

## BOOK REVIEWS

**The Birds of Ohio. Bruce G. Peterjohn. 1989. Indiana University Press, Bloomington, IN. 237 p. \$57.50 cloth.**

Birdwatching is one of the fastest growing pastimes in America today, with more and more people coming to appreciate the great diversity of bird species observable even in towns and cities. For most, a field guide provides all the information necessary to separate similar species in the field. But, beyond the size, shape, color patterns, and field marks that all birders use as aids to identification, many people are becoming more curious about birds' behavior, migration habits, geographical distribution, and habitat preferences. *The Birds of Ohio* is a book that can provide this information in a way that can be enjoyed by casual birdwatchers, ornithologists, historians, and even artists. Indeed, the magnificence of the illustrations is one of the book's most striking features. William Zimmerman's 49 original paintings (two of which cover two full pages) depict 87 of the most attractive species in stylish form. An additional portrait of the extinct passenger pigeon (by John Ruthven) appears at the beginning of the species accounts, as if to serve as a reminder of just how profoundly we have changed the face of Ohio over the last hundred years.

*The Birds of Ohio* is a complete catalogue of the 390 species of birds that occur (or formerly occurred) within the state's boundaries. The first comprehensive, statewide avian survey in 86 years, this book represents an ambitious compilation of the author's personal observations and hundreds of species sightings reported in literature of the past several decades. Only verifiable reports were cited, and an annotated bibliography with 526 references allows interested readers to learn more about particular species.

The book's introduction begins with a detailed description of the physical geography of Ohio. The characteristics of the major physiographic regions are described, and the changes that accompanied this century's human population increase are discussed. Two helpful maps appear in the introduction; one shows the locations of Ohio's counties and the other divides the state (primarily along county borders) into eight regions that roughly correspond to the aforementioned physiographic zones. Throughout the introduction and, in fact, throughout the book, the author reminds us of the importance of geography in determining the boundaries of various plant communities and, thus, bird communities.

The taxonomically arranged species accounts follow the introduction. Accounts of rare visitors are quite brief, and are limited to succinct descriptions of the actual sightings. The species accounts for residents, breeding birds, and common migrants are much more detailed. Their distribution and relative abundance in Ohio are discussed, and, if applicable, spring and fall migration schedules and routes are given. Each account also includes a description of changes that have occurred in the species' status since the turn of the century and, in most cases, reasons for these changes are included.

Some birds have benefitted by the changes that came with human utilization of the land. As the extensive forests of Ohio were cleared away, birds like the common

grackle, American robin, and mourning dove were able to increase their numbers. Others, like blue jays and black-capped chickadees, benefit from the ever increasing number of feeding stations available in winter. Among the great benefactors of the settling of Ohio is the state bird, the northern cardinal, which has expanded its range considerably since the arrival of the Europeans.

Sadly, most of the changes that have occurred at the hands of man were less beneficial. Peterjohn's descriptions of individual species remind the reader how silly fads of fashion briefly extirpated several waders in Ohio, threatening some with outright extinction. Birds like the passenger pigeon and the Eskimo curlew were wiped out by market hunters. Waterfowl and shorebirds of all species fell to organized parties of gunners, and exist today but in much reduced numbers. Of course, the diurnal raptors (like all predatory animals) were persecuted mercilessly, despite the fact that most feed primarily on crop-stealing insects and rodents. Because of their position at the top of the food chain, raptors suffered further setbacks when we began to use pesticides. Even the smallest birds were exploited, at times used as ornaments or sold as caged pets. But, of all the damage we have done, nothing is so severe, or has such far-reaching consequences, as our destruction of entire ecosystems.

Peterjohn's well-documented historical accounts of sandhill cranes and greater prairie chickens breeding in the pre-agricultural grasslands of northwest Ohio seem almost incredible to a present day visitor gazing out over hundreds of square miles of uninterrupted corn and soybean fields. Although a late winter visit to the marshes surrounding Lake Erie's western basin can still provide impressive scenes of abundance, even these marshes and their waterfowl have been reduced greatly by ditching and draining for agricultural purposes. The elimination of shrubby fencerows between farm fields, the increased frequency of mowing in hayfields, and the practice of plowing after the harvest have all but eliminated many of the species that did benefit from the initial cultivation of these areas. The forest fragmentation that results from strip-mining in eastern Ohio is affecting bird populations there as well.

The importance of caution when using avian products commercially, and the need for education concerning the responsible use of forests, prairies, and wetlands comes through again and again in the species accounts. Thus, in addition to its usefulness as a reference, Peterjohn's book could allow us to profit by past mistakes. By recounting both disasters and triumphs of wildlife management over the last hundred years, this book suggests what kinds of exploitation we can and cannot expect avian populations to withstand. The species accounts illustrate once again that birds can serve to warn us of environmental decline. The osprey and bald eagle have shown that, if the causes of these declines are discovered and corrected in time, even slowly reproducing species have the resilience to regain lost territory. Others, like the prairie chicken, are gone from Ohio forever, victims of our reliance on agricultural practices that refuse to share even small parcels of land with wildlife.

*The Birds of Ohio* is a beautifully illustrated and thor-

oughly enjoyable book with obvious significance as a natural history reference. Through its carefully researched and well written accounts, *The Birds of Ohio* by Bruce Peterjohn can instill in even the most casual of naturalists an appreciation of the unbreakable connections between birds, people, and the environment they share.

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**Silvoor Notes: Leaves from a Naturalist's Notebook.** Robert A. Hefner. Edited by John Blocher and Paul Daniel. 1989. The Oxford Audubon Society, Oxford, OH. 181 p. \$10.50 paper.

"*Leaves from a Naturalist's Notebook*" accurately describes this collection of brief essays based on observations made by Hefner at Silvoor Biological Sanctuary over a 40-year period. The essays, which read like journal entries, are short, based on a single topic, informative, and make for light and enjoyable reading.

The essays are based on a project undertaken by Hefner to convert a four-acre "...tract of broken and overpastured farm land" into a sanctuary for wildlife. They chart his methods, his successes and failures in introducing wild plants, and his ongoing battle with weeds. He shows that when secure, diverse habitats are provided, animals find them. The format of the book divides the articles into the four seasons with a section on the history of Silvoor Sanctuary. Black-and-white photographs scattered throughout the text depict scenes at the sanctuary as well as the plants and animals mentioned in the specific articles.

The author's introduction emphasizes his feeling for the land and his naturalist's perspective. His observations of plants, birds, insects, and small animals integrate a profound understanding of the ecology of each organism with recognizable field descriptions. They provide painless lessons in genetics, habitat and food preferences, pollination biology, bat echolocation, queen bees, and more. Each entry is chock-full of thoughtful observations, explanations, and interesting tidbits, and some include philosophical comments on "progress." Examples of essays include "Crow Stratagems," "Columbines," "The Passing of Our Elms," and "The Wonder of a Feather." Scientific names are included for most plants, which is useful since common names are often unfamiliar and may change from locale to locale. I particularly enjoyed comments on edible and medicinal plants (Hefner relates medicinal lore but prefers the local pharmacy).

People with an interest in nature, in conservation, and in recognizing the interdependence of species, and who enjoy a deeper understanding of what they see, will appreciate this book. It is inspiring to see how much can be done with a small tract of land.

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**Legacy: The Natural History of Ontario.** Edited by John B. Theberge. 1989. McClelland & Stewart Inc., Toronto, ON. 397 p. \$75.00 Cdn.

Even if your appreciation of the environment focuses on flowers and birds, you will be pleased to learn that this book goes far beyond these topics. According to the jacket, this book is the "...most important, authoritative, and comprehensive book ever produced in Canada on the natural environment." Sponsored by the Ontario Heritage Foundation and the Federation of Ontario Naturalists, *Legacy* covers the physical environment (geological sciences, meteorology, and climatology), the biological environment, and the paleoculture of Ontario. Although it is one of a growing number of natural history/natural heritage books produced by states (e.g., Ohio, Iowa, Virginia) and provinces (Alberta, one of the first of the modern books, and Manitoba), this one is exceptional in its organization, scope, and quality.

This book contains five quite different parts. Part One, "A Small Piece of Planet Earth," has an excellent review of plate tectonics with a brief introduction to the Precambrian of Ontario, an overview of the climate in Ontario (each climatic feature requires two maps to cover the province which stretches from about 41° 41' to 56° 51' N latitude), and an overview of Ontario's biota.

In Part Two, "Provincial Perspectives," the standard components of a natural history book are presented in a logical progression from substrate to higher life forms and humans, interspersed with the record of changes in the biosphere through time, as preserved in the fossil realm. This section's components or chapters cover bedrock geology, surficial geology, soils, lichens, fungi, primitive plants, wildflowers, forests, invertebrates, fish, amphibians, reptiles, birds, mammals, and native man. The list of subjects does not do justice to the content or quality of the chapters, which often have such catchy titles as "Earthen Blanket — the Soils of Ontario" and "Ancient Rhythms on Annual Display — The Amphibians of Ontario."

The first two parts are laced with "Science Excursions," which are brief research or background accounts. This feature makes the book a particularly interesting and useful source of information for naturalists, students, and teachers. The "Science Excursions" refresh our memory with, or introduce us to, topics outside of our specialty. These tutorial sections contain some traditional topics (e.g., "Weather Systems," "Glacial Landforms," "Leaf Color," "Predation," and "The Bald Eagle in Ontario") and some unusual topics such as "Biting Flies in Ontario," "Parasites Welcome Moose to Ontario," "Mycorrhizae — Symbiosis in the Soil," and "Springtails — Agents of Change."

Part Three, "Special Environments," includes the natural history of the sand spits in Lake Erie, the Niagara Escarpment, and four large parks — Algonquin, Pukaskwa, Quetico, and Polar Bear. Part Four, "Vignettes of Nature," focuses on five environments, only partially defined by geography and not mutually exclusive. These five chapters include "The Carolinian Zone," "The Farmlands," "Urban Nature," "The Great Lakes," and "The Hardwood-Boreal Forest." Each chapter has a variety of articles (from three to 12), many with enticing titles such as "Swans by the Thousands," "Flying Pebbles," "Skyscrapers and Peregrines,"

"The Brent Crater," "Ontario's Cape Cod," "White Pelicans of Lake of the Woods," and, of much interest to Ohioans, the "Wild Islands of Western Lake Erie."

The last part of the book, "Perspectives on Nature," contains a chapter on "The Celebration of Nature" and another on "The Wholeness of Nature." These reinforce the themes and objectives of the introduction, which begins: "There is infinite beauty in a trillium, a flaming red maple tree, a loon drifting on a glassy lake," which creates feelings of nature through description, art, and photo, and which concludes with a concern that what is described in the book will not be remembered as "what used to be."

A clue to the extent and quality of coverage of the natural history of Ontario is provided in the index which includes such listings as LaCloche, Archaic Period, climates of the future, Winisk, Dreimanis, and *Rhizocarpon geographicum*. Temporal coverage includes 2.9 billion years of history, admittedly most of the emphasis being on the Quaternary. This is quite understandable in a natural history book about a province that has been glaciated many times and is inhabited by what is probably the largest concentration of Quaternary scientists in Canada.

Spatial coverage is also unusual. Ontario is a large region, growing at the rate of about 7 km<sup>2</sup> per year, with its northern border at the inland sea of Hudson and James Bays and the southern margin in Lake Erie, farther south than northern California. It has common borders with New York in the east and Minnesota in the west. Mean daily temperatures range from -5° C in the northern tundra to +9° C in the southern mixed hardwoods, an area that is slightly less than the combined areas of Texas and California. Ohioans will feel at home with photos of the geology (the Kettle Point Shale has concretions similar to those in the Ohio Shale) and of the fauna and flora (particularly those on the islands in Western Lake Erie). The short list of references and the descriptions by the authors improve the usefulness of the book.

However, some omissions and errors do exist. Publication schedules probably prevented inclusion of the Zebra Mussel in the list of impacts on Lake Erie (sea lamprey, phosphates, and toxic chemicals). The impact of global change is addressed, but the Clay Belt in northern Ontario, sure to become more important with any global warming, is not included in "The Farmlands" chapter. Switches between Latin and common names, without a reference list of species, may cause some problems for readers, as will some omissions from the index. In several places, figure captions have been switched (e.g., p. 58 — Plum Point Interstadial and Nissouri Stadial; and p. 298 — hepatica and spring beauty). In at least one place, lines have been switched (top of p. 113) and some readers may disagree with the interpretation of glacial history. However, these are minor problems. John Theberge, his associate editors (M. Theberge, D. Barr, and T. Mosquin), cartographer Don Bonner, and the many contributors are to be congratulated for generating this excellent book.

This volume, together with its counterpart in Ohio (Lafferty 1989), should be of interest to Great Lakes residents — those whose roots and/or hearts are near the Lakes in the Central Lowland or the Superior Upland physiographic provinces — as well as to those who inhabit

the well-known and often praised eastern and western margins of North America and the Rocky and Appalachian Mountains. There are 40 million people in the Great Lakes Basin; they are being challenged to develop an ecological view of their environment and to cast off their anthropocentric or their pseudoeological views (such as, humans are part of nature, and thus anything they do is as card-carrying instruments of nature!). This book should help residents meet the challenge while giving many hours of pleasure. We hope that, in a hundred years, this book is not the only legacy of Ontario's natural heritage.

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**AIDS: Sexual Behavior and Intravenous Drug Use. Edited by Charles F. Turner, Heather G. Miller, and Lincoln E. Moses. 1989. National Research Council. National Academy Press, Washington, DC. 589 p. \$34.95 hardcover; \$24.95 paperback.**

This well-documented, well-written text is the product of the Committee on AIDS Research and the Behavioral, Social, and Statistical Sciences of the National Research Council. The committee was charged with describing current knowledge about the human immunodeficiency virus (HIV) and acquired immune deficiency syndrome (AIDS) in the United States; identifying critical populations and indicating objectives associated with them; describing existing research findings that should be utilized in planning and choosing intervention programs to control the spread of HIV; identifying new research to control the spread of HIV; and, describing existing research on interventions intended to facilitate behavior changes and ways to evaluate their effectiveness.

The text reviews three basic areas. The first part presents data on the current status/size of HIV infection in the United States with emphasis on sexual and drug use behaviors that contribute to the spread of the virus. Part II reviews the potential intervention strategies, especially behavioral changes, that may impact on slowing transmission of the disease. Also, thoroughly discussed in Part II is the importance of rigorous evaluation of the intervention efforts to determine which strategies are working and which are not. In the last section, Part III, the barriers that may inhibit or even prevent effective intervention of the spread of HIV are presented. The suggestion that the understanding and prevention of AIDS must be based on a broader context, namely, cultural, social, and political realities, is stated as a purpose of the committee.

Each chapter is well-referenced. Statistics on AIDS and HIV infection are thoroughly discussed and presented in a very effective manner. Impact on and data from cross sections of the population, e.g., the military, the gay

population, intravenous drug users, and prostitutes, are presented. Trends in sexual behavior of teenage and adult heterosexuals, prostitutes, and same-gender sex among men are discussed in depth with references to many recent studies and to older studies, such as Kinsey's reports. Facilitating change in behavior is presented with respect to individual level, community level, and state and national levels.

In all cases, the committee recommendations are included. The text clearly and repeatedly points out the shortcomings and the inadequacies of many of the current programs and data. The potential misinterpretations of much of the data are also discussed.

The authors have strongly emphasized that a decline in either the spread of HIV infection or number of new AIDS cases reported does not mean that the danger has passed. They repeatedly state that the major weapon must be behavioral change, even when an effective vaccine or therapy is found.

I have found this book to be very helpful in preparing lectures and papers on AIDS and am very pleased to add it to my personal library. I unequivocally recommend it to others.

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**A History of Immunology. Arthur M. Silverstein. 1989. Academic Press, Inc., San Diego, CA. 391 p. \$39.95 hardcover.**

In his preface to this book, Silverstein explains his approach to the subject of immunology and astutely offers a number of caveats which counter any criticisms to that style. It is noted that the title denotes the book as a history of immunology, not to be considered as the only interpretation of this broad topic. Indeed, others may assign more or less importance to specific events and theories than does the author, who emphasizes "conceptual threads" and traces each of these "longitudinally in time rather than to present a year-by-year list of the minutiae of its progress."

Using this approach leads to a certain amount of repetition, but it is necessary in order to demonstrate how one theory can play an important role in a number of other discoveries. He has written each chapter to be self-sufficient and truly succeeds in this attempt. Such topics as "Theories of Antibody Formation," "The Concept of Immunological Specificity," and "Allergy and Immunopathology: The Price of Immunity" are covered from their most obscure origins to comparatively modern times. In the chapter "Theories of Acquired Immunity," Silverstein traces observations on diseases back to the Babylonian epic of Gilgamesh (around 2000 B.C.) and through the Old Testament to the early 1900s. This is perhaps one of the more entertaining chapters of the book where the author examines history's more imaginative theories of acquired immunity within the context of the times. Origins in magic, religion, and astrological beliefs are mentioned.

One major disappointment is that the book's "modern" information generally ends at the early 1960s. Another 20

years of information could have tied in theories and techniques being taught today, providing more complete and interesting reading to younger readers. Occasionally, the author throws in a tantalizing tidbit on present day techniques and theories such as radio-immunoassay and ELISA methods, but these are covered in single paragraphs in the last chapter.

The appendices are invaluable. "The Calendar of Immunological Progress" reviews major discoveries and theory developments in chronological order (with references). "Important Books in Immunology, 1892-1968" provides an insight into the direction immunology has taken through time. Brief descriptions of the immunological advances that earned researchers Nobel prizes are covered in another appendix, and the "Biographical Dictionary" lists those who made significant contributions to the field prior to the early 1960s.

Despite the gap in coverage of advances since the 1960s to the present, this book provides a broad background of the discipline of immunology which the reader can easily supplement with recent textbooks.

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**High Temperature Superconductors. Edited by S. V. Subramanyam and E. S. Raja Gopal. 1989. John Wiley & Sons, Inc., New York, NY. 244 p. \$34.95 hardcover.**

In 1986, an important breakthrough in the field of superconductivity was made with the discovery of compounds that possess a critical temperature ( $T_c$ ) above the boiling point of liquid nitrogen at 77° K. Compared to the previously recorded highest  $T_c$  of 23° K, this advance was phenomenal.

This book presents a collection of papers contributed at a National Workshop on high  $T_c$  superconductors at the Indian Institute of Science, Bangalore, during March 27-31, 1988, about 15 months after the initial discovery was announced. It does not represent the proceedings of a research conference, but rather is intended to provide a tutorial on the subject to non-experts in the field. This purpose is mentioned in the preface, where it has "the main objective of giving in a condensed form the principles and applications of high  $T_c$  superconductors. The target audience was a mixture of practising researchers...and technical personnel...".

Judging from the contents, which range from the preparation, growth, and experimental measurements on the new class of superconductors, to the basic theoretical underpinning of traditional superconductivity, it appears that the editors have succeeded.

In several respects, the contributions are pitched at the introductory textbook level so that a person with only a rudimentary knowledge of solid-state physics can quickly come "up to speed" with current theoretical ideas on the mechanism which produces the new superconductivity. In particular, the articles by T. S. Radhakrishnan, S. S. Jha, C. K. Majumdar, and G. Baskaran, form a compact tutorial course on superconductivity theory, up to and including

the speculative resonating valence bond (RVB) state theory of Anderson. As it stands at present, the theoretical picture is still not clear, and the RVB theory is only one of several competing theories to explain the behavior of the high  $T_c$  superconductors. This volume, therefore, should be regarded as what its editors say it is—a tutorial to introduce the subject.

The book also contains contributions of a more practical nature on the preparation and characterization of these sometimes not-well-behaved ceramic compounds. Various preparatory techniques are described to produce a number of the different high  $T_c$  compounds. The articles by A. P. B. Sinha, G. V. Subha Rao, S. C. Sabharwal et al., S. B. Ogale, and C. N. R. Rao provide a wealth of information on the variety of recipes used to produce both bulk and thin film samples.

My only disappointment was in the articles on practical applications and cryogenic technique. Discussion of these matters is readily available in any number of monographs currently in print. The discussions of applications and measurement techniques that were presented are certainly not unique to high  $T_c$  superconductivity investigations, and thus made me regard them as being out of place in this compendium.

Overall, the book will provide a very thorough introduction to the subject of high  $T_c$  superconductivity to the student or to the novice researcher in the field. It is well turned out, and is, in fact, suitable as an auxiliary reference for any course in solid-state physics or chemistry.

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**Modulation of Defined Vertebrate Neural Circuits.** Edited by Michael Davis, Barry L. Jacobs, and Ronald I. Schoenfeld. 1989. *Annals of the New York Academy of Sciences*, Vol. 563. The New York Academy of Sciences, New York, NY. 195 p. \$49.00 hardcover or cloth.

*Modulation of Defined Vertebrate Neural Circuits* is yet another volume in the excellent series of annals produced by The New York Academy of Sciences. Based on a meeting sponsored by the National Institute of Mental Health held in Elkridge, MD, in September of 1988, the volume covers a variety of topics relating activity within defined neural circuits to behavioral responses measured at the level of the whole organism. The simple system approach to neuroscience has been applied traditionally to invertebrate organisms, and the contributors describe a number of systems where similar approaches have been successful in vertebrate animals.

The volume presents a wide range of physiological studies in fish, amphibia, reptiles, and mammals. Although a variety of systems are used to study how the nervous system modulates behavioral processes, there are common underlying themes and similar approaches. Most of the studies apply several techniques to the problem at hand. In most cases, electrophysiological measures, neuroanatomical observations, and pharmacological manipulations provide a comprehensive view of elements within the

neural circuits being defined. A central theme is the role of incoming sensory stimuli in the modulation of ongoing neural activity and associated behavioral activity. This is particularly well-presented in the initial study of the turtle scratch reflex, where specific cutaneous stimuli determine the neural circuits that are activated to generate motor patterns and various scratch reflexes.

Most studies provide an interesting account of the experimental paradigms and data supporting a role for neural circuits in behavior. For example, in the goldfish escape response mediated by activation of one of a pair of reticulospinal neurons, the Mathner cell is well presented. The nociceptor-driven withdrawal reflex (tail flick) also receives a thorough treatment with pharmacological and physiological data supporting a role for the rostral ventromedial medulla and the periaqueductal gray in modulating spinal activity.

The multidisciplinary approaches taken by investigators permit a comprehensive understanding of how the nervous system mediates behavioral function. The accounts are of considerable interest for the serious investigator wishing to understand how a particular system functions. The present volume also could provide material for interdisciplinary graduate courses taking an integrative approach to the study of the nervous system. The style of writing and coverage of materials does vary and, in general, the material does not make for relaxing and rapid reading. Some accounts, such as Jacobs and colleagues' account of the masseteric (jaw closing) reflex, provide important background information. Yet others, including the account of catecholaminergic modulation of spinal reflexes, are impeded by excessive use of jargon or failure to provide appropriate background material for the uninitiated.

In summary, the volume represents an important source of relevant information regarding the role of neural circuits in modulating behavioral functions of vertebrate animals. Students and investigators initiating a series of studies on neural circuits are advised to examine the contents for comprehensive descriptions of multidisciplinary approaches to the study of the central nervous system.

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**Mammals of the Neotropics. Vol. 1, The Northern Neotropics: Panama, Colombia, Venezuela, Guyana, Suriname, French Guiana.** John F. Eisenberg. 1989. University of Chicago Press, Chicago, IL. 449 p. + 21 color and black-and-white plates by Fiona Reid; maps by Sigrid James Bonner. \$85.00 cloth; \$34.95 paper.

Anyone embarking on serious study of Central and South American mammalogy is confronted with a bewildering lack of integrated, reliable, and current information. Most texts available on the mammalian faunas of individual countries or selected parts of this region are either outdated or available only in Spanish. As

the first in a planned three-volume series, *Mammals of the Neotropics, Vol. 1*, focuses on northern South America and Panama. Although South American mammals have been reviewed in other surveys with broader geographic emphasis (e.g. Nowak and Paradiso 1983), this series, if completed as planned, will represent the first attempt at a completely comprehensive synthesis of existing knowledge on Neotropical mammals. Eisenberg, author of numerous articles and monographs on mammalian behavior, ecology, and evolution, (including *The Mammalian Radiations: An Analysis of Trends in Evolution, Adaptation, and Behavior* 1981), makes clear in his introduction to this volume that it is not intended as a definitive summary or synthesis of available information on this region. His disclaimer is understandable; basic information on species distributions and nomenclature are lacking or in a state of flux for many of the animals of this region. Nonetheless, the book is timely as a first attempt to synthesize the information presently available on an evolutionarily unique and remarkably understudied fauna.

The species covered are limited to wild representatives and include marine cetaceans and pinnipeds, chiropterans, edentates, and marsupials. A substantial amount of new information is provided on bats based on Eisenberg's own measurements of museum specimens. It is organized by mammalian order and assumes a background in mammalogy and vertebrate zoology. Sections on descriptive morphology and on range and habitat are followed by brief summaries of information concerning natural history and behavior, when available. References are provided at the end of the section for each order. Larger genera in some families are given special coverage (e.g. the didelphid marsupial genus *Marmosa*). This coverage should help readers identify some of the more striking comparative questions remaining for these groups. Controversies from the literature on systematics are often identified and discussed.

Field keys are given for some of the larger taxa; range maps and line drawings of skulls are provided amply throughout. Fiona Reid's black-and-white drawings and color plates of selected species are quite good.

This book tends to be more scholarly and data-oriented than other mammal surveys I have used. The traditional survey chapters have been augmented with several short chapters on biogeography, speciation, and community ecology. I particularly appreciated one section which featured detailed descriptions of biogeographic regions and a list of characteristic species (p. 17). These descriptions made the process of envisioning faunal affinities and habitat characteristics much easier for someone whose

focus has thus far been limited to North America.

As a behavioral ecologist, I found the book disappointing in a few ways. Although a fair amount of information on behavior and natural history is included, these sections are rather scanty and sometimes incompletely referenced. Where phylogenies have been included or adapted from previous work (e.g. for the Marsupialia, p. 20), they often are not referenced or otherwise supported. The chapter on speciation relies heavily on cytogenetics, (ostensibly because of a lack of alternatives), with no mention of its drawbacks or strengths relative to current molecular genetic methods for interpreting speciation events and phylogenies.

I referred repeatedly to a political map of the region on pages 14 and 15. An additional map showing the position of this region relative to the Neotropical region as a whole would have been helpful. The range maps contain a lot of information (including Eisenberg's best-range estimates, often based on little available data), and are a bit cryptic—I had to keep leafing back to the beginning of the book for an explanation of the symbols used. The choice of typeface for headings in the survey chapters was unfortunate; there is not enough contrast between family headings, generic subheadings, and so on, which makes detection of the overall taxonomic organizations difficult.

Taken as a whole, the strengths of this volume, and the two to come, should stimulate the gathering of more complete information and integrate Central and South American vertebrate zoology more fully with current ecological and evolutionary thought. These volumes may also help remedy a situation in which the number of biologists investigating these animals is far outweighed by their endangerment through habitat destruction and other human intervention. In paperback, this is a reasonably priced and valuable tool for New World mammalogists and anyone interested in extant representatives of faunas evolved in "splendid isolation" (Simpson 1980). I wouldn't leave for South America without it!

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