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BOOK REVIEWS

Untangling Ecological Complexity: The Macroscopic Perspective.—Brian A. Maurer, 1999. University of Chicago Press, Chicago. vii + 251 pp., 37 text figures. ISBN 0-226-51132-4. $50.00 (cloth). ISBN 0-226-51133-2. $18.00 (paper).

Ecologists are starting to break away from their physics envy, and are realizing that they do not have to be embarrassed about studying large-scale patterns in nature. Brian Maurer, James Brown, and others have dubbed the study of such patterns, macroecology. After the hullabaloo that inevitably seems to follow the birth of new jargon in science dies down, one needs to consider what that jargon means and whether it contributes anything to our understanding of science. As I understand it, ''macroecology'' is a new term for a range of new statistical procedures applied to well-trodden issues such as biogeography and community ecology. The emphasis in macroecology is placed on the role played by regional ecological processes on local ecological interactions. In a way, macroecology is an attempt at integrating various well-known fields and stressing their importance to ecology. I stress that this does not denigrate attempts made by Maurer and colleagues. On the contrary, viewing old issues through new lenses has often produced some of the most important advances in science. After all, the new evolutionary synthesis of Dobzhansky, Huxley, Mayr, and Simpson assimilated advances made in genetics and evolutionary biology and in doing so, revolutionized both those fields and created many new and exciting avenues for research. Having said that, I do not believe that we are yet at the stage of proclaiming a major new breakthrough for macroecology.

Maurer draws quite heavily on ornithological data for his arguments on the importance of studying large-scale patterns in ecology. Much is made of data from the annual Breeding Bird Surveys (BBS) in North America, particularly with regard to body size distributions, density, and geographic range size. However, it would be hard to say that this book is an essential reference for the ornithologist. That was not Maurer's motivation when writing the book, nor should it have been. Maurer has intended this book as a route map for untangling complexity in large-scale ecological patterns, ornithological or otherwise. However, he limits his discussion to just a few of the most important issues. In particular, he discusses abundance : range size relationships, species : area curves (although in a rather limited manner), geographic range distributions, and body size distributions. The thread that runs through his arguments is that we need new tools to investigate those issues and their interactions with one another. He stresses the importance of geographic range structure of individual species in determining local patterns of species distributions. His point is well made that the assumption of a uniform distribution of abundance of a species across its range is usually wrong. He ably demonstrates, using bird species distribution patterns in North America, that this assumption can have many effects on our understanding of large-scale patterns in nature (e.g., species : area curves).

Maurer also addresses the important point that we unnecessarily restrict ourselves to use of linear statistical models (e.g., ANOVA, regression, etc.) in much of our statistical analyses of complex ecological data. This is surely a truism. However, the glib manner in which he dismisses use of such models does little to enlighten the reader. For example, he attempts to illustrate the problem with linear models by drawing on the example of Schluter's (1986) use of variance components to estimate the role of phylogeny and habitat similarity in determining convergence in community structure of two bird communities on different continents. Yet he provides so little information on that study (other than pointing out that phylogenetic effects are autocorrelative and not linearly additive) that the reader is not able to fairly draw conclusions on the limitations of such models. Furthermore, Maurer criticizes linear models because of pseudo-correlations, yet falls foul of the logical fallacy, *post hoc ergo propter hoc* [after the fact therefore because of the fact], himself (e.g., see his discussions of causation regarding the role of geographic range structure in species : area relationships). Consistency of a model with a particular dataset is not justification for the claim that the data show the pattern because of the model. A related issue is that several mechanisms may simultaneously contribute to an observed pattern. To be fair, Maurer is not alone in this type of claim; indeed Duhem's paradox (that several models may explain a pattern equally well) abounds in large-scale ecology.

A surprising aspect to this book is that the issue of macroecology and the particular contribution that Maurer and others have to offer only surfaces in Chapter 5 (page 91 of this 251-page book). However, the first four chapters contain a very thorough historical introduction to the issues central to the macroscopic perspective that Maurer is promoting. Indeed, Maurer's historical discussion of Lotka's singular contributions to ecology is particularly thorough and most interesting (although Lotka's models were considered groundbreaking at least in part because they were non-linear, and not linear as Maurer has suggested—L. Stone, pers. comm.). However, it is moot as to whether it is really necessary to go through all that to get to the substance that is macroecology. Had he left those first four chapters out and devoted the space to other large-scale issues, this book would likely have been a more complete attempt at a route map for macroecology.

I found Chapter 8, on the geographic assembly of local communities, to be the best chapter in the book. Maurer's comparisons and explanations of models that incorporate island biogeography theory, random dispersal, geographic range structure, and habitat heterogeneity were very enlightening. His demonstration of the importance of geographic range structure in species : area relationships was particularly convincing. This demonstration alone emphasizes Maurer's point that we need to consider the macro scale in ecology.

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In Chapter 9 (''The evolution of species diversity at the macroscale''), Maurer considers Darwin's interesting hypothesis that species that have relatively large geographic ranges (and which tend to have high population densities) would be predisposed to be more successful in competition with other species and would have a higher likelihood of persisting over geological time. In addition, any species that arose from an ecologically successful species would also be successful. Over time, such species would replace those that were less successful ecologically. Those ecologically successful clades will be more diverse than related clades composed of species that have narrow ecological tolerances. Maurer uses two examples that support this hypothesis. He then dismisses Vrba's (1980) and Eldredge's (1989) demonstration of the reverse pattern in two clades of African antelopes, the Aepycerotini and the Alcelaphini. Vrba (1980) showed that the species in the most diverse clade, the Alcelaphini, have narrow ecological tolerances (i.e., are stenotopic), whereas the Aepycerotini consists of a single species with wide ecological tolerance, i.e., that example contradicts Darwin and Maurer's predicted pattern. Maurer dismisses that example as inappropriate by claiming that some supposedly stenotopic species in the Alcelaphini (wildebeest and relatives) actually constitute a single widespread polytypic species (i.e., *contra* Vrba and Eldredge's claim about this clade consisting of stenotopes with narrow distributions). However, Maurer's claim is unsubstantiated by data and demonstrates poor scholarship—the generalist Impala *Aepyceros melampus* (the single species in the Aepycerotini) is considered to be a generalist not just for its broad geographical distribution, but also because it eats a wide range of plants and is both a grazer and a browser, whereas the Alcelaphini are grazers only and in this regard are specialists. Because Vrba's data must be weighed against the two examples Maurer brings to bear in support of Darwin's hypothesis, we should hold back on claiming support for the hypothesis when the scorecard is still only 2 against 1. This example returns us to my point about the relatively narrow way in which Maurer approaches macroecology as an abundance : range size/shape issue.

I found this book surprisingly lacking in certain key aspects that must surely make up macroecology. In particular, I found his discussions of core-satellite species and nestedness issues rather glib. A couple of pages are devoted to the core-satellite issue and patterns of nestedness in species distributions are all but shoved under the table. Other macroscopic/macroecological issues that were not covered in this book include incidence : abundance phase planes and saturation curves.

In sum, Maurer has demonstrated that there are some interesting new ways to examine macro-scale patterns in ecology and that it is important to incorporate such patterns in local-scale analyses. However, I think that some of the major claims for this approach can be considered little more than advocacy as of yet. I would not rush out and buy this book, but I would like it to be available on my university library shelves for occasional consultation on specific issues.—DAVID WARD, Mitrani Department for Desert Ecology & Ramon Science Center, Blaustein Institute for Desert Research, Ben Gurion University of the Negev, Sede Boqer 84990, Israel, e-mail: ward@bgumail.bgu.ac.il

The Raptors of Europe and the Middle East: A Handbook of Field Identification.—Dick Forsman. 1999. T. & A. D. Poyser, London, U.K. xviii + 589 pp., 71 line drawings, 737 color photographs. ISBN 0-85661-098-4. $45 (cloth).

The serious raptor watcher usually requires hiking great distances, carrying lots of equipment and other commodities, and putting up with uncomfortable positions from which to scan the skies. One of the most important pieces of equipment is invariably a reliable raptor identification guide. In recent years, all in-flight raptor identification guides of Palearctic raptors have been larger than the normal pocket book sized bird guides. My experience has been that the extra size and weight has not always justified the effort involved. That is until this book was published. This book is more than just a handbook as its name implies—it is even larger and heavier (1,450 g) than its predecessors. However, after having used it for a whole spring in the field, and having checked the methods and lay out used in the book to help the novice observer, I consider its extra weight and size an advantage. This is especially true for those who are unfamiliar with the 43 Palearctic raptor species, and their diverse morphs and plumages, that are common to Europe and the Middle East.

I have known Dick and his work for quite a few years. He is a frequent visitor at our watch sites in Eilat, Israel, and quite a few photographs included in the book are either those he photographed at the site or by others who also frequent the region. The choice and range of photographs is excellent and sets new standards for a field-usable handbook.

The book begins with the table of contents, Preface, Acknowledgments, and then three sections which I consider as being very instructive to the reader, whether a novice or a professional, titled ''Abbreviations and Terminology,'' ''How to Use the Book,'' and ''Introduction to the Field Identification of Raptors.'' The last is especially important because it explains in detail the strategies (identification by molt, plumage wear and characters, bare parts, size, shape, structure, flight and movement, and the problems of hybrids) used to help identify raptors in the field. The molt section is quite detailed and is broken down as per taxonomic groups and addresses molt strategies in those species that comprise the Accipitridae, Pandionidae, and Falconidae, and how it can be used to age and sex individuals.

Next is the identification section for each species, containing from between 8–31 photographs each. The text is comprised of telegraphic information summarizing subspecies, distribution, habitat, population estimates and trends, movements, and hunting and prey. Then follows detailed sections pertaining to and titled as ''Species identification''—biometrics (mostly from live birds in the field) which is followed by a few sentences on diagnostic characteristics of the species. Next is a bordered, blue colored box, entitled ''Identification summary,'' and is especially helpful if one wishes to only read the highlights of the species involved without wasting time on detailed and convo-

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luted explanations. These are in the next sections which include points on how to identify the species—in flight–distant, in flight–closer, perched, bare parts, confusion species, and molt by age class. Each species account ends with a section on ''Ageing and sexing,'' and which also has a blue highlighted box for summaries. The appropriate age or sex section references each of the photographs included. Each account ends with a list of the bibliography relevant to the species, and the full citation is listed at the end of the book. Some of the accounts also have black-and-white or color sketches of relevant parts (e.g., wing, tail, head) and markings that aid in identification.

However, because to err is human and no job can ever be perfect, there were a few points that hindered the use of the guide in the field. The first is that one's confidence in the book is a bit undermined by the fact that the section on ''confusing species'' is not comprehensive for the region. An example of this is a species that I handle frequently, Levant Sparrowhawk (*Accipiter brevipes*). The species account does not mention their similarity to the Shikra (*A. badius*). Or of the Crested Honey Buzzard (*Pernis ptilorhyncus*) in the Honey Buzzard account (*P. apivorous*). Another disadvantage, even if understandable that the author does not relate to the vagrant (e.g., Dark Chanting Goshawk, *Melierax metabates*), accidental (e.g., Bateleur, *Terathopius ecaudatus*), or hybrid species reported over the years, is that he does not relate to those species that are resident on a low frequency in the Middle East (e.g., Verreaux's Eagle, *Aquila verreauxii*). Furthermore, no geophysical maps are supplied of the regions mentioned in the text. This is a great disadvantage because in many descriptions of the species distribution, the author mentions specific rivers or mountain ranges that are not common knowledge for the average birder. Also, the bibliography used is comparatively old and does not incorporate many recent papers published on the subject. This is especially true for morphometric information that has been published in New World journals.

In spite of my finding those problems, I certainly consider this book to be a great improvement upon all previous raptor flight identification guides. The book is appealing to the reader with its many informative photographs, well-spaced and large lettering, neat sketches, and easy to understand language. This is a book strongly recommended for any one who even remotely watches raptors and a must for the serious raptorphile.—REUVEN YOSEF, International Birding & Research Center in Eilat, P.O. Box 774, Eilat 88000, Israel, e-mail: ryosef@eilatcity.co.il

The Birds of the Thai-Malay Peninsula. Volume One (Non-passerines).—David R. Wells, with contributions from Philip. D. Round and Uthai Treesucon. 1999. Illustrated by Philip Burton, Geoffrey Davison, R. David Digby, Dana Gardner, Peter Hayman, Ian Lewington, David Quinn, and Chris Rose with woodcuts by Dana Gardner. Academic Press, London. 684 pp., 69 color plates, regional maps, species distribution maps, and woodcuts. ISBN 0-12-742961-1. $99.00 (cloth).

The Malay Peninsula (the tip of Tenasserim [Myanmar], Peninsular Thailand, Peninsular Malaysia [Malaya], and Singapore, including all associated islands) is part of the avifauna-rich Sunda biogeographical subregion, with a total of 690 species. The urgent need for a comprehensive, up-to-date, and well illustrated handbook of the birds of the Malay Peninsula has long been awaited by ornithologists and birdwatchers alike. This volume has finally filled in the niche long left vacant by the now out-dated handbook series, *The Birds of the Malay Peninsula* Vols. I–IV by H. C. Robinson and F. N. Chasen (1927–1939) and Volume V by Lord Medway and David R. Wells (1976). This comprehensive volume is up-to-date, giving a systematic and detailed treatment of the 385 non-passerine species occurring or known to have occurred in the Malay Peninsula up to 31 December, 1995 (with some additions in 1996), and represents a milestone in Malaysian, Thai, and Singaporean ornithological literature.

Sibley and Monroe in their landmark publication, *Distribution and Taxonomy of Birds of the World* (Yale University Press, 1990) laid the new taxonomic foundation of the birds of the world based on DNA hybridization studies. The taxonomic sequence of this volume, however, follows mainly the traditional Wetmore or Peter's Checklist (based largely on morphology) with elements of Sibley and Monroe incorporated. This choice is appropriate as most ornithologists are still familiar with the Wetmore Checklist. The scientific nomenclature and English names to a large extent follow *An Annotated Checklist of the Birds of the Oriental Region* (Inskipp et al., Oriental Bird Club, Sandy, Bedfordshire, U.K., 1996). There are however a few exceptions. All *Picus* woodpeckers with yellow fringed nuchal crests are collectively referred to as yellownapes, e.g., Banded (*Picus miniaceus*) and Crimson-winged (*P. puniceus*) Woodpeckers are thus referred to as Banded and Crimson-winged Yellownapes, respectively. Brown Hawk-Owl (*Ninox scutulata*) is called Brown Boobook because of its close relationship with the largely Australasian boobooks of the genus *Ninox*. Although the author appears to have deviated from the standard accepted English names of those species, his choice of the alternative names are appropriate as they not only accurately describe the species, but also form the basis for moving towards a more standardized and globally accepted set of English names. The inclusion of Malay and romanized Thai names is especially useful for readers in Thailand, Malaysia, and Singapore.

The preamble discusses a brief history of ornithological research in the region, the work of some pioneer ornithologists, the scope of this volume as well as its general objectives, and conservation issues in general. The introductory chapter gives detailed and precise information of the area covered (the Malay Peninsula) including geography, habitat categories, species assemblages and biogeographical background as well as implications for conservation. A gazetteer of all sites in the text is systematically linked to relevant maps in the book. Indexes for scientific names, English names, and romanized Thai names occur at the end for quick and easy reference.

The author has painstakingly and meticulously re-

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searched the material for this volume. Much of the sources have been from the author's personal field research and observations during his 30-year sojourn in Peninsular Malaysia as well as from the examination of museum specimens from a number of sources. Unpublished and published field notes of other independent observers have also been included. These are either acknowledged in the main text or referenced to a rich bibliography of over 800 sources. Past controversial records which appeared in Medway and Wells (1976), the previous authoritative text of the region, are excluded from this volume, including Red-tailed Tropicbird (*Phaethon aethereus*), Saunders' Tern (*Sterna saundersi*), and Wood Snipe (*Gallinago nemoricola*).

On the average, one species is covered in 1.5 to 2 pages or more, reflecting the detailed information packed in this volume. Species accounts are written in contemporary handbook format and are systematically categorized under subject headings. *Group relations* is very useful as it shows the close relationship between different species within a genus. The terms commonly used are *Free-Standing, Conspecific,* and *Superspecies,* to explain degree of relationship, e.g., Large Green Pigeon (*Treron capellei*) is Free-Standing, showing no close relationship with its other congeners, whereas Yellow-vented Pigeon (*Treron seimundi*) forms a superspecies with Sumatran Green-Pigeon (*Treron oxyura*). Detailed plumage description as well as bare part coloration are given for adults (male and female) and juvenile as well as breeding and non-breeding. A range of measurements is also given. The inclusion of weights where available is especially useful for zoology students and researchers. Under *Habitat and Ecology,* details of habitat types as well as the altitudinal distribution of the species is given. Under *Survival,* the known longevity in the wild is given based on retrapping of ringed individuals. *Social Interactions* gives information on known courtship activities. Under *Voice,* different vocalizations, as well as circumstances in which they are uttered, are given and explained in detail. There is also current and detailed information on breeding, covering nest, egg and brood, cycle, and seasonality. Under *Conservation,* the status is discussed in both global and local terms, whether it is now currently threatened or what would be the long term implications on its conservation if suitable habitats are lost. This volume reveals a wealth of new information on the biology of many species and fills in the information gaps present in Medway and Wells (1976).

For each species account, a distribution map is given. Bold lines indicate both current and historical distribution of the species within the Malay Peninsula. The lines are drawn based on currently available data on species distribution, and so may not necessarily show the exact distribution, given that due to insufficient research and observations in certain areas, especially the montane rainforests, the distribution maps may still have gaps. They are however on the whole reliable and it is hoped that this will stimulate people to supplying more up-to-date field observations to fill in these gaps and keep these maps up to date. Question marks (?) on the map indicate unconfirmed sightings. This is definitely one of the stronger points in the book as cartographical representation of the distribution of resident and migratory birds in the Malay Peninsula is almost non-existent, making this volume the only authoritative source.

All but 6 species are illustrated, 370 in full color, and 9 in black-and-white woodcuts. The color plates are all grouped together in the center of the book between pages 296 and 297, and are separate from the main text. This position facilitates quick and easy reference. Being illustrated by eight different artists has resulted in different individual styles. The plates are on the whole excellent with a high standard. The birds are well spaced out with an average of 7–9 species per plate, sometimes more for the smaller shorebirds and seabirds. Most plumage types (adult, subadult, juvenile, breeding, and non-breeding) are illustrated. Where flight patterns are key identificatory features, these are illustrated as in the case of the seabirds, and some raptors, particularly the harriers (Plate 22). Plate 1 for example is very useful because it shows the juvenile plumages of most species of pheasants and partridges, which are rarely ever illustrated. Plate 4 gives good illustrations of the male nuptial displays of some of the pheasants. The works of Chris Rose, David Quinn, Peter Hayman, Philip Burton, and Ian Lewington are among the best in the book. In addition to capturing the correct jizz of the birds, both while perched and in flight, there is also near accurate color as well as attention to detail. Dana Gardner's works, although lacking the detailed treatment of some of the other artists, accurately show the jizz and color of most birds. There are however some obvious weaknesses in some of the illustrations, e.g., Red Junglefowl (*Gallus gallus*; Plate 3) lacks the characteristic slim and streamlined appearance, looking rather plumpish, whereas the neck of the adult Purple Heron (*Ardea purpurea*) (Plate 10) should be slimmer and proportionately longer with a more prominent 'S'. The plate captions at the foot of the plate should ideally have the number preceding the name of the bird to make reference easier.

Despite the few shortcomings, this is an important textbook because the detailed treatment of each species will be extremely useful in the study of the avifauna of not only the Malay Peninsula but South and Southeast Asia as well. The detailed background information on the physical and biological information of the Malay Peninsula together with the high quality color plates adds to its value. This volume also serves as a forum to address vital conservation issues, which previous publications have had limited success. It will be an ideal addition to the libraries in high schools, colleges, and universities. While a plethora of new publications on the birds of the region continue to flood the market, this volume (and hopefully Volume II—Passerines, in prep.) will establish itself as the most authoritative standard reference work on the birds of the Malay Peninsula for many years to come.—ALLEN JEYARAJASINGAM, Bird Conservation Council, Malaysian Nature Society, P.O. Box 10750, 50724 Kuala Lumpur, Malaysia, e-mail: natsoc@po.jaring.my

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