

BOOK REVIEW

The Jepson Manual: Vascular Plants of California. B.G. Baldwin, D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken [editors]. 2012. 2nd edition, thoroughly revised and expanded. University of California Press, Berkeley, CA. \$131.95, hardcover; 1600 pages. ISBN-13: 978-0520253124.

Willis Linn Jepson spent his life documenting and describing California's flora. His effort resulted in 2 milestones in 20th-century botany—*A Manual of the Flowering Plants of California* (1925) and the distinguished Jepson Herbarium. Decades later, John Hickman led the completion of a 10-year project on a revised manual—*The Jepson Manual: Higher Plants of California* (1993)—that included nearly 70 years of new information about the ecology and evolution of the California Flora and completed the treatments of groups that Jepson didn't finish before his death. And now, finally, after 2 decades of massive efforts to collect field data, incorporate more herbarium records, and utilize advanced molecular techniques in phylogenetic systematics, we have a comprehensive, succinct, and prudent *vade mecum*—*The Jepson Manual: Vascular Plants of California, Second Edition* (2012).

The Jepson Manual: Vascular Plants of California, Second Edition (hereafter *TMJ 2*) feels like a final draft of nearly a century of work in the creation of a single, accessible, field-portable guide to California's flora. *The Jepson Manual: Higher Plants of California* (hereafter *TMJ 1*) rightfully praised 2000 contributors for its completion, which met its 10-year-completion deadline. Since *TMJ 1*, the Internet and other technological advances have revolutionized information exchange among collaborators and helped the work blossom into a global effort. For example, in 2003, the California Consortium of Herbaria was developed. The consortium has now digitized 1.8 million records from 26 institutions, and these records better inform geographic distributions, among other subject areas. As another example, development

of the Jepson eFlora web site (<http://ucjeps.berkeley.edu/IJM.html>) paralleled the compilation of *TMJ 2* and provided the most current changes from *TMJ 1* to *TMJ 2*, meaning that users could help edit information before the publication of *TMJ 2*. And those who are familiar with systematics know that the process of splitting, grouping, and realigning taxa will possibly last indefinitely. This begs the question of when to print, given that the information is ever-changing. *TMJ 2* was printed at a most appropriate time and brings users to non-trivial limits of our current state of knowledge about classification and ecology of the vast majority of California's rich and diverse flora.

Though the non-key matter of *TMJ 2* is very similar to *TMJ 1*, there are still notable differences. Many leaps and bounds in knowledge and understanding are taken in the second edition, made possible by the vast increase in contributing authors; the number of attribution pages jumps from 2.5 pages in *TMJ 1* to 6 pages in *TMJ 2*. One omission from *TMJ 2* that shall be missed, but is not necessarily needed in a guide to California's flora, is the history section. Found in *TMJ 1*, this section told a story of California floristic guides from Jepson (1925) until Hickman (1993). This history was empowering and inclusive, and it really helped readers feel as though they were a part of Jepson's "people's flora," while simultaneously giving readers a sense of the magnitude of the work Jepson and Hickman accomplished. *TMJ 1* had an aura of accomplishment and romance, for Hickman and colleagues had conquered the impossible. *TMJ 2* is much more refined, with old content changed or eliminated so as to use space more efficiently to keep within size constraints (i.e., Jepson's philosophy of creating a portable manual). *TMJ 2* also takes advantage of new molecular information to provide a more robust evolutionary approach. A broadscale example of the evolutionary approach of *TMJ 2* can be found in the back of the manual, where there is a higher-order phylogenetic tree showing the evolutionary relationships of all taxa covered in the manual to the family level.

The key in *TMJ 2* is 16% longer than the key in *TMJ 1*, with 150 minimum-rank taxa (species, subspecies, and varieties) that are new to science! These advances should be attributed to the laudable effort and strong commitment of California botanists. The larger size of the book mostly translates to more complete information (e.g., geographic distributions and phenology) for each treatment, principally in taxon descriptions. The plates focus on dichotomous characteristics of each taxon and are still among this user's most informative tools for identification, especially given that I do not only identify vascular plants when they are reproductive. *TMJ 2* added 12% more plates and 20% more illustrations, created and/or vetted by the same principle illustrator, Linda Ann Vorobik. Each of the more than 4800 illustrations are still informative and of the highest quality. The number of minimum-rank taxa stands around 6500, which is some few hundred more than the number described in *TMJ 1*. As it would take users a lifetime to use *TMJ 2* to identify each taxon, I can speak only on my use of a small subset of taxa in the few months I had to review this tome. In that minimal use, I found that keying in *TMJ 2* was equivalent to keying in *TMJ 1*. The big difference I noticed was that taxon descriptions were more comprehensive, which made the identification process simpler overall.

I commend Baldwin and the massive effort by all involved in updating *The Jepson Manual*. It is truly the paragon that all floral guides in the United States ought to emulate. As an

amateur botanist, I enjoy using and just having this book near, knowing that this collaborative effort has and will continue to grow out of the love for California's flora that we share. I think that we are at a dynamic and revolutionary time in our culture, when many of our tools are becoming digital and the future of print books is truly uncertain. The Jepson Flora Project seems to be ready for such a transition, as their suite of digital tools is improving by the day. In the meantime, *The Jepson Manual* still reigns as the unequivocal authoritative guide to California's flora. I, for one, will continue to lug my Jepson into the field until my days of botanizing are over, no matter how anachronistic books may become.

LITERATURE CITED

- BALDWIN, B.G., D.H. GOLDMAN, D.J. KEIL, R. PATTERSON, T.J. ROSATTI, AND D.H. WILKEN, EDITORS. 2012. *The Jepson Manual: vascular plants of California*, second edition. University of California Press, Berkeley, CA.
- HICKMAN, J.C., EDITOR. 1993. *The Jepson Manual: higher plants of California*. University of California Press, Berkeley, CA.
- JEPSON, W.L. 1925. *A manual of the flowering plants of California*. University of California Press, Berkeley, CA.

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