
Foreword

Plant systematics has been thoroughly transformed over the last two decades. Theoretical and methodological advances, along with the availability of new sources of evidence, have made possible unprecedented progress in establishing phylogenetic relationships. Recent phylogenetic analyses have solidified many traditional views but have also provided surprises that fundamentally change our understanding of plant evolution. Moreover, the nature of the systematics enterprise has shifted. The idea that classifications should unambiguously reflect phylogeny—that taxa should be monophyletic—is now very widely accepted. The availability of phylogenies has also revolutionized the way we study character evolution, patterns and processes of diversification, historical biogeography, and so on. At the same time, the grim realization that biological diversity is rapidly being lost has fueled exploration of the world's flora, yielding a torrent of remarkable discoveries, not just about what species exist on Earth but also about patterns of diversity across the landscape and how these are changing. In short, this is a wonderful and especially important time to be a plant systematist!

Now we have an introductory textbook that does justice to what plant systematics has become—a book that captures and will help us convey the excitement of recent discoveries. Until now, this has been a problem. Change has been so rapid that plant systematics texts have shied away from presenting the latest results and instead have been organized along traditional lines. As a consequence, students have been trained in systems that are outdated and often misleading, which means they have a lot to unlearn. Students deserve better; they want and actually need to know what we think now, not what we used to think. They can cope with the obvious uncertainties in our knowledge; some will even be encouraged to join in and actually improve our understanding.

What I like most about this text is that it is phylogenetically oriented from start to finish. In providing an up-to-date account of phylogenetic knowledge, it also honestly and constructively exposes uncertainties and highlights competing accounts. The message comes across loud and clear that we are in the business of discovering relationships in the world and that this entails the critical evaluation of alternative hypotheses. Along these lines, one of the best features is that Judd and colleagues have not

adopted a classification system off the shelf—not Cronquist, not Thorne, not even the Angiosperm Phylogeny Group. In fact, the Judd et al. system differs from the APG classification in ways that I believe will make it better from the standpoint of teaching. For example, Apiaceae and Araliaceae are fused, Poales are subdivided, the betalain-containing plants are recognized as Caryophyllales, and (most importantly!) Dipsacales include Adoxaceae and an expanded Caprifoliaceae. At the very least, such differences between the systems will help highlight the arbitrariness of taxonomic ranks and the instability caused by the emphasis on them in traditional nomenclatural codes. Students will readily appreciate the desirability of abandoning ranks altogether.

This text also provides a clear introduction to phylogenetic methods and issues surrounding alternative views on species, as well as an actual analysis of the history of botanical systematics. Sources of morphological and molecular evidence are clearly presented and well-integrated throughout the text. It will be especially refreshing to teach from a book that minimizes jargon and consistently applies descriptive terms; for example, just four terms to describe leaf shape, and a few words describing individual hairs in place of many indumentum terms. The book is obviously exceptional from the standpoint of illustrations, many of which were prepared under the supervision of Carroll Wood for the Generic Flora of the Southeastern United States. Moreover, the CD-ROM that accompanies the text allows ready access to color photographs of actual plants.

On a personal note, I am truly delighted to see the publication of this book. This is a project that we discussed in the late 1970s when Walt Judd, Chris Campbell, Toby Kellogg and I were all graduate students at Harvard, working with Carroll Wood. The need for a book of this sort was obvious even then. Looking back, and contemplating the major changes that have occurred over the past twenty years, we are lucky not to have pursued it at that stage. Now, with a much better framework in place, the timing seems absolutely right, and the results clearly justify the wait. We can rest assured that the generation of students raised on this text will make even greater advances in understanding plant diversity and evolution, and that plant systematics will be transformed again.

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