coverage is uneven, as would be expected from the varied interests of the authors, and there are some inconsistencies from chapter to chapter. For example, on page 88 it is stated that the evidence for the essentiality of manganese for humans is equivocal, yet information on page 3 indicates that such a requirement has been established. Nonetheless, the book is highly recommended.—*Roy L. Kisliuk, Biochemistry and Pharmacology, Tufts University*

Insect-Plant Interactions. James R. Miller and Thomas A. Miller, eds. 342 pp. Springer-Verlag, 1986. $67.

Students and researchers interested in experimental work on natural or agricultural insect-plant systems will find this a compendium of useful information on how to examine these interactions from the viewpoint of the insect. The chapters of the multiauthored volume emphasize description and appraisal of approaches and methods used to study specific behavioral, developmental, and electrophysiological responses of herbivorous insects to plants and plant products. This emphasis contrasts with the more usual critical review that focuses on results and interpretation—rather than methods—of experimental work.

The challenge that faces authors and editors of material on methods is twofold. First, there needs to be enough detailed information to serve knowledgeable researchers as a useful handbook. Second, those working on unfamiliar ground need conceptual guides to enable them to think broadly about what methods and experimental designs are appropriate for examining specific questions. In general, the chapters in the volume meet this two-part challenge admirably.

Most chapters are particularly successful in providing succinct descriptions, illustrations, and appraisals of approaches while alerting readers to important problems that researchers are likely to encounter. Some chapters include discussion of methods of data analysis.

If the volume indeed fulfills its promise to be an influential and well-used reference on research in insect-plant systems, we can look forward to experimental work of high quality in the near future.—*F. S. Chew, Biology, Tufts University*

Phylogeny Reconstruction in Paleontology. Robert M. Schoch. 353 pp. Van Nostrand Reinhold, 1986. $52.95.

Although the title of this volume suggests that the contents will be limited to the role of phylogenetic analysis in paleontology, in fact the author's aim is broader. Schoch attempts to provide a general review of many aspects of phylogenetic analysis, and along the way he discusses its application to paleontology. He succeeds in providing a general overview of ideas and methods in systematics and covers topics such as species concepts, parsimony, cladistics, historical biogeography, phenetics, and classification. Although usually treating each topic briefly, Schoch gives a general introduction and an entry into the recent literature. An extensive bibliography containing many references up to 1985 and a glossary are included.

I would have preferred to see more discussion of quantitative methods in phylogenetic analysis, especially since such methods have recently become widely used and have forced phylogeneticists to confront many previously hidden assumptions that underlie historical reconstruction. In addition, there is no discussion of the important effect that adding fossil taxa to a cladogram (based initially only on extant taxa) can have: fossil taxa may alter the globally most parsimonious distribution of characters so that the final cladogram displays a different pattern of relationships for the extant taxa than originally supposed. Schoch provides good criticisms of several common practices in the literature, such as the use of adaptive grades and nonmonophyletic taxa to analyze evolutionary patterns, and concludes with a discussion of the importance of phylogenetic analysis in evolutionary studies.

The book suffers a bit from the breadth of its coverage. In attempting to cover most important ideas in systematics, Schoch does not address any one topic in depth, nor does he accord detailed treatment to several issues that directly relate to the role of paleontology in phylogenetic reconstruction. Nonetheless, the book succeeds in providing a clear review of issues and methods in phylogenetics that will benefit neontologists and paleontologists alike.—*George V. Lauder, Biological Sciences, University of California, Irvine*

Wildlife Conservation Evaluation. Michael B. Usher, ed. 394 pp. Chapman and Hall, 1986. $69.95 cloth, $27.50 paper.

Consider that you are responsible for conserving wildlife, and you must ensure that natural resources—including plants and animals—are maintained in a self-perpetuating state. Given that you cannot protect all wildlife resources, you will have to choose among properties and their resident taxa. These choices will be guided by one or more conservation values such as diversity, rarity, representativeness, naturalness, and threats. These values are the common thread uniting the chapters in *Wildlife Conservation Evaluation.*

More the stuff of agencies than of academia, the chapters describe conservation evaluation efforts in a range of situations from developed countries with seminatural landscape and well-inventoried wildlife to a tropical country where little is known about the rich flora and fauna. Particularly welcome are the unusual discussions of invertebrate evaluations and conservation on agricultural lands. Intended to be practical, the book sometimes resembles a manual for the methods described.

The book should stand but not alone on the conservation shelf. While useful and balanced, it has an ambitious agenda that is only partially achieved. It intends to be broadly based; however, most chapters focus on Great Britain, and this lends a provincial perspective. Also, it should not be assumed that the overviews of evaluation efforts in various countries are comprehensive. For instance, the chapter on the United States does not discuss the National Wetland Inventory administered by the US Fish and Wildlife Service. In addition, the target of the conservation values is ambiguous: is the primary concern land or species? Although species will not be conserved without conserving land, and vice versa, the values are biased toward emphasis on one or the other.

More important, *Wildlife Conservation Evaluation* lacks an evaluation of the evaluation processes themselves. A broad critical overview is needed to synthesize the book. Without this, the book is largely a series of descriptive reports that never address the trade-offs facing protection planners and funding agents who must espouse some values at the expense of others. Only the chapter on preserve design evaluates the conflict surrounding the use of some conservation values (area and diversity) as it explores whether it is better to preserve Single Large Or Several Small preserves (the SLOSS debate).—*Mary E. Palmer, Botany, Nature Conservancy International, Washington, DC*

Botanical Microscopy 1985. Anthony W. Robards, ed. 368 pp. Oxford University Press, 1985. $32.50.

Plant cell biologists are concerned with the interrelationships between structure and function at the whole cell level. A few hardy survivors even venture to consider how cell structure and function integrate into the entire organism. For several decades we have accepted the ultimate image of life as that presented in the electron microscope despite the fact it was primarily based on tissue that had been chemically fixed and dehydrated, embedded in plastic, chopped into thin sections, put into a vacuum, and observed at elevated temperatures by means of an electron beam. At least some authors in the volume take issue with this approach, and the most articulate is Heslop-Harrison, who has written, in chapter 1, a masterful overview of botanical microscopy. He notes that recent advances in microscopy and microtechnique now enable the microscopist to