

Weeds of California and Other Western States: The Making of the Book

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There are three previously published weed identification books or manuals that have been widely used in California. The first was published around 1951 by W. W. Robbins, M. K. Bellue, and W.S. Ball and was entitled *Weeds of California*. A second edition of this book was published in 1970. Dr. Robbins was considered the first Weed Scientist in the United States and the Weed Science program at the University of California, Davis, is housed in a building named in his honor. In 1977, a second three-ring-binder weed guide to California was developed by the Fresno County Farm Advisor Bill Fisher, with help from June McCaskill and Dr. Art Lange. This guide, entitled *Growers' Weed Identification Handbook* (Fisher et al. 1977) primarily covered agricultural weeds of California. Most recently, the book entitled *Weeds of the West* by Tom Whitson and other western Weed Scientists (Whitson 1996) has become widely used. All of these books cover the most common weeds of the region.

While at Cornell University, my colleagues Drs. Rick Uva, Joe Neal and I published the *Weeds of the Northeast* (Uva et al. 1997). This book provided considerable detail on the identification and biology of about 300 weeds of the northeastern United States. In early 2007, in collaboration with Evelyn Healy, we published the most comprehensive weed identification guide yet produced in California or the United States entitled *Weeds of California and Other Western States* (DiTomaso and Healy 2007). This book was modeled after the *Weeds of the Northeast*. The production and statistics associated with this book are the focus of this paper.

Timetable and Collaborations

In 1997, the preliminary organization of the *Weeds of California* was initiated at the California Weed Science Society (CWSS) conference in collaboration with many UC Farm Advisors, Specialists and other faculty. At this meeting we determined what weed species to include within the book. Later that summer, the CWSS Board of Directors agreed to assist in the funding of the project by providing two years of support to hire a writer (Evelyn Healy). As a result, they are officially recognized as the sponsor of both this and the first aquatic book. Initially it was felt that the book would be completed by 2001. In reality, the book took considerably more time than was estimated. In this particular case, my naivety on the time commitment was probably an advantage, as I may not have initiated the project with early knowledge that the book would not be completed until the end of 2006.

To undertake such a massive project requires a considerable amount of good fortune and many outstanding individuals to assist in the process. In the case of this book, I was extremely fortunate to be surrounded by high quality professionals. To complete this project required that all the stars line up, and I had many stars to help in the process.

The financial support by the CWSS Board was imperative to the preliminary work. Employing someone as dedicated and with the perseverance of Evelyn Healy was critical to the success of the project. Evelyn researched each group to be included in both the *Aquatic and*

Riparian Weeds of the West and *Weeds of California and Other Western States* book. Each entry required about a week to research and write and she wrote approximately 300 separate entries for the two books combined.

In addition to Evelyn's skills, we were very fortunate to be able to work with and learn from the nationally recognized talents of the UC DANR principal photographer Jack Kelly Clark. Jack not only taught me the basics of photography, but also provided many of the slides, and processed most of the photos using Photoshop. Jim O'Brien was also temporarily employed by UC DANR to do the close-up photography of most of the seeds and his photos are spectacular.

Dr. Ellen Dean, the director and now curator of the UC Davis Herbarium, was a tremendous help to Evelyn and me on the identification of many weeds in the state. Our access to the herbarium was invaluable. The UC Davis Herbarium is known for its collection of weeds specimens, which was exactly what was necessary to carry on this project.

In addition to the photographers, the staff at DANR, including Bob Sams (Director), Ann Senuta (Publications Production Manager), Steve Barnett (Senior Editor), Celeste Aida Marquiss (Principal Producer Art Director), Steve Lock (Senior Photographer), Cynthia Kintigh (Marketing Coordinator), and Mike Poe (Media Services Manager) are, in my opinion, the best in the country in their professionalism and quality.

Book Statistics

To produce a book of this size and magnitude required a considerable amount of funding. For example, I procured \$350,000 in funding support and DANR invested more than that to produce the book. In total, the book required about \$1 million to produce.

It was decided in early 2001 that we would divide the project into two, with the first book published as the *Aquatic and Riparian Weeds of the West*. The widely used *Weeds of the West* book did not include aquatic species and, thus, the aquatic book was felt to be a counterpart to this publication.

In its final form the *Weeds of California and Other Western States* is two volumes, 1808 pages long. The book contains 262 entries (many of which cover several species). The main entries are organized alphabetically by family then genus. In addition, the book contains shortcut identification tables, two keys to grasses (one to vegetative characteristics), a list of non-native plants rarely or occasionally naturalized in California, a glossary, and a 65 page index that covers all common names, scientific names and synonyms. The list of non-native plants rarely or occasionally naturalized plants in the back of the book lists 722 additional species, of which 281 are not listed in *The Jepson Manual: Higher Plants of California* (Hickman 1993).

Up-to-date information is presented for 812 species. Of these, 451 are discussed in detail in the main entries and an addition 361 are discussed as related species at the end of the main entries. In total, 1534 species are included in the book.

There are over 3,000 color photographs in the two volume set. Of these, most were taken by me on trips across the western United States. I visited every county in California photographing weeds, collecting seeds in the field for later photography and to germinate for seedling photographs. Many of the photos in the book were taken by Jack Kelly Clark from previous outings and slides were also borrowed from several people, particularly Clyde Elmore,

Joe Neal, and CDFA. In the two volume book, there are a total of 657 close-up photographs of seeds, 326 seedling photographs, and 737 total species photographed. Most species are represented by multiple photos.

When the book was completed, it was reviewed by many people. The acknowledgements section of the people that assisted in this project is over a page in length. Each of the 262 entries was reviewed by two to three individuals for a total of between 550 and 600 individual reviews. All these comments had to be incorporated into the final version of the text. When all the changes were made, the book was submitted to DANR in November 2003. This submitted form of the book was a 900 page single spaced document that was accompanied by five large binders with the 3000+ slides. The document with just the photo captions was 72 pages long. DANR further sent the completed book and many of the photos to two or three anonymous reviewers for final changes.

The process of designing the books, finalizing the slides presentations, editing and re-editing took an additional three years until its publication date of 2007. The *Aquatic and Riparian Weeds of the West* and the *Weeds of California and Other Western States* compliment the production of the diagnostic CDs to weedy grasses and broadleaf species of California. This combination allows for diagnostic identification of nearly 1000 species and detailed information in the beautifully produced books. All these can be found on the calweeds.com website.

There are so many people to thank along this long road to completion, which required a total of nine years, including all the past and present CWSS Board members, the UCCE Farm Advisors and Specialists in Weed Science, UC Davis field staff, and particularly my research associate Guy Kyser, all my former graduate students, Dr. Andy Sanders at UC Riverside, and the CDFA botanists and staff that provided me with so much support. This is only a short list of all the people that helped in this effort and Evelyn and I are grateful to each and every one of them.

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