

few exceptions (e.g., *Petalostemum*, a genus that Barneby sank into *Dalea* in 1977, is discussed as being poorly differentiated from *Dalea*). The dichotomous key to families is indented, easy to read, and numbered such that it is very easy to backtrack. This is a big advantage because my major criticism of the book is that Powell borrowed the family key from Correll and Johnston's *Manual of the Vascular Plants of Texas*. This key can be notoriously difficult and, while we are spared the "not as above" couplets, the dreaded "spirally coiled embryo" couplet still must be traversed to arrive at the Chenopodiaceae. Generic and species keys are much better, probably because many of them are tailored for the Trans-Pecos.

The illustrations are very good and might make up for the defects in the key as one can leaf through the manual looking for the plant in question. A remarkable number of the species are illustrated (the Agavaceae and Cactaceae with photographs rather than line drawings) and although the drawings have been reduced in size to conserve space, the salient features can still be seen.

There are many small errors scattered throughout the text and the book would have benefited from more careful editing. Thus, we find *Cercocarpus* is misspelled as *Cercocarcarpus*, Figures 2 and 3 in the introduction seem to have been switched, and *Krameria parvifolia* is found in every country rather than county.

In his preface, Powell states that the book is intended for use by both scientists and non-scientists. It is obvious that he has made a serious attempt to avoid overusing technical terminology and to include common names. As a consequence, both the introduction and floristic treatments are eminently readable. Were it not for the family key, I would whole-heartedly recommend the book to any amateur botanist. The book is handsomely bound with a durable plastic-coated cloth cover and sewn pages and should withstand many seasons in the field. *Trees and Shrubs of Trans-Pecos Texas* is a valuable addition to the growing body of regional floras and will be a useful tool for all those interested in this beautiful and fascinating area.—MELISSA LUCKOW, Department of Botany, University of Texas, Austin, TX 78713.

A Guide to Wildlife Habitats of California. K. E. MAYER and W. F. LAUDENSLAYER, JR. (eds.). 166 pp., paperbound. California Department of Forestry and Fire Protection, Sacramento. 1988. Copies may be obtained from WHR Coordinator, Department of Fish and Game, 1701 Nimbus Road, Suite D, Rancho Cordova, CA 95670. \$13.02 including tax and shipping.

This is the first of several publications from the California Wildlife-Habitat Relationships (WHR) System designed to serve as ecosystem-oriented resources for wildlife biologists and managers in California. The *Guide* describes various wildlife habitats that constitute the WHR classification system that was developed by the California Interagency Wildlife Task Group. Its goal is to identify and classify existing vegetation types important to wildlife. One objective of the WHR system is to address the problem of confusion among vegetation/habitat-type classifications prepared for different purposes (e.g., wildlife biology, range management, forestry, etc.) by providing a framework that can be used by all. The introduction describes the purposes for which the book has been designed, how it was constructed, and how it is to be used. It includes a tabular comparison of the WHR classification with others published for California vegetation. Contributions by various specialists have been tightly edited for standardization of format and information content. "Habitats" (communities) are grouped as "Tree-dominated," "Shrub-dominated," "Herbaceous-dominated," "Aquatic," and "Developed."

The one- to two-page written summary of each habitat type begins with "Vegetation," a section broken into paragraphs on structure (physiognomy), composition including dominants and major associated species, and a comparison of other classification schemes. A section entitled "Habitat Stages" is a summary of current knowledge (often very little) about successional relationships. The "Biological Setting" includes a brief description of "habitat" that lists ecotonal relationships of the habitat

type being described and "wildlife considerations" that summarizes the importance of the community to wildlife. "Physical Setting" describes the characteristics of the physical environment within which the habitat type occurs. "Distribution" includes a paragraphic summary with geographical range and elevational zonation. A map depicts the community's distribution or potential distribution in California. Some maps are much more generalized than others; for instance, the distribution of the "Blue-oak" habitat type is broken into many tiny patches whereas that of "Joshua Tree" is a single large blotch that includes many areas where this species does not occur. There is a single high-resolution color photograph of each community. Line drawings of various birds, mammals, reptiles, and amphibians that occur in California are dispersed through the text, generally one per community; these do not appear to be indexed in any way.

A curious feature of the WHR classification is the unevenness of "habitat" definition. This is noted in the introduction as a "Caveat for Users," but the rationale for the differences in inclusiveness is not always readily apparent. For example, "Blue Oak" is treated as a separate habitat from "Blue Oak-Digger Pine" though the two intergrade extensively and share the same suite of associates. On the other hand, "Coastal Scrub" is defined so broadly that communities with no species in common at all are included together. Within "Coastal Scrub" the plants of beaches and dunes are grouped together with species of other very different environments and are not even mentioned in the community discussion. One would hope that management practices for dune communities would be different from those of areas with more stable substrates and different ecological constraints. A "habitat" entitled "Chamise-Redshank Chaparral" is depicted as occurring throughout most of cismontane California although redshank (*Adenostoma sparsifolium*) is found no farther north than San Luis Obispo County and forms communities quite different in physiognomy and stature than chamise (*Adenostoma fasciculatum*).

The book has a collective "Literature Cited" section. Common names are used in the text, and are cross-referenced to species names in a "Species List" at the end of the book. This is a one-way cross-reference; a user who knows a species name but not the common name can spend a lot of time looking. Additionally, some common names are of peculiar derivation, and may not be the names used commonly by people in the field—always a problem with common names. A shortfall of the book is the lack of an index.

Despite its shortcomings, the *Guide* is sure to be a useful addition to the information available to wildlife biologists and wildlife managers. The price is very affordable. I hope that the editors will readily accept input from the botanical community and prepare a revised edition before too much time has passed.—DAVID J. KEIL, Biological Sciences Department, California Polytechnic State University, San Luis Obispo, CA 93407.



Keil, David J. 1989. "A Guide to Wildlife Habitats of California by K. E. Mayer, W. F. Laudenslayer, Jr." *Madroño; a West American journal of botany* 36, 57–58.

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