Aquatic and Wetland Plants of Southwestern United States

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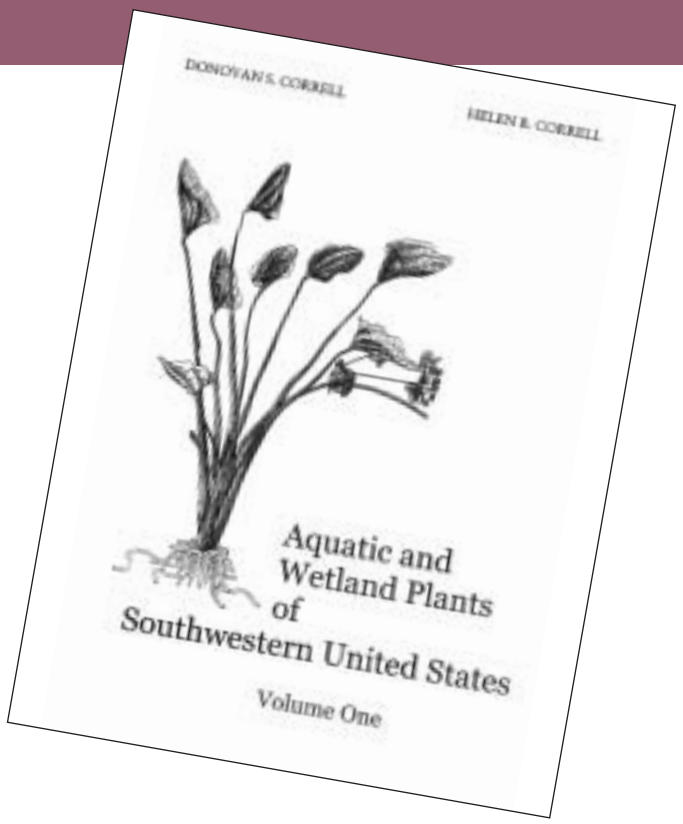
Blackburn Press, PO Box 287, Caldwell, New Jersey 07006. URL: http://www.blackburnpress.com. 1777 p with 789 p of line drawings, 2 paperback volumes reissued in 2002 from original 1972 printing, ISBN 1-930665-52-0 US$ 125.



This classic book, the result of a 9-y research endeavor sponsored by the US Environmental Protection Agency (EPA), was recently returned to print by Blackburn Press. The EPA, newly established in 1970, had a mission to gather information on effects of environmental pollutants. The authors' primary aim was to "enable the identification of ferns and flowering plants that grow naturally in polluted and unpolluted aquatic and wetland habitats." It is an important reference for biologists, ecologists, and management personnel in determining species composition of wetland and riparian habitats within the political boundaries of Arizona, New Mexico, Oklahoma, and Texas. Some ecological information is provided, based on personal observations of the Corrells, supplemented by literature. It does not, however, pretend to be a study of the ecology of wetlands, rather it is a taxonomic treatment of species that comprise them. Nine thousand voucher specimens were collected from fieldwork undertaken in the Southwest. Distribution information is based primarily on field collections, with additional information from herbarium specimens, published monographs, revisions, floras, and other literature.

The authors preface the bulky volumes with 4 introductory sections. In "Habitats Associated with Aquatic and Wetland Vascular Plants," artificial lakes, coastal and fresh water marshes, swamps, high elevation bogs, riparian zones, coastal habitats, and other wetland habitats are briefly characterized according to the dominant vegetation, sometimes discussed in a successional context. "Peculiarities and Distribution of Aquatic and Wetland Vascular Plants" explains how variations in local edaphic and biotic conditions invalidate all but a few generalizations about "vascular hydrophytes." Some of the adaptations associated with aquatics are described, such as heterophylly, specialized tissues for buoyancy, submerged flowers, and capacity for vegetative reproduction. Abiotic and biotic dispersal mechanisms are briefly discussed. Section III, titled "Economics and Control of Aquatic and Wetland Vascular Plants" addresses some of the practical applications of the manual. The introductory section concludes with "Pollution in Aquatic and Wetland Habitats." Here, the Corrells summarize information on primary water pollutants and their environmental effects. A tone of frustration is evident, as they distress over the contamination and alteration of wetlands and criticize poor waste management practices, use of herbicides, and lack of interest in studying the biological effects of aquatic pollution.

Dichotomous keys are provided to identify plants, beginning with a key to the major plant groups of Pteridophyta (11 families), Gymnospermae (1 family), Monocotyledoneae (29 families), and Dicotyledoneae (88 families), followed by family keys and then species keys. Plant identification to family is impossible without flowering parts in the monocot and dicot keys, making their use limited. Character descriptions are provided for each family and each species, which is extremely helpful for verifying identities. Most genera are illustrated (except for several in the Gramineae), which is where the book excels. The line drawings are detailed and informative. Species are described according to vegetative characteristics, stature,

details of floral and fruiting parts, distribution, and habitat, along with miscellaneous observations such as economic value, forage value, and origin. Lacking, however, is any mention of the likelihood of particular species being found in polluted or non-polluted environments (as might be expected from the introduction). Plant families are arranged phylogenetically rather than alphabetically, which means you must consult the index when looking up species or families.

Keys worked well for several species tested: *Zannichellia* (to family), *Potomageton crispus* (to species), *Baccharis emoryi* (to group, family, tribe, genus and species), and *Setaria verticillata* (to group, family, genus and species). Working with dichotomous keys can be challenging. These keys are replete with terminology and difficult to use for anyone lacking a botanical background. The comprehensive glossary, however, contains over 800 terms. Illustrations of selected fruit types, root and stem variations, types of placentation, inflorescences, pubescence, and leaf characters also are helpful.

Some information in this work is dated and many of the described species have undergone nomenclature changes over the past 30 y. For example, the treatment used for descriptions of Umbelliferae is dated 1900. The most recent reference is from 1970 (and the oldest from 1891) and some of the literature cited in the text is not referenced. However, subtle errors and outdated information do not detract from this prodigious and comprehensive work. Works of this nature are rarely undertaken. The Corrells describe plants from a range of regional wetland and riparian habitat types with accuracy and expertise. This mammoth undertaking required a tremendous amount of time, knowledge, and effort and has yet to be superceded.

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