

## **The Origin and Evolution of Birds, 2nd Edition**

Author: Bock, Walter J.

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EDITED BY REBECCA L. HOLBERTON

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**The Origin and Evolution of Birds, 2nd Edition.**—Alan Feduccia. 1999. Yale University Press, New Haven, Connecticut. x + 466 pp., numerous text figures. ISBN 0-300-07861-1. Paper, \$29.95—This is the second and paperback edition of Alan Feduccia's outstanding coverage of the origin and evolution of birds (see *Auk* 114:531–534 for my review of the original 1997 edition). This edition contains some definite improvements, including being printed on better paper with a substantial increase in the quality of the illustrations and a lower cost that places this volume within reach of most ornithologists. Aside from a new final chapter entitled "*T. rex* was no Four-Ton Roadrunner and Other Revelations," and the additional citations that are integrated in the references, the material in this edition is the same as the first edition.

*The Origin and Evolution of Birds* is still by far the best treatment of the subject that is currently available. In the new final chapter, Feduccia discusses clearly and comprehensively the ongoing controversy surrounding avian and some dinosaur Mesozoic fossils, the occurrence of feathers in nonavian groups, and the origin of birds either from dinosaurs or from some other group within the archosaurian reptiles. Again, his treatment of this controversy is reasonable, especially within the constraints of the currently available information about these fossils. The problems in dealing with this material are enormous, and I have great admiration for Feduccia's ability and patience to delve through the burgeoning literature on these subjects, and especially for his skill in separating fact from fiction.

An example of the problems in this latter area is the recent article by C. P. Sloan, "Feathers for *T. rex*," that appeared in the November 1999 issue of *National Geographic*. The article featured a new fossil discovery from the Cretaceous of China named *Archaeoraptor*. This fossil was hailed as a feathered dinosaur and as further proof that many dinosaurs possessed feathers and that birds evolved from dinosaurs. Unfortunately, however, when this specimen was ex-

amined more closely by Chinese paleontologists, it was found to be a composite fossil consisting of the body of a bird and the tail of a dromaeosaurid dinosaur; it was put together by a clever Chinese farmer on whose land the fossils were found and who realized that a complete fossil was more valuable than its parts. The farmer had completely fooled those scientists who saw just what they wanted to see: a feathered dinosaur. This case is rather typical of the confusion being generated in both the scientific and lay journals to publish in haste on newly discovered fossils.

Equally important to consider is that most of the avian and other Mesozoic fossils pertinent to understanding the origin and early evolution of birds have not been sufficiently prepared, described, and analyzed. We have been most fortunate in the large number of spectacular new avian fossils discovered over the past two decades, but most of these specimens are known only by their names and the barest of descriptions. The best-known early avian fossil is still *Archaeopteryx*, which many avian paleontologists now believe to be a member of the Sauriurae and closely related to the Enantiornithes—the opposite birds—and not part of the other large group of birds—the Ornithurae—which gave rise to modern birds. Thus, *Archaeopteryx*, even though it is the best-known early avian taxon, appears to be off the main lineage leading to the large surviving radiation of birds and thus would be of less importance to our understanding of the evolution of birds. What is now needed is much preparatory work and careful description of the available fossil specimens, and then analysis and comparison of the characteristics of these taxa.

*The Origin and Evolution of Birds* is the outstanding treatment of what is now known about this subject, but much more remains to be learned. Hopefully, the necessary preparation and description of these Mesozoic fossils will be done without further delay so that we can look forward, perhaps in a decade, to a new edition of this book that will provide a much

better account of avian evolutionary history. Until then, I can recommend the current edition of Feduccia's book without hesitation to all ornithologists and others interested in the origin and evolutionary history of birds.—WALTER J. BOCK, *Department of Biological Sciences, Columbia University, 1200 Amsterdam Avenue, Mail Box 5521, New York, New York 10027, USA.*

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**The Giant Canada Goose, Revised Edition.**—Harold C. Hanson. 1997. Southern Illinois University Press, Carbondale. xxvi + 252 pp., 78 black-and-white plates, 31 tables, 21 figures. ISBN 0-521-63326-5. Cloth, \$29.95.—The first edition of *The Giant Canada Goose*, published in 1965, was a classic monograph spanning topics such as the rediscovery of this subspecies (once thought extinct) to its current annual changes in body composition and its nutrition. As acknowledged in the preface, the revised edition reproduces the first edition in its entirety and adds three appendices, the only new material in the book. However, the world has changed considerably in the last 35 years, and readers of the revised edition who might be expecting current material will find this text to be out-of-date. Nevertheless, for readers that have not read the original edition, the revised edition provides an interesting view into the world of zoology in the mid-1960s. Because the original edition makes up more than 90% of the revised edition, in this review I describe the original edition plus the new material.

The revised *Giant Canada Goose* consists of 15 chapters and three appendices. Chapter 1 is a delightful history of the rediscovery of the Giant Canada Goose, *Branta canadensis maxima*, which was thought to be extinct in the first half of the 20th century. Hanson includes excerpts from numerous letters between scientists (including Grinnell), amateur goose enthusiasts, and federal and state biologists from 1922 to 1940. Correspondence from Alexander Wetmore and Ira Gabrielson is also reproduced in this chapter. The letters provide an engaging view of a time when the most prominent ornithologists were also involved in applied questions of interest to the general public. Of course, except for museums, ornithological research was supported only if it had a directly applied nature. Today's scientists could, nevertheless, learn from the interactions among these different groups who had an interest in Canada Geese.

In Chapter 2, the author analyzes physical characteristics of *B. c. maxima* and related subspecies, including *B. c. canadensis*, *B. c. interior*, and *B. c. mollitti*.

This chapter contains data available in 1965 on morphological measurements of geese shot by hunters or collected for scientific purposes. Several extensive tables include these data which, in some cases, have been analyzed little beyond the raw state. For those interested in reanalyzing data for comparative purposes, however, this and other chapters provide a rich source of data. This chapter also contains comparisons of plumage characteristics for the large subspecies of Canada Geese. Hanson describes several features of Giant Canada Geese plumage, including the high incidence of white neck rings and white forehead patches. In this chapter, however, Hanson reveals the circular reasoning that has plagued his hypotheses for the past two decades: despite pointing out in the next chapter that the range of *B. c. maxima* is defined primarily by the prairie biome, he indicates that a population of Canada Geese nesting in western Idaho may be *maxima* based on their size. Although it is easy to criticize a text written in the early 1960s, Hanson has not modified his view that variation in size and plumage is primarily genetically determined despite much evidence to the contrary (Van Wagner and Baker 1990).

In Chapter 3, which describes the historic breeding range of *maxima*, Hanson argues that *maxima* was primarily a bird of the midcontinental prairies whose range extended into deciduous forest east of the prairies and the areas surrounding the Great Lakes. Generally, Hanson's account is an interesting compilation of historical records except for the odd hypothesis that the large Canada Geese in western Idaho were *maxima*. The suggestion that the geese in western Idaho, far removed from other purported Giant Canada Geese, were *maxima* is based on morphology. Hanson's reasoning here is circular and ignores much more recent work demonstrating (1) substantial genetic differences among Canada Goose subspecies (Shields and Wilson 1987, Van Wagner and Baker 1990), and (2) the significant role that environmental factors play in determining morphology (Aubin et al. 1993, Leafloor et al. 1998, Sedinger et al. 1998). A lot of wonderful historical information occurs in this chapter, but Hanson's failure to come to terms with much research over the past two decades diminishes the value of some of his conclusions in this chapter.

Chapters 4 and 5 cover the periods of migration and the wintering grounds, respectively. Hanson uses captures and recoveries of banded geese to establish relationships between breeding and molting areas or wintering areas. In Chapters 6 and 7, Hanson describes goose nesting, growth, and development, and in Chapter 8, he describes plumage and morphological characteristics of the sex and age classes.

In Chapter 9, Hanson describes the foods and feeding habits of geese. Limited data existed at the time Hanson originally wrote this chapter in which

he hypothesized that Giant Canada Geese ate primarily seeds, even during brood rearing. More recent studies have found that goslings require relatively high concentrations of protein to support high growth rates (Sedinger and Flint 1991). Thus, the observations that they eat primarily seeds require confirmation. Chapter 10 is short (four pages) and is a review of what was known about endoparasites in the 1960s.

In the next three chapters, Physiology (Chapter 11), Behavior (Chapter 12), and Productivity and Regulation of Populations (Chapter 13), Hanson applies 1960s principles to biology of Giant Canada Geese. These chapters are indicative of the closer linkage between applied and basic biology in the 1960s than exists today. They also show Hanson's broad interests and expertise. Hanson's ideas about cycles of mass and body composition presented here and in his earlier publication (1962) were revolutionary, laying the groundwork for modern studies of nutrient dynamics (Alisauskas and Ankney 1992). Nevertheless, some material in Chapter 11 is outdated. For example, Hanson proposed that amino acids are metabolized during fasting to provide substrates for lipid metabolism, but Cherel et al. (1988) have more recently shown that birds are able to conserve protein until the late stages of a fast.

The chapter on productivity and regulation of populations contains state-of-the-art thinking and methods for the 1960s. Hanson discussed age-specific variation in clutch size and nesting success. He was aware of the presence of nonbreeding females in the population as well as the importance of nonbreeding individuals in population dynamics. Hanson also discussed the analysis of band-recovery data using the composite-dynamic life table approach introduced in the 1950s. Modern capture-recapture approaches have since been developed for many of the analyses presented by Hanson. Although it is easy to criticize 35-year-old analyses, it is important to recognize the contribution made by Hanson in *The Giant Canada Goose*. However, it is also important for readers to recognize that the importance of the revised edition is primarily historical because analyses have not been updated.

The last two chapters, Management (Chapter 14) and Discussion (Chapter 15), are short and draw on data and analyses presented earlier to discuss conservation of Giant Canada Geese. They serve to reaffirm Hanson's hypothesis that large stocks of geese breeding in the mid-continent in the 1960s were descendants of *B. c. maxima*.

Three appendices complete the book. Appendix I provides an update on taxonomic and distributional interpretations based on data collated since the original book. Unfortunately, this appendix depends on Hanson's view that morphological variation is sufficient to differentiate breeding stocks of Canada Geese. Again, Hanson's approach ignores the tre-

mendous advances made using genetic data and the large literature demonstrating substantial environmental control over morphology. I believe that some of the distinct breeding units identified by Hanson in this appendix will be substantiated by genetic data, but others will not.

Appendix II displays a different graphical approach to presenting morphological data. Sample sizes are small, and this appendix offers little that is new. Appendix III presents a small data set using feather mineral profiles to characterize breeding locations of birds captured in winter. Hanson first presented this method in the 1970s (Hanson and Jones 1976). Although this approach is intriguing, we cannot fully evaluate its potential because matches between feather mineral profiles from birds sampled on the breeding and wintering grounds are done in an ad hoc manner. No account is made for variation as a result of sampling alone; rather, high concentrations of a single mineral in the feathers is taken as evidence for a particular breeding location. The data are inherently multivariate, making multivariate evaluation methods more appropriate.

In summary, Hanson made an important contribution when he wrote the first edition of *The Giant Canada Goose*. Those who do not own a copy of the original edition should consider purchasing the revised edition. Those looking for new information in the revised edition, however, will not find it there.—JAMES S. SEDINGER, *Institute of Arctic Biology and Department of Biology and Wildlife, University of Alaska Fairbanks, Fairbanks, Alaska 99775, USA.*

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**Birds of Bolivia, 2.0.**—Sjoerd Mayer. 2000. CD-ROM for Windows 95 and higher. Bird Songs International B.V., Wierengastrat 42, NL-9969 PD Westernieland, The Netherlands. ISBN 90-75838-04-2. Ca. \$52.00.—South America may be the “Bird Continent,” but learning how to identify South American birds remains a tough slog. Knowledge of voice is critical to identification, but voice is difficult to describe in a field guide. The commercial recordings of Bill Hardy and of John Moore and associates have gone a long way toward meeting this demand, but many gaps remain. One of the more glaring such gaps has been Bolivia, a country with immense diversity in topography, habitats, and birds (more than 1,300 species recorded).

In 1996, Sjoerd Mayer released a CD-ROM, *Bird Sounds of Bolivia* 1.0, that contained vocalizations from more 500 Bolivian species (see *Auk* 115:819–820, 1998). The present disk is a greatly expanded version of the earlier product. The number of sounds has been increased to 2,530 recordings from 941 species (and about 19 hours of sound!). A new feature is the addition of photographs (see below). Therefore, an extraordinary amount of new information is included in the revised edition.

The CD-ROM is easy to install (with the option of choosing English or Spanish), and the programs are easy to operate. Clicking on the variety of symbols and underlined text brings up lists of included families or species, photographs or recordings, details on the location of the recording or photo, and additional information.

To me, the most important feature of the disk remains the sound recordings. These selections usually are long, often 30 or 40 seconds, and sometimes longer than a minute. Another nice feature is that

there usually are two or more recordings for each species, thus providing many more examples of each species' vocalizations than is standard in other cassette or compact disk compilations. Each recording is identified as to vocal type (usually song or call, sometimes other variations such as alarm calls). Each vocalization also is rated as to quality (“A” through “E”). “A” recordings usually are quite good, with the subject coming through loud and clear with few interfering noises. Many “B” and even “C” cuts are quite good as well. “D” cuts are very few, but based on the one that I listened to (the song of *Xiphorhynchus spixii*), these probably do not merit inclusion at all, with the target sound buried in the background. I noticed no “E” cuts at all, and I suspect that recordings of quality “D” and “E” primarily are associated with background sounds (perhaps exclusively so for “E”). Many of the recordings are by Mayer, but he has rounded out the selection with cuts from many other contributors. That Mayer has been able to assemble the range of vocalizations presented here without falling back on an established sound archive says a great deal about the volume of tape-recorded material that has been accumulated in recent years by active field workers. We can only hope that all of these recordings eventually are added to an existing collection.

These recordings do a good job of covering the taxonomic and geographic diversity of the avifauna of Bolivia. Suboscines are particularly well represented, with vocalizations of more than 350 (!) species of ovenbirds, antbirds, tyrant flycatchers, and the like. Included on the disk are a good number of rare or poorly known Bolivian endemics such as Bolivian Earthcreeper (*Upucerthia harterti*), the recently described Bolivian Spinetail (*Cranioleuca henricae*), Yungas Antwren (*Myrmotherula grisea*), Bolivian Blackbird (*Oreopsar bolivianus*), and Citron-headed Yellow-Finch (*Sicalis luteocephala*). Other recordings of particular interest are those that document the first and second records, respectively, for Bolivia of Rufous-fronted Antthrush (*Formicarius rufifrons*) and Red-billed Tyrannulet (*Zimmerius cinereicapillus*). A particular treat in these recordings is that all background sounds are identified as well (and even assigned a quality rating). In a departure from most compilations of bird sounds, some vocalizations of uncertain or unknown identification are presented. Proposed identifications to some of these, in turn, already have been posted on the Internet <[www.birdsongs.nl/Bolivia/solutions.htm](http://www.birdsongs.nl/Bolivia/solutions.htm)>.

A good deal of supplemental information accompanies each recording. The date and often the time of day are given for most recordings. And, not only is the location of each recording provided (with the elevation), but one can call up a map that shows the location of the site, along with brief notes on the habitat(s) present and its geographic coordinates.

The disk contains almost 1,400 photographs, rep-



resenting more than 750 species. The subjects of the photographs (taken by a variety of photographers, Jon Hornbuckle foremost among them) include both birds in the hand and free-ranging birds. The photographs show the usual variation in quality, ranging from well-lit, close-range, spectacular images (e.g. Sunbittern [*Eurypyga helias*]) to dark or backlit selections that may serve little purpose (e.g. Yellow-billed Nunbird [*Monasa flavirostris*]). As with the sound recordings, for most (but not all) of the photographs one can call up a map that highlights the location where the photograph was taken. A surprise is the inclusion of photographs of more than 100 species that have not been recorded in Bolivia. A few of these are known to range to the very borders of Bolivia, so their inclusion here seems reasonable (e.g. Ornate Flycatcher [*Myiobittacus ornatus*], Chestnut-capped Brush-Finch [*Buarremon brunneinuchus*]). Most of the extralimital species shown in the photographs, however, do not occur within hundreds of kilometers of Bolivia; that said, this set includes some of the most arresting photographs on the disk, such as a male Marvelous Spatuletail [*Loddigesia mirabilis*] in flight. For any users who are seriously offended by the inclusion of these photographs, there is an option that will "hide" from view the names of these species.

The disk has two other interesting features. A program that presents a succession of sounds, slides, or slides and sounds in conjunction can be used as a test of one's identification skills or as review (or simply as a treat). In addition, one can open several windows at the same time, which is useful in facilitating comparisons between the sounds or photographs of different species.

The reviewer of the first edition of this disk wrote, "my biggest criticism is that I want more." Mayer rose to the challenge and has provided much more: more songs, more photographs, the works. Although this may not seem fair to Mayer, it remains the case that "my biggest criticism is that I want more." For example, perhaps at least some of the site descriptions could be supplemented with photographs of the habitat(s) present; maps, even crude maps, of the distribution of each species within Bolivia could be presented; and the photographs could be supplemented with a little bit of text, perhaps something to call attention to field marks.

These suggestions should take nothing away from my favorable impressions of what Mayer has created: an important tool for anyone interested in the vocalizations, field identification, and distribution of Neotropical birds. Everyone, regardless of level of expertise, will learn something from this disk, and most users will find it a very handy learning tool indeed.—THOMAS S. SCHULENBERG, *Environmental and Conservation Programs, Field Museum of Natural History, Chicago, Illinois 60605, USA.*

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**Where to Watch Birds in Australasia and Oceania.**—Nigel Wheatley. 1998. Princeton University Press, Princeton, New Jersey. 448 pp., 90 maps, 50 line drawings. ISBN 0-691-00231-2. Cloth, \$35.00.—Back in 1981, Peter Alden and John Gooders authored a book entitled *Where to Watch Birds Around the World*. It introduced the globetrotting field ornithologist to 111 sites and included hand-drawn maps and bird lists for each locale. It certainly wetted my appetite for birding travel, but I understand that the book was not a commercial success; perhaps it was published too soon. Prior to the early 1980s, travel in many emerging nations was very difficult; the Cold War precluded visits to some areas, and some of the greatest birds in the world were completely inaccessible or so rare that nobody knew how a visiting observer could find them. Included in the list of "hopeless" birds at this time were such spectacular prizes as the Takahe (*Porphyrio mantelli*) of New Zealand, the Plains-wanderer (*Pedionomus torquatus*) of interior Australia, Wilson's Bird of Paradise (*Cicinnurus respublica*) of western New Guinea, and the mysterious Kagu (*Rhynochetos jubatus*) of New Caledonia. Alden and Gooders' book had directions to none of these species, and only the Kagu was mentioned (their New Caledonia account stated that one of the authors had seen a Kagu 15 years before on Mt. Koghi, and they expressed the hope that it "may still survive").

Now, almost 20 years later, Nigel Wheatley's book—the fourth in a series designed to cover the entire globe—tells you exactly how to find each of these wonderful birds. I've been lucky enough to have seen all of them within the last decade. I located them through study of travel reports from other bird-watchers, much correspondence, and arrangements with local guides and experts. Wheatley has obviously done the hours of preparation necessary and has packaged that information together in a very accessible format. The book covers all of Australasia and Oceania, north to Guam and Hawaii, east to the Pitcairn Islands, and south to Antarctica. In total, more than 160 sites are covered in some detail. (Avifaunally, Halmahera and the Moluccas should also have been in this book, but they appear in Wheatley's Asia book; this is a minor quibble.)

Each country, archipelago, or major island is introduced by summaries of the rewards and challenges of visiting that locale, followed by individual site details that focus on the endemic and specialty birds. Unlike Alden and Gooders' book, space is not wasted on columns of lists of common species. Instead, bird lists are written in paragraph style, and the entire

approach is aimed at steering the traveler to the rare and spectacular birds he or she hopes to find.

A breezy British "can-do" attitude permeates the entire project. Of Irian Jaya, Wheatley writes that "seeing the best birds in what is one of the wildest places left on earth involves overcoming time-consuming logistical problems such as organising guides, porters, supplies and boat for what amounts to expensive mini-expeditions, and tackling some very tough trails, many of which are steep and muddy. Such problems are surmountable, however, and the rewards, which include MacGregor's and Wilson's birds-of-paradise, are out of this world." Thus, obstacles are there to be overcome, birds there to be seen, and successes finished off with "the appropriate celebration of another great day in the field."

I've done these mini-expeditions, and, yes, the "problems are surmountable," but Wheatley's advice does not adequately express the level of difficulty involved in Irian Jaya, even when it is open to western tourists (it is currently closed due to political unrest). Getting to Batanta Island where the Wilson's Bird of Paradise resides is hard enough (the longboats that must be organized to take observers there travel for two to four hours in rough seas while one is packed below in fume-filled bottom carriage; survival should the top-heavy craft capsize is problematic), but if one survived, the text would get one to the basic "hut-on-stilts" where camps can be established. The Wilson's Bird of Paradise display grounds is said to be "one to two hours up... a steep trail" where a "viewing screen" has been erected. Well, yes and no. A blind does exist up a very, very steep and muddy trail. For me, middle-aged and out of shape, the trail up took three hours, and the bird was not coming to the "usual" site. No one in our party saw the Wilson's on the first try, and by the next day several of us were just not physically able to go back up for another effort. Fortunately, we had great local guides who found another male and built another viewing screen on the spot with native reeds and leaves (male Wilson's Birds of Paradise will not visit their display sites if they detect your presence). Some of us had an "out-of-this-world" experience, but the effort was much more difficult than the book suggests, and finding the bird was much harder than Wheatley indicates.

Indeed, at site after site that I reviewed in the text, Wheatley underestimates the difficulty of finding the prized species. For example, Wheatley lists six "rare and spectacular birds" that are possible at Baiyer River Wildlife Sanctuary in Papua New Guinea (a site presently inaccessible due to safety concerns). In several days of heavy-duty birding back in 1983 when it was open and safe, my colleagues and I saw only one-and-a-half of the six species Wheatley mentions (the "half" was the hind-end of a Dwarf Casowary [*Casuarius bennetti*] running away into the forest). Birds are just not easy to find in New Guinea.

An "expectations" section is given for each country and site; having visited almost all of the Irian Jaya locales, the "expectations" listed were unrealistically optimistic, both in the number of species to be found during a short visit, and in the chances for the specialties. However, I very much approve of Wheatley's cautious approach to safety issues in Papua New Guinea, and this book provides the necessary warnings for travel to this area and the useful tips needed to make one's visit safe.

An enormous amount of very useful information is packed into these pages. The hand-drawn maps are very helpful, and the lists of contacts in many places are invaluable (Phil Maher for Plains-wanderer, or details on getting out to Tiritiri Matangi Island off North Island, New Zealand, for Takahe, Saddleback [*Philesturnus carunculatus*], Stitchbird [*Notiomystis cincta*], and others). Wheatley warns early on that sites and access directions are constantly changing, and that the book's purpose is meant as a first point of reference for the traveling birdwatcher to be supplemented later by updated trip reports and local contacts.

These caveats certainly applied to a recent visit to the island of New Caledonia in search of the Kagu, a bird brought back from the edge of extinction by the work of Yves Letocart and colleagues that studied its biology, by the removal of nonnative predators, and by captive breeding (I was surprised to find no reference to Yves or his work in the book). *Where to Watch Birds* was published late in 1998; it says one needed a permit in advance to visit the Parc Provincial de la Riviere Bleue and a local guide to see the Kagu. Neither was true by January 1999, however, when I visited the park. One simply paid the entrance fee as one drove in (just like any American national park), and the Kagu was located without assistance at various places in the park, including the parking lot for the giant Kaori tree that is mentioned in Wheatley's text. The park can be crowded on weekends (mentioned in the text) but is closed on Mondays (not mentioned); visitors may camp (mentioned), but the park is an easy hour's drive from Noumea on good roads (not mentioned). Local observers told me that the site for New Caledonian Grassbirds (*Megalurulus mariei*) on Mt. Koghi no longer hosts this species (Wheatley's text heavily emphasizes this site for the grassbird). So, this book fills exactly its intended role: a great starting point that should be supplemented by updated information. It will become more and more outdated with the passage of time, but I believe the overall information will be useful for decades.

Australia and New Zealand take up a large portion of the text. Details for the sites I've visited generally were quite good, but they were not without minor problems or omissions. On the Atherton Tablelands in northeastern Australia, *Where to Watch Birds* directs one to fine birding and lodging at Kingfisher

Caravan Park (located in a remnant patch of forest that still hosts breeding Buff-breasted Paradise-Kingfishers [*Tanysiptera sylvia*] in the austral summer), but it omits the better birding and chance for a wild Southern Cassowary (*Casuaris casuaris*) at nearby Cassowary House, a bed-and-breakfast operated by expert local birders. To be sure, Cassowary House is more expensive, but the chance for a cassowary and birding in virgin forest may be worth the price for some travelers (their web site is <www.cassowary-house.com.au>). Wheatley's text is perhaps too narrowly aimed at the "independent budget birder," as he addresses his audience.

By far the weakest link is the bibliography. Alden and Gooders' book had a fine selection of literature, but this new effort has barely 1.5 pages. Although admitting that it is meant only as an initial "guiding light," *Where to Watch Birds* omits numerous more-focused spotlights found in the specialized bird-finding guides. Not everything is available in individual trip reports or on the web; at a minimum, the bibliography should have included references such as Wieneke's (1995) *Where to Find Birds in Northeast Queensland* and Chambers' (1989) *Birds of New Zealand, Locality Guide*. The short list of "useful books" fails to mention such crucial texts for New Guinea as Coates' two-volume (1985, 1990) *The Birds of Papua New Guinea*, or such resources as Beehler's (1978) *Upland Birds of Northeastern New Guinea* and Diamond's (1972) *Avifauna of the Eastern Highland of New Guinea*. The listing of "family" books omits the marvelous monograph on fairy-wrens by Schodde (1982) and the classic books on birds of paradise (i.e. Gilliard 1969, Cooper and Forshaw 1977, Firth and Beehler 1998). Instead, recent "cookie cutter" volumes from Pica Press and others are favored. Throughout, there may be too much emphasis on the here and now and too little appreciation for the work that has gone on before. Yet, even this attitude is nicely balanced by an eloquent introductory discussion of conservation in this part of the world.

Overall, *Where to Watch Birds in Australasia and Oceania* is a very fine effort that is packed with indispensable information for travelers. Accuracy is quite high, and optimism even higher! I enjoyed reading the personal stories and the entertaining Briticisms (like the "really cracking" endemics on Maui, or the emphasis on finding the local brew with which to celebrate at day's end). There are indices to bird species (by English names only; an index of scientific names should have been included) and to sites. Given that it contains 448 pages and a hard cover, the book is remarkably lightweight, so carrying it will not unduly burden one's baggage. I highly recommend it to the traveling birdwatcher anywhere within the huge scope of its coverage.—DON ROBERSON, 282 Grove Acre, Pacific Grove, California 93950, USA.

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**Birding in the American West: A Handbook.**—Kevin J. Zimmer. 2000. Cornell University Press, Ithaca, New York. x + 402 pages, 111 text figures. ISBN 0-8014-3257-X. Cloth, \$49.95. ISBN 0-8014-8328-X. Paper, \$25.00.—This indeed is a handbook in name and size, but it is well suited as a "handy book" for many reasons. The pages are packed with useful information for North American birders of just about any orientation or level of accomplishment except, perhaps, for the few so advanced as to be qualified to research and write such a formidable work themselves. Although definitely focused on the West, this volume would be of value even to those easterners who may never intend (heaven forbid!) to visit the West in pursuit of its birdlife. The author's definition of "West" includes the 18 continental states west of the line running from the eastern border of North Dakota and intervening states to Texas. However, with respect to scope of content, Zimmer departs from the conventional.

Approximately one-fourth of the book (Chapter 5)



comprises what one would expect from the title, namely, help with locating 268 selected "western specialty" bird species. The vast 18-state western area encompasses the great majority of all avian species to be found in the entire United States, and the region provides a great range of excellent opportunities for birding. This volume has the merit of making more data on localities for the "western specialties" readily accessible than can be gleaned from range maps in field guides. Obviously, less detail is included than in the many western state or local bird-finding guides. Any novice eastern birder planning a western expedition could use this chapter profitably to avoid consulting numerous bird-finding guides, but more widely read birders might see the less-detailed information in Zimmer's volume extraneous.

The assembling of bird-finding locality data across 18 states was a daunting task that drew upon a great many published sources as well as the author's personal experiences. For such a compilation to be error-free would be most remarkable and unexpected, but my personal familiarity with an area calls forth the mention of at least one discrepancy. The Wichita Mountains of southwestern Oklahoma do not extend beyond Comanche County into Caddo, Canadian, and Blaine counties north of the Wichitas, as cited on page 352; what all these areas have in common is habitat suitable for the endangered Black-capped Vireo (*Vireo atricapillus*).

Not so expected is that 50% (Chapter 4) of the handbook is devoted to aids for correctly making many of the more difficult identifications (e.g. the three larger *Sterna*; *Myiarchus* and *Empidonax* flycatchers; *Aphelocoma* jays; the wing-barred vireos; Bendires's Thrasher [*Toxostoma bendirei*] versus Curve-billed Thrasher [*T. curvirostre*]). Certainly, these aids would be a great benefit on a western trip. Moreover, because many of the problems within pairs or groups of species also occur upon occasion in the American East, Chapter 4 has considerable value wherever one pursues birds in the United States or Canada. These 200 pages can be seen as taking the user beyond the field guides, and even a step beyond what was provided in Kenn Kaufman's 1990 *Guide to Advanced Birding*, to which Zimmer contributed the chapter on Thayer's Gull (*Larus thayeri*). This chapter benefits from excellent line drawings by Shawneen Finnegan, Dale Zimmerman, and Mimi Hoppe Wolf that compare two or more species. The black-and-white photos, mostly by the widely traveled author (a leader of far-ranging bird tours) or by Barry Zimmer, further aid the aspiring advanced birder. The valuable bibliography of 206 citations extends from 1951 to 1999, but with only a few after 1996. Most of the citations are identification articles in journals such as *Birding*, *American Birds*, *Western Birds*, and even a few from *British Birds*. Others are mainly local, state, and regional bird-finding guides,

going back to O. S. Pettingill's (1951, 1981) pioneering eastern and western guides, and the various identification field guides.

Perhaps most unexpected from the title is that nearly 20% of the book, in the first three chapters, consists of fundamental material describing how to be a good birder. In some respects, this seems to be a three-chapter précis of a semester nonmajor course in introductory ornithology. Chapter 1, "Techniques of Finding Birds," offers a fundamental, but by no means simplistic, introduction to the birding pursuit. It deals with the role that habitats, key plants, elevation, life zones, nest-site availability, time of day, season, and migration may play in birding in a succinct but informative way, providing a sound foundation for the novice to build upon. This chapter also deals with published and electronic sources of information (e.g. rare bird alerts accessible via telephone with numbers listed for the West, or the Internet) for locating rare species. Zimmer even provides an introduction to pelagic birding, describes methods of calling in birds by audio aids, and then goes very appropriately into ethics for birder field behavior. The latter is a topic with increasing significance as numbers of birders continue to swell.

Chapter 2, "Techniques of Identifying Birds," continues where concise field identification guides stop. This chapter teaches the approaches to correctly identifying most of the birds one encounters, and Chapter 4 deals with the remaining species. Chapter 2 also includes a thumbnail sketch of all the avian families encountered in the West. It closes with a desirable section on "Psychological Influences," cautioning the birder against allowing enthusiasm to overwhelm good judgement in "identifying" rare species when one's basis for identification may be inadequate, often leading to an "unsanitary" report and a pain for the bird records committee to deal with.

The third and shortest chapter, "Keeping Field Notes," is a well-chosen segue away from decrying careless over-enthusiasm in bird identification toward exhorting birders to cultivate the habit of making excellent field notes, an essential skill for producing desirable "sanitary" identifications. These first three chapters could serve to transform a person with a very casual approach to birding into a well-disciplined candidate for "advanced birder."

As many students of North American birding browse this book, they will enjoy being reminded of or finding anew the numerous useful and interesting items of information on birding places and bird species of the American West. It is tempting to suggest that it is a "goldmine" deserving of exploration, discovery and the extraction of delightful "nuggets." It is well worth the cost for any active birder to add it to his or her library. It should be favorably recommended for purchase by any library that covers

North American birds.—W. MARVIN DAVIS, 308 *Lewis Lane, Oxford, Mississippi 38655, USA*.

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**Chasing Warblers.**—Vera Thornton and Bob Thornton. 1999. University of Texas Press, Austin. x + 148 pp., 90 color photographs, 1 map. ISBN 0-292-78162-8. Cloth, \$40.00. ISBN 0-292-78163-6. Paper, \$19.95.—Bill and Vera Thornton take the reader along on their nine-year odyssey to locate and photograph all 52 wood-warbler species that regularly nest in North America. Although they did not start out to do so, somewhere along the journey an amus-

ing hobby became a serious endeavor. Each chapter retraces their successes and shortfalls from the time that the Thorntons locate and photograph their first warbler in Texas in 1987 until the last one near Jama, Mexico, in 1996. Included in this entertaining account are dozens of important behavioral observations about each warbler species that will enhance any birder's warbler knowledge and increase his or her likelihood of catching a glimpse or perhaps even photographing these sometimes-elusive birds.

As the Thorntons chase warblers from Mexico to Canada, from sea to shining sea, through meadows and bogs, up mountains and into dense woods, the reader is introduced to many of the dedicated individuals from all walks of life encountered along the journey. Never far from their thoughts is their deep concern about habitat destruction in the Neotropical wintering grounds of Central America and the summer nesting grounds in North America. The photographs taken by Vera Thornton are nothing short of awe-inspiring. Each location and bird is documented, and details regarding the methods used to obtain these photographs are included in the text.

Overall, this book is an inspiring winter read in anticipation of one of spring's most captivating group of visitors, and Vera Thornton has already lowered the gauntlet for the next adventure, chasing the warblers of Mexico.—SANDRA WALSH-PAPALIA, *Department of Biology, Life Science Building, Winthrop University, Rock Hill, South Carolina 29733, USA*.