America and are familiar to many people because of their noticeable head-down manner of exploring tree trunks and their frequent visits to feeding stations. With the exception of the Eurasian Nuthatch (*Sitta europaea*), nuthatches are an understudied group. What is known about all nuthatch species you are likely to find in Matthysen's book, although it emphasizes behavior and ecology.

The book contains a single color plate with pictures of four species of nuthatches and has no other color illustrations. Many of the black-and-white drawings in the book are very good. The book also lacks maps of distributions of all nuthatch species. Although this information can be found in Harrap and Quinn (*Chickadees, Tits, Nuthatches, and Treecreepers*, Princeton University Press, 1995), having such maps in the book would have complimented the verbal description of species distributions. However, the real strength of the book lies in detailed descriptions of the behavior and ecology of different nuthatch species.

Of all the nuthatch species, only the Eurasian Nuthatch has been studied more or less thoroughly, and Erik Matthysen has carried out a large share of these studies in Belgium. Not surprisingly, more than half of the book is dedicated to the Eurasian Nuthatch, and the author presents a detailed description of this species' ecology. The author's own detailed data are meticulously summarized together with other published and unpublished studies of the species. Altogether, the description of the Eurasian Nuthatch is very impressive and is the best available for the species.

The book is organized in three parts. Part I presents a good introduction, covering general features of ecology and behavior, distribution, and evolution of species in the genus *Sitta*. This chapter is very useful because it compares many features of all nuthatch species. Part II is the largest part of the book (10 chapters) and provides detailed information on the biology of the Eurasian Nuthatch, covering topics ranging from taxonomy and morphology to foraging behavior, population dynamics, and the effects of forest fragmentation on populations. Part III deals with the rest of the world's nuthatches. It contains four chapters dealing with the Mediterranean nuthatches, rock nuthatches, Oriental nuthatches, and New World nuthatches, respectively. The chapter on Mediterranean nuthatches describes four species, with main topics ranging from morphology and phylogeny to vocalizations and breeding biology. Little is known about these species, but everything available is presented here. The chapter on rock nuthatches also covers a wide range of topics, from distribution and habitats to foraging and breeding biology. The chapter on Oriental nuthatches has the

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**The Nuthatches.**—Erik Matthysen. 1998. T. & A. D. Poyser, London. xx + 315 pp., 29 tables, 1 color plate, 17 black-and-white photographs, 103 figures, numerous black-and-white sketches. ISBN 0-85661-101-8. Cloth, \$39.95.—Nuthatches represent an interest-

least amount of information because these species are so poorly known. Nevertheless, available information on all of these species expands our understanding of these interesting birds. The chapter on New World nuthatches describes the four species living in North America. Data on these species are also quite sketchy, and only a few detailed long-term studies have been conducted. This is surprising considering that some North American species (e.g. White-breasted Nuthatch [*S. carolinensis*]) are very common, and North America does not seem to suffer from a lack of ornithologists.

Six appendices summarize important information such as diagnostic traits of the 24 nuthatch species, sex- and age-related morphological variation in the Eurasian Nuthatch, population densities, and a life table for the Eurasian Nuthatch. The list of references at the end of the book is impressive and very helpful, providing a perfect collection of up-to-date references for all nuthatch studies.

Overall, I found the book extremely well written and informative. If you cannot find a piece of information about a nuthatch species in this book, the chances are that the information simply is not available. I recommend this book highly to anyone interested in avian ecology. Anyone interested in territorial behavior and territory establishment, food hoarding, song, breeding biology, dispersal and migration, population dynamics, and the effect of forest fragmentation on birds would find relevant information on these topics. Certainly, anybody interested in nuthatches will find this book to be an invaluable source of information.—VLADIMIR V. PRAVOSUDOV, *Section of Neurobiology, Physiology, and Behavior, University of California, One Shields Avenue, Davis, California 95616, USA.*

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**Starlings and Mynas.**—Chris Feare and Adrian Craig, with illustrations by Barry Croucher, Chris Shields, and Kamol Komolphalin. 1999. Princeton University Press, Princeton, New Jersey. 285 pp., 32 color plates, 113 maps. ISBN 0-691-00496-X. Cloth, \$39.50.—This book is another offering in a popular (and successful) formula: pick a taxonomic group of birds and then compile illustrations, range information, and natural history in a field-guide format. The book covers the identification, behavior, and ecology of the 114 species of starlings, mynas, and ospreys in a predominantly African and Asian family. Although many avian families exhibit a large degree of diversity, this is especially true of the Stur-

nidae, including abundant, widespread, well-known species (European Starling [*Sturnus vulgaris*]) and those that are poorly studied, rare, and endemic (e.g. some *Aplonis* species).

Introductory notes include helpful synopses of each genus, current hypotheses on phylogeny for some genera, and a survey of the varied relationships between starlings and humans. Several pages are devoted to a general description of molt, with some particular references to starlings. The illustrations, careful, field-guide-style paintings, cover most plumages. Adults are well represented, and many plates also illustrate juveniles if markedly different from adults. Flight illustrations are included for about one-third of the species. Many species of starlings represent a real challenge for artists due to their iridescent plumage, but the results generally are impressive. Three artists contributed to this work, making the plates a little uneven in quality. Some of the illustrations, including those of glossy starlings and hill mynas, are excellent, whereas others are merely very good. Distribution maps for each species are included with the color illustrations. The maps are clear in most cases, despite their small size; a few of the maps, especially of the South Pacific islands, are marred by a lack of clear range depictions and geographic reference points. Text notes offer additional clarity and detail.

The text accounts also follow a standard pattern with notes on identification, distribution, habitat, feeding, migration, breeding, and behavior. Widespread and well-known species are covered in five or six pages, but most species are treated in a page or two. I appreciated the attention to natural history detail and the historical context provided with the notes on distribution and interactions with humans. The authors have cast a wide net, and include references from a great variety of sources. The 22 pages of references provide a convenient entry into the literature on each species. The index provides the same information as the table of contents, including only Latin and English name of starlings and mynas.

For those interested solely in North American species, this book offers little new. Two species of sturnids (European Starling and Crested Myna [*Acridotheres cristatellus*]) have been introduced to North America. The accounts for these species include information gleaned from North American studies but are based predominantly on studies done in their native ranges.

*Starlings and Mynas* will make an excellent addition to reference collections on birds of the world. The authors' intentions are successfully realized, because the book was never intended as a field guide. The accessible and well-proven format, in conjunction with a reasonable price, will also prove tempting for avian aficionados with a bent for well-stocked home libraries.—PAUL R. CABE, *Biology Department, St. Olaf College, Northfield, Minnesota 55057, USA.*