

Book Reviews

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“GO TO THE ANT. . . . CONSIDER HER WAYS AND BE WISE”—KING SOLOMON

Chown, Stephen L., and Sue W. Nicolson. 2004. **Insect physiological ecology: mechanisms and patterns**. Oxford University Press, New York. ix + 243 p. \$124.50 (cloth), ISBN: 0-19-851548-0 (acid-free paper); \$32.50 (paper), ISBN: 0-19-851549-9 (acid-free paper).

Key words: evolutionary physiology; insect; macrophysiology; physiological ecology.

These are exciting times to be a physiological ecologist. Up through the 1960s, when “physiological ecology” was more accurately termed “environmental physiology,” the focus was on documenting physiological responses to environmental stresses, elucidating mechanisms of those responses, and describing apparently adaptive covariation of physiological traits with habitat conditions. It is impossible to overstate the value of the biological insights provided by workers of that period. However, the research paradigm began to change in the 1960s. Technological advances and the explosive development of evolutionary ecology and modern genetics were providing new analytic and conceptual tools that we could apply to the study of physiological adaptation. By the early 1980s, studies focusing on fitness consequences of inter-individual variation in physiological traits and had begun to appear, and the papers in *New directions in ecological physiology* (Feder, Martin E., Albert F. Bennett, Warren W. Burggren, and Raymond W. Huey, editors. 1987. Cambridge University Press, New York, New York) helped define the changing paradigm. The years that followed were characterized by an increasing integration of field and laboratory work, and recognition of the benefits of an explicitly phylogenetic approach to experimental design was an important conceptual advance. Finally, the relatively recent efforts to quantify individual fitness impacts of habitat variation and physiological response under natural conditions in the field represents a most promising direction for physiological ecology to follow.

The last 20 years have been exciting ones, and physiological ecology as a discipline has truly come of age. The promise of Feder et al. is coming to fruition, and the era of evolutionary physiological ecology as a discipline is at hand. It is in this context that *Insect physiological ecology: mechanisms and patterns*, the first book to attempt a formal evolutionary ecology approach to physiology, has appeared, and its focus is insects! This is a Good Thing, as insects are ideal for studies of the evolutionary ecology of physiological adaptation.

Insect physiological ecology is basically a compendium of expanded review articles, and for the most part it succeeds as such, in spite of the lack of an author index. Even in this time of access to electronic journals, a printed version of the information contained in the book is useful. I predict the book will find its way to many bookshelves in short order.

The book is not without flaws, however. Ironically, one of the book’s remarkable features—inclusion of literature from its year of publication (2004)—contributes to a significant weakness: clarity of expression. Paragraphs tend to be too long and stray from the basic rules of paragraph structure, thereby losing focus. Too commonly encountered are sentences such as “These assumptions generally have (incorrectly) to do with thermoregulation, or correctly in the case of insects, with interactions between the temperature dependence of growth and development, and resource availability.” Likewise, I suspect that most readers will be confused on first reading: “Huey and Kingsolver (1993) argued that . . . performance at high and low temperatures [would be] inversely correlated,” only to read later that “a negative correlation [in CT_{min} and CT_{max}]. . . is precisely the converse of the terminology adopted by Huey and Kingsolver (1993).” Even more problematic is that too many of the tables and figures drawn from the research literature will be difficult for readers to understand without resorting to the original sources, because the accompanying legends and captions do not allow one to understand readily what the figure is conveying, let alone its significance for the topic at hand. There appears to have been insufficient time for the ministrations of a good editor, and the book’s readability suffers as a consequence.

The authors’ admittedly eclectic approach necessarily leads to unevenness in the presentation of topics. The theoretical treatment regarding gas fluxes is appropriately detailed and expansive, but presentation of the theory and practice of water and thermal relations research is less rigorous. Similarly, the longest chapter in the book, Chapter 5, is devoted to lethal temperature limits. While I appreciate having access to a survey of this literature, an entire chapter devoted to lethal temperature limits seems a bit much. Granted, absolute tolerance limits may be ecologically significant in the mix of species studied by the authors and their colleagues. However, temperatures that kill or even those that merely hinder locomotor performance, while easily determined in the lab, are of questionable significance in the population dynamics and evolutionary trajectories of most insect species. Indeed, a number of studies cited by Chown and Nicolson have shown that individual fitness components such as foraging effectiveness, mating success, and egg production are strongly impacted by the relatively small-amplitude hour-to-hour and day-to-day abiotic variation that characterizes most habitats. The authors acknowledge this (in a single sentence at the very end of Chapter 7), leaving one to wonder why some of the column inches that were devoted to thermal tolerance limits weren’t used to better effect in stronger presentations of other vital topics such as, say, chemical ecology (allotted four pages of text) and elemental stoichiometry (three sentences).

I was further surprised that detailed treatment of the effects of temperature, arguably the dominant abiotic parameter in the lives of insects, does not commence until the antepenultimate chapter. This choice of topic ordering necessitated

disjunct presentation of some thermobiology topics such as the Arrhenius equation and Q_{10} in the chapters on nutritional physiology (Chapter 2), metabolism (Chapter 3), and water balance (Chapter 4), which could have been avoided had the thermobiology chapters been presented beforehand. Again, a careful editor could have corrected this.

All that said, by no means do I intend this to be a negative—or even lukewarm—review. The book's shortcomings are not trivial, particularly in regard to how they impact the book's potential as a text, but as a resource for comparative and physiological ecologists, *Insect physiological ecology* is in company with the classic works of Prosser. The book has much to recommend it, and I like it—a lot.

In particular, I applaud the molecules-to-macrophysiology approach taken by the authors. Patterns at all levels of biological organization are captivating and clamor for explanation. Laboratory experiments are informative and essential, but conditions experienced by even the smallest organism in nature are complex and essentially irreproducible in the lab. Real understanding of the evolution of physiological adaptation to the environment requires data from field experiments, even at the cost of mechanistic rigor. The “macrophysiology” approach, by letting Nature do the sums, takes a leap across what has hitherto been a rather wide, albeit narrowing, conceptual gap between the physiology and the evolution and ecology camps.

Another salient feature of the book is Chown and Nicolson's choosing to highlight, rather than gloss over, problems and controversies relating to theory, methodology, and interpretation of data (cf. the presentation of the contentious field of metabolic allometry, or the discussion of Gillooly et al.'s 2001 rediscovery of the temperature-dependence of Q_{10}). In so doing, the authors substantially aided their effort to develop a coherent treatment of insect physiological ecology, and enhanced the book's utility for physiological ecologists contemplating research involving an insect system. I really appreciated this aspect of the book, and consider it a strong point.

Overall, *Insect physiological ecology* is a fine effort that arrives at a very opportune time. Over the past 30 years, insects have come to be recognized as superb model systems for the study of physiological ecology, and they will continue to play that role for the foreseeable future. King Solomon knew whereof he spoke, and this book—especially the stimulating Chapter 7—should definitely serve to encourage workers with different perspectives to get involved in insect-based research.

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STATISTICS WITHOUT MATH MERITS MIXED REVIEW

Magnusson, William E., and Guilherme Mourão. 2004. **Statistics without math**. Sinauer, Sunderland, Massachusetts. vi + 136 p. \$24.95, ISBN: 0-87893-506-1.

Key words: experimental design; Popper; statistics.

Statistics without math is the authors' answer to the oft-lamented need for a short primer to provide an overview of the experimental design and statistical methods needed to understand the ecological literature. The scope of the book is broader than the title indicates in that math is used (though often maligned and occasionally incorrectly calculated) and there is considerable philosophical conjecture (if not outright cynicism) as to the way in which ecological investigations are designed and data analyzed. I found myself agreeing with the authors on many points, disagreeing in other instances, or wanting them to get off their soapbox (e.g., types of statistics used “trivial,” “promote cultural identity,” a “cultural badge,” “display scientific culture”) in other instances. A wealth of insight on experimental design is provided and the basis for various methods of data analysis discussed. Criticism accompanies some topics (there are caveats) and the

underpinning of much of modern statistics (e.g., Popperian philosophy) is deemed to be “convoluted logic.” Much of the negativity is designed to make scientists think about their investigations and realize that much can go wrong, though it is also obvious that the authors have serious reservations concerning the use and misuse of statistics.

The reader is told within the first few pages that much of what will be discussed can be found elsewhere by reading the first few pages of each chapter of any major statistical textbook (i.e., this would “tell a story very similar to ours”). However, the assertion is made that all too often insufficient attention is devoted to the concepts presented in introductory pages, the result being that there is a rush to number crunching that comes at the expense of true insight. Analysis without knowledge of underlying concepts is fraught with danger, which is a theme that runs throughout the book (e.g., “If you do not have those concepts right, no amount of calculating formulas by hand, plugging data into computers, or mathematical theorems can make your work useful”). The authors indicate that their text is not a “how” book but rather a book that deals with “why” one does something, the logic being that if one knows the concepts then understanding the details should follow. The book is not comprehensive, and in the opinion of the authors, includes only major principles that

must be understood to intelligently use conventional statistics. Of the approximately 170 citations (text and reference section do not totally agree), most deal with conceptual and philosophical approaches (i.e., without math).

The first of 13 chapters provides an overview and basic introduction to experimental design. Chapter 2 introduces flow charts and stresses their importance to erecting hypotheses. Material in Chapter 3 touches upon simple descriptive statistics, the concept of mathematical distributions (e.g., normal), sample size, and confidence intervals. Chapter 4 looks at pseudoreplication and its effect on sample size and how both can influence strength of inference. Popperian philosophy and its basic tenets are discussed in Chapter 5. Chapters 6 through 8 deal with analysis of variance and linear regression. Partitioning of variability among factors, Type I and Type II error, and the concept of interaction are key topics. The major topic of discussion in Chapter 9 is variable selection. Chapter 10 revisits allocation of variability; the major thesis of this chapter is that except in very simple situations, it is not always possible to uniquely assign variability to just a single factor. The importance of understanding the difference among direct, indirect, and overall effects of factors is stressed. Nonlinearity and the problems that can arise from this are dealt with in Chapter 11. Without resorting to mathematics, Chapter 12 attempts to explain the general principles behind multivariate statistics and briefly addresses some common problems. The last segment (Chapter 13) and an online website (Chapter 14) provide guidelines for writing up results and tips for teachers, respectively.

I noted 38 errors in the 136-page text and an additional seven errors in the 10 page on-line supplement (Chapter 14). The most substantive of these (10 in total) are mathematical or deal with the plotting of data. Despite step-by-step instructions on how to calculate the association matrix presented in Table 12.2 from data presented in Table 12.1, only 12 of 66 values are correct. Mathematical errors such as those on page 43, which stem from incorrectly calculating mean-differences among the data presented in Table 5.1 are, like the former, troublesome. Additional errors such as those found in each of the three components of Fig. 5.2 are also unfortunate. Given that few data sets are provided that have sufficient information to be independently analyzed, the reader is forced to assume that the authors performed the operations correctly and that subsequent plots are correct. Errors such as the former are disconcerting and cast doubt upon attention to detail when it comes to actually doing math. The vast majority (29) of remaining errors (35) have to do with literature citations. Of these, most stem from items cited in the text and supplement that do not appear, or are improperly cited, in the References or Literature Cited sections of the text and on-line chapter, respectively. Remaining errors (6) are for the most part typographical or grammatical (e.g., data are, not data is).

Philosophical differences with many aspects of established statistical practices permeate every chapter. I selected material in Chapter 3 (basic statistics) to convey insight and exemplify fundamental aspects of the controversy. The authors take issue with basic statistics, as demonstrated by the following: "... most statistical summaries found in the scientific literature relate to extremely simple situations in which the statistics generally hide data instead of revealing pat-

terns." The merits of using absolute deviations over standard deviations are even debated; squared deviations and square roots of the means of these are far from intuitive and are apparently to be avoided until absolutely needed in more complicated analyses. Statistical techniques are acknowledged for being able to find patterns hidden in more complex data sets, but the authors argue that graphs and dispersion plots are often still more informative. They make the statement that "many scientists do not consider them [such graphs] scientific." The latter statement is made within the context that because "anybody, even non-scientists, could evaluate them" that these graphs and plots are not scientific. However, not all graphs are acceptable, as it is noted that "team members prefer graphs that display their scientific culture, even if these distort the information." Here, bar graphs are singled out, as statements such as the following are made: "If you want to hide your data, put them in a bar graph." The contention is that such graphs essentially hide all the information about the amount of data collected.

The book has a number of positive attributes, beginning with the example in Chapter 1 that showed how two biologists can come to completely opposing conclusions even though they both studied the same data. I like the emphasis upon the creation and use of flow charts and how this idea is championed throughout the book as an integral component of any study. Discussions of pseudoreplication are generally informative and appropriate for the intended audience. The initial example used to introduce Popperian philosophy was excellent and, even though I disagree with the authors regarding some aspects, the essence of the philosophy was explained well. Chapters 6, 7, 8, and 9 are generally informative and suitable for the intended audience. I particularly liked the discussion of path analysis in Chapter 10, which brings together a wealth of information and provides at least a partial synthesis of much of what the authors mention throughout various sections of the book. I also appreciate the inclusion of the data upon which discussions in this chapter are based, as this allowed me to independently analyze the data and confirm that they were correctly analyzed. The ability to appreciate the material in Chapters 11 and 12 (much of it is good) depends upon one's statistical background. I suspect that the material will be above the heads of many, as did the authors (i.e., "The concepts presented in this chapter have been complex, and we do not have the space to explore them in detail" and "... that is far beyond the scope of this introductory text").

Should you purchase the book? At the onset of the on-line chapter ("Tips for teachers") the authors indicate that the book was written to accompany their course, but they also state "We wrote this book to stand on its own." In my opinion the book does not fully stand on its own. Their course requires about 20 sessions with each session lasting about 3 hours, i.e., students receive 60 hours of instruction within a 2-week period. Intensive classroom instruction is almost certainly needed to understand many items presented in the latter part of the book. The utility of the text is in some respects greater for one who already knows something about statistical methods; a view perhaps shared by others given the inclusion of the following: "Some of our most enthusiastic students have been lecturers who teach university-level statistics courses."

Having taught biostatistics for over 15 years I can honestly state that I will modify my course somewhat to address some of what has been presented (e.g., “We hope that we have at least presented an idea of why some researchers do not use the standard statistical techniques that have become the badge of practicing ecologists”). Again, the book contains some good information and in many instances I like the approach the authors have taken but this does not extend to the entire book. I am not convinced that I would have every student in

class purchase the text, though having my own copy will serve as a catalyst for classroom discussion.

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BIODIVERSITY AND ECOSYSTEM FUNCTION IN FORESTS

Scherer-Lorenzen, Michael, Christian Körner, and Ernst-Detlef Schulze, editors. 2005. **Forest diversity and function: temperate and boreal systems**. Springer, New York. xxi + 399 p. \$169.00, ISBN: 3-540-22191-3 (alk. paper).

Key words: biodiversity; ecosystem function; forest ecosystems; species richness; trees.

The question of whether the number of organisms in a biological community has a predictable and generalizable influence on the nature of ecosystem processes is a long-standing theme in ecology. It has also proven stubbornly difficult to answer, given the challenges of conducting replicated experiments that simulate undisturbed natural communities and the enormous amount of environmental variability that plagues comparative analyses. These problems are particularly difficult to overcome in forests, which is why the brave undertaking of *Forest diversity and function: temperate and boreal systems*, edited by Scherer-Lorenzen, Körner, and Schulze, should be gratefully received by ecological researchers.

Whereas a limited number of diversity manipulation experiments have been performed using small-stature plants such as grasses and herbs, the large size and long life-span of trees present obstacles that generally preclude using this approach in forests. These same features can also introduce long lag times in feedbacks between community composition and ecosystem function, making it unclear how results from grassland experiments translate to forests. But if this is an area of research that is poor in experimental data, it is compensated by the history of theories that make up its underpinnings. As the editors note in the introduction, it was in 1828—over 175 years ago—when Heinrich von Cotta made the statement “Since not all tree species utilize resources in the same manner, growth is more lively in mixed stands and neither insects nor storms can do as much damage. . .” (as translated by H. Pretzsch). Embedded within von Cotta’s assertion are the two principal varieties of modern diversity-function theory, (1) that pools and fluxes of matter and energy should be greater in species-rich communities than in species-poor communities, and (2) that species-rich communities

should exhibit a greater ability to withstand or recover from disturbance. Both theories extend from the concept of niche separation and assume that differences among species traits should give species-rich communities access to a broader base of resources than are available to species-poor communities.

In 2002, a workshop was held in Weimar, Germany, to examine whether evidence for these theories could be identified using data collected in the years since von Cotta. This book is the result of that workshop, with individual chapters from a number of contributing authors. Although intended for researchers and environmental managers, it is clearly written and should also generate interest among graduate students. The book is divided into five sections. An excellent introduction by the editors lays the foundation and sets forth the rationale for conducting a review on the diversity-function relationship that is specific to forests. It includes a chapter by Christian Körner that surveys specific plant traits that cause functional diversity among species and provides the mental lubricant necessary for the remaining sections. The remainder of the book includes sections on “Productivity and growth,” “Biogeochemical cycles,” “Animals, pests, and disturbances,” and a final section offering perspectives and thoughts for the future.

Given the long history of forest management in Europe, it is not surprising that the section on productivity and growth draws heavily on data from forest plantations which have been studied for an impressive amount of time, as much as two to three centuries in some cases. This is largely due to the historical importance of wood as an energy source, which provided economic incentives to seek methods for maximizing productivity. The result is an interesting analysis (both scientifically and historically) of pure versus mixed species stands that could come from few other parts of the world and is one that offers useful insights into the diversity-function question, even if it ultimately does not provide a definitive answer regarding trends across broader gradients of diversity.

However, there are two principal difficulties with this approach, one of which was addressed in depth by the authors and the other of which was given much less attention. The first is the issue of confounding factors such as climate, soil type, and disturbance history, which are difficult to control in retrospective analyses and can underlie patterns observed

across multiple studies. Chapter 4 deals explicitly with this issue. A more subtle issue is the fact that plantations, by definition, consist of species that occur in a state of disequilibrium with their physical and biological surroundings. Natural species assemblages reflect the net effects of disturbance, adaptation, and competition among species and, over time, species distributions tend to arrange themselves along predictable resource gradients. According to theory, it is this process that ultimately produces the niche separation and complementarity that drives the diversity-function relationship. Human redistribution of species removes this as a mechanism and thus represents an additional confounding factor. Although the authors are clearly aware of this issue (e.g., section 16.5), I was left wanting to hear more of their thoughts on the subject.

The section on biogeochemical cycles begins with a chapter discussing a unique 50-year-old forest mixture experiment in Northwest England. Although the experiment is limited to single-species plots and two-species mixtures, resulting patterns of foliar chemistry, soil nutrients, and organic matter turnover provide useful insight into the potential for synergy versus inhibition between species. A chapter focusing on evapotranspiration takes a different approach, beginning with a series of physical process calculations applied across multiple scales and concluding with an analysis from the FLUXNET database. Chapters on litter quality, decomposition, and soil carbon storage summarize similarly modern data sources, with consideration of results from molecular, biochemical, and isotopic analyses.

Whereas chapters on productivity and biogeochemistry focus primarily on rates and pool sizes, the section on animals, pests, and disturbances leaned more heavily towards the resistance/resilience side of the diversity-function question. This is understandable, given the history of the disciplines, but the book would benefit from more integration across disciplinary lines. Animals, pests, and disturbances can, after all, have enormous effects on productivity and biogeochemistry, but there were few cases where these linkages were examined. Nevertheless, readers will find a wealth of useful

information and interesting perspectives on topics ranging from the introduction of pathogens in North American forests to the susceptibility of forests to wind damage and the influence of plant functional types on fire regimes and carbon cycling (one example where disturbance and biogeochemistry are fully integrated).

The final section offers perspectives from the book's editors on where the earlier chapters leave us and gives suggestions for future experiments. Chapter 17, the book's concluding chapter, provides such a clear and elegant summary of the issues dealt with throughout that I would recommend reading it twice, once before and then again after the rest of the book.

Although I enjoyed reading this book and would heartily recommend it to interested researchers, its main limitation is that it focuses perhaps too heavily on low diversity systems. As a result, whereas there are many interesting comparisons between, for example, monocultures and two-species mixtures, there are few opportunities to address the generality of patterns across broader diversity gradients. Evidence for this is seen in the fact that the book contains few graphs in which species richness appears on the *x*-axis and is contrasted with a *y*-axis showing patterns of a specific functional attribute. Ultimately, those are the axes we would like to see populated. Much of this can be attributed to a data constraint that the authors simply had to make the most of, but I think readers would benefit if individual chapters had reached back a bit farther to make explicit connections to the theories described at the outset of the book. There are tantalizing examples where individual comparisons either countered or supported a particular theory, but the final synthesis will apparently have to wait for a future volume. However, with the momentum this book should generate, I'm hopeful that it won't take another 175 years to appear.

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RIVERS AND THEIR ENVIRONMENTAL HISTORY

Wohl, Ellen E. 2004. **Disconnected rivers: linking rivers to landscapes**. Yale University Press, New Haven, Connecticut. xiii + 301 p. \$35.00, ISBN: 0-300-10332-8 (alk. paper).

Key words: channelization; environmental history; geomorphology; pollution; rivers.

In the title to her book on river processes and ecology, *Disconnected rivers*, Ellen Wohl emphasizes the need for "linking rivers to landscapes." However, as she demonstrates

in her book, she is really focusing on the importance of linking rivers to their history. People have been modifying rivers for centuries in the U.S. What are the impacts of those modifications on river processes and ecology? What are the legacies of our approach to rivers on their current state? How can we change how we treat rivers? These are the questions Wohl addresses.

Moving across the North American continent, Wohl documents the modifications people have made to river systems over the previous centuries. She divides impacts both by the types of modifications they make to rivers as well as some of the fundamental causes and actors. She examines the im-

pacts on river systems of mining and logging, pollution, channelization and dam building, and finally restoration by structuring chapters around some of the underlying social processes, which she terms pioneer, commercial, bureaucratic, and rehabilitation impacts. Within each chapter, she provides a brief review of geomorphic and ecological processes related to the particular river modifications before presenting in-depth case studies documenting the physical and ecological impacts on particular rivers. These case studies include the rivers of the Sierra Nevada of California and the impacts of 19th century placer mining, the effects of urban, agricultural, and industrial pollution on the Illinois and Cuyahoga Rivers, the consequences of channelization on the Yazoo River system, and the current efforts to restore the Kissimmee River.

The importance of Wohl's historical approach to understanding rivers is clear from her discussion of both river destruction and restoration. She convincingly demonstrates the historical and geographic ubiquity of nineteenth century mining activities and the impacts that remain today, over a century after their occurrence, on the form, chemistry, and ecology of a large proportion of North American rivers. In her chapter on rehabilitation, she discusses early restoration efforts that focused on the "improvement" of fishing habitat that ignored natural channel processes and watershed linkages. For instance, building log-drop structures in treeless alpine areas was not only silly, given the lack of large wood in the habitat, but also led to erosion and river deterioration as well. These lessons from early restoration efforts should lead us to critically examine current "restoration" activities that rely on the construction of large, in-stream structures, such as those she documents in the Yazoo system.

A nice feature of the book is the conclusion of each chapter in which she presents an extended discussion of a single species, and how its ecology integrates all of the river processes she has discussed previously. Some of these species, like the alligator and paddlefish, bring home the points of her chapters well. However, for others, like the dipper, she is unable to cite direct evidence for an impact of mining, and she needs to be more speculative.

The book has many useful maps and tables that summarize the biogeography of North American Rivers, along with their chemical and physical characteristics and the dominant threats to their ecology. Also effective are the many historical photographs documenting the widespread modification of rivers in the U.S. The photograph of an erosion-control structure built on a small Mississippi creek that dwarfs the scientists in the foreground makes abundantly clear the dramatic measures used to remediate past impacts on rivers.

Wohl divides the history of river modification in the United States into pioneer, commercial, bureaucratic, and rehabilitation eras. These distinctions, however, are not particularly helpful for understanding how and why U.S. society has affected its rivers. In her chapter on pioneer impacts, she discusses human modification of rivers primarily as those of individual "pioneers" attempting to wrest a living from the land. By focusing on individuals, however, she ignores markets and U.S. colonial ambitions, and how these link pioneer activities to both her commercial and bureaucratic categories. Further, she underestimates the capital-intensive nature of California placer mining that is so well analyzed in Gray Brechin's *Imperial San Francisco: urban power, earthly ruin* (1999. University of California Press, Los Angeles, California) and logging, analyzed in William Cronon's *Nature's metropolis: Chicago and the great west* (1991. Norton, New York). Gold and silver mining in the Sierras was quickly dominated by highly capitalized mining syndicates, and bore very little relation to the myth of the individual pioneer panning for gold.

There are a number of minor errors in her accounts. On the river I am most familiar with, she makes a number of interpretive and factual errors. Her discussion of the Illinois River misinterprets the impact of navigation dams on the river, where she attributes the presence of "so-called" lakes to the ponding action of the dams. In fact, the abundant lakes of the Illinois River valley are natural floodplain lakes that are little affected by the navigation dams, which during high water, have no reservoir effect at all. She further misconstrues Stephen A. Forbes as considering sewage to be beneficial to the Illinois River. Forbes spent much of his career documenting the serious impact of sewage on the upper Illinois River, and working to get Chicago to build sewage treatment plants.

This book will be useful to ecologists interested in the connections among physical processes, history, and ecology, as well as to river activists who are looking for an entree into the vast literature on river modification. Finally, I should note that Ellen Wohl is donating all proceeds to American Rivers, the river conservation organization.

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Spotlight

RECENT PUBLICATIONS OF PARTICULAR INTEREST

Duellman, William E. 2005. **Cusco Amazónico: the lives of amphibians and reptiles in an Amazonian rainforest.** Cornell University Press, Ithaca, New York. xv + 433 p. \$74.95, £40.95, ISBN: 0-8014-3997-3 (alk. paper). This book details the lives of 151 herps of southeastern Peru. Eleven chapters provide background on the physical and biological environment. The species accounts are accompanied by photographs, line drawings, sonograms, and keys.

Mittermeier, Russell A., Patricio Robles Gil, Cristina G. Mittermeier, Thomas Brooks, Michael Hoffmann, William R. Konstant, Gustavo A. B. Da Fonseca, and Roderic B. Mast. 2003. **Wildlife spectacles.** The University of Chicago Press, Chicago, Illinois. 324 p. \$50.00, £35.00, ISBN: 968-6397-72-8 (acid-free paper). Enormous congregations of animals, including monarch butterflies, desert locusts, giant tortoises, macaws, bats, squid, and salmon, are recorded in truly spectacular photographs. Each group of photos is accompanied by a 2–3 page essay about the organism.

BOOKS AND MONOGRAPHS RECEIVED THROUGH MARCH 2005

- Brown, Lester R. 2004. **Outgrowing the earth: the food security challenge in an age of falling water tables and rising temperatures.** W.W. Norton, New York. xvi + 239 p. \$27.95 (cloth), ISBN: 0-393-06070-5; \$15.95 (paper), ISBN: 0-393-32725-6.
- Capinera, John L., Ralph D. Scott, and Thomas J. Walker. 2004. **Field guide to grasshoppers, katydids, and crickets of the United States.** Cornell University Press, Ithaca, New York. vi + 249 p. \$65.00 (cloth), ISBN: 0-8014-4260-5 (alk. paper); \$29.95 (paper), ISBN: 0-8014-8948-2 (alk. paper).
- Duellman, William E. 2005. **Cusco Amazónico: the lives of amphibians and reptiles in an Amazonian rainforest.** Cornell University Press, Ithaca, New York. xv + 433 p. \$74.95, £40.95, ISBN: 0-8014-3997-3 (alk. paper).
- Faber, Phyllis M., editor. 2005. **California's wild gardens: a guide to favorite botanical sites.** University of California Press, Los Angeles, California. xii + 236 p. \$34.95, ISBN: 0-520-24031-6 (alk. paper).
- Feldmeyer-Christe, Elizabeth, Sucharita Ghosh, Otto Wildi, Niklaus Emanuel Zimmermann, and János Podani, editors. 2004. **Modern approaches in vegetation monitoring.** Akadémiai Kiadó, Budapest, Hungary. 143 p. €70, ISBN: 963-05-8183-3.
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