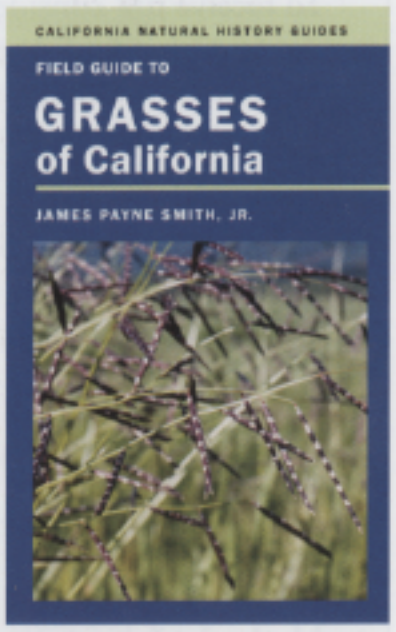
A Trio of Field Guides to Grasses

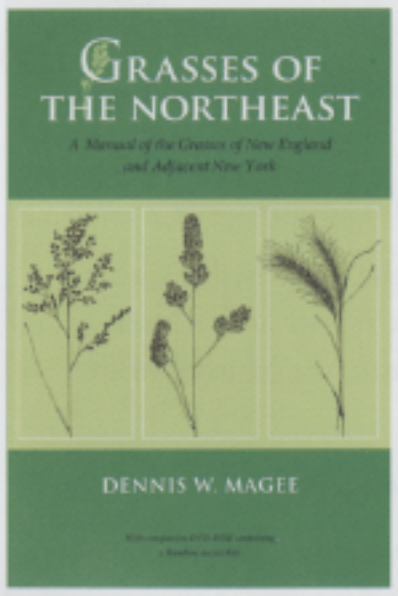
Book Reviews by Clay Antieau

For those of us who have taught grass identification, it's been a tough 30 years. We've had to develop our own teaching materials, create our own field identification guides for the regions in which we've worked, scrounged for informative illustrations, and so forth. Recently, however, we've been blessed by the appearance of published field guides to grasses authored by professional botanists and lifelong grass enthusiasts. Even so, don't be too hasty in discarding your old *Flora of the Pacific Northwest* (Hitchcock and Cronquist (1973), as I explain below.

Notable among these recent publications is *Grasses of California* by James P. Smith, Jr. (2014); *Grasses of the Northeast* by Dennis W. Magee (2014), and *Field Guide to Grasses of Oregon and Washington* by Cindy Roché et al. (2019). Despite their emphasis on grass identification, each is uniquely different.

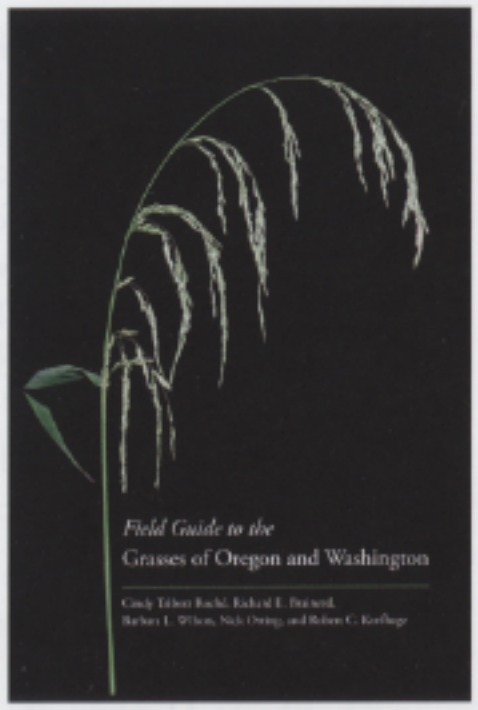


Smith's effort is written in a light, easy-to-read, and sometimes humorous style. He provides keys of his own creation and informative color photographs often showing the subject in a field setting. Descriptions of genera are arranged alphabetically. His description of where grasses occur and species lists for those ecosystems are particularly useful. Unfortunately, species distribution maps (at least to California ecoregions) are omitted.



Magee's field guide to the grasses of New England and adjacent New York includes keys prepared specifically for this publication and is rich in illustrative line drawings often taken, interestingly, from 1913 and 1950 publications. His descriptions are arranged by a former and more traditional view of grass tribes, which makes the guide challenging to use for those of us who don't find tribes all that useful for identification. He uses county-occurrence dot maps to illustrate species distributions. The book comes with a DVD with a random-access key based on software created by the Northwest's own Richard Old of XID Services. The DVD is also full of photographs (many by Richard Old), additional line drawings, and photographs of herbarium sheets that are not all that illustrative.

The effort by Roché et al. is remarkable primarily for the superb color macro-photographs created specifically for this publication. As students of grasses know, the "devil's in the details," so the interpreted photographs are especially helpful. The keys included are essentially the same as provided in Volume 1 of the *Flora of Oregon* (Meyers et al., 2015) and recently revised (2nd edition) of *Flora of the Pacific Northwest* (Hitchcock & Cronquist 2018). Descriptions of genera are arranged alphabetically. The guide uses dot maps based on herbarium specimens. Unfortunately, these species distribution maps tend to inaccurately depict known distributions of grasses, particularly in Washington. For example, based on my own personal observations, Washington distributions of *Briza minor*, *Bromus inermis*, *Molinia caerulea*, *Sclerochloa dura*, and *Ventenata dubia* are notably inaccurate, to name a few. This deficiency can importantly skew a reader's impression of distribution. Perhaps county-occurrence dot maps would have been a better choice to capture the "has been reported from" occurrences not documented by existing herbarium specimens. *Glyceria maxima*, a noxious species in Washington, is nowhere mentioned. Also, this reader had hoped for at least brief descriptions of the ecosystems in which these grasses occur.



Unfortunately, and no matter how well written they are, field guides to specific plant taxa often feel one-dimensional. While grass identification is certainly important, only the most intensely focused students of grasses will find these field guides able to hold interest for long. Indeed, the most fascinating and practical information is to be found in the biology, evolution, and natural history of grasses. All three field guides will sometimes briefly touch on interesting aspects of these topics (Smith more than the others), but much is left unsaid. That's too bad because there are dramatic and important stories to be told. Why do grasses have predilection to be invasive — and not just invasive, but among the world's most important noxious weeds? What about the endophytic fungi that live, remarkably, within the bodies of grasses? Are grasses evolving rapidly before our very eyes — as suggested by recent research?

Even the emerging systematics of grasses is captivating–who would have contemplated the current "raging"' controversy involving *Spartina* and *Sporobolus*![1] Which leads me to mention

[1] Beginning around 2014, morphological, genetic, and other evidence began to convincingly suggest that the grass subtribe Sporobolinae was undesirably paraphyletic (that is, consisting of the group's last common ancestor but not including all descendants of that ancestor). As a result, a proposal emerged to create a large monophyletic genus *Sporobolus*, including (among others) species previously included in the genera *Spartina*, *Calamovilfa*, and *Sporobolus*. In deploying that proposal, numerous name changes would need to be made in *Spartina* and other genera so affected. As at least one website indicates, the proposed nomenclatural change from *Spartina* to *Sporobolis* has been met variously "with

one other challenge in creating and using field guides to specific plant taxa, as Magee articulately describes (p. xxiii). Plant classification (and the subsequent naming of plant taxa) is increasingly based on molecular data derived from DNA research. While this is critical evidence for understanding evolutionary relationships among plants, newer plant classifications are tending to drift away from morphological and anatomical differences and similarities that are clearly visible. The potential result is, as he puts it, "abandonment of time-honored perspectives and diagnostic criteria that could ultimately lead to a classification system that is impractical and confusing to the field botanist."

For this reason, both Magee and Smith conserve some of the older classification and naming perspectives better suited to plant identification in the field than are some of the newer ones — even as those old perspectives are no longer considered phylogenetically accurate. That's the joy of the 1st edition *Flora of the Pacific Northwest*. While its keys are sometimes challenging to use and it no longer reflects the current diversity of grasses in our flora, its "30,000-foot view" — the genus level view — is well-designed for rapid field identification of grasses. For that reason, for my personal use and in my own teaching, I shall not quite yet abandon Hitchcock and Cronquist 1973.

Still, what a great time to be a student of grasses! On the internet and now in published field guides, resources and tools available for the identification and study of grasses have never been more easily available and so richly diverse.

Literature Cited

Bortolus, Alejandro, et al. 2019. *Supporting Spartina: Interdisciplinary perspective shows Spartina as a distinct solid genus.* Ecology. Aug 9. doi: 10.1002/ecy.2863. [Epub ahead of print]. Available at https://esajournals.onlinelibrary.wiley.com/doi/pdf/10.1002/ecy.2863.

Hitchcock, C. Leo. and A. Cronquist. 1973. *Flora of the Pacific Northwest*. University of Washington Press, Seattle.

Hitchcock, C.L. and A. Cronquist. 2018. Flora of the Pacific Northwest, 2nd edition. Edited by D.E. Giblin, B.S. Legler, P.F. Zika, and R.G. Olmstead. 2018. *Flora of the Pacific Northwest*. University of Washington Press, Seattle.

Magee, Dennis W. 2014. *Grasses of the Northeast*. University of Massachusetts Press, Amherst.

Meyers, Stephen C., T. Jaster, K.E. Mitchell, and L.K. Hardison. 2015. Flora of Oregon. BRIT Press, Fort Worth, Texas.

Roché, Cindy, R. Brainerd, B.L. Wilson, N. Otting, and R.C. Korfhage. 2019. *Field guide to grasses of Oregon and Washington*. Oregon State University Press, Corvallis.

Smith, Jr, James P. 2014. *Grasses of California*. University of California Press, Oakland.

expressions of surprise, angst, disappointment, disgust, and disbelief" (https://ncseagrant.ncsu.edu/currents/2019/01/whats-in-a-name-a-lot-it-seems/). Bortolus et al. (2019) summarize this situation and offer another perspective.

Washington Native Plant Society Research and Inventory Committee

Solicitation for Grant Proposals

The Research and Inventory Committee is soliciting proposals that advance the aims of the Washington Native Plant Society—"projects that extend our knowledge of the biology of native species or that inventory the flora of an understudied area, which help to conserve native plants. Special consideration will be given to proposals investigating the oak or shrub-steppe ecosystems, or invasive species. Another priority is to support research efforts of graduate students and to help develop the careers of botanists with interests in native plants."

To receive full consideration, proposals should be submitted by January 15 of each year. Proposals should request no more than $1,000 to $1,500 except in unusual circumstances. The committee will review the proposals and a decision will be made after the first round of awards. In general, half of an award is paid when the proposal is funded and the second half is paid when the project has been completed and a final report has been submitted.

Proposals should be about 4 to 8 pages in length and should include the following information:

- **Introduction**. Objectives and significance of the proposed research.
- **Methods**. A brief description of study areas, species, techniques, data collection, and analysis.
- **Timetable**. In general, research and reports should be completed with 2 years
- **Budget**. Personnel, equipment, and supply costs
- **Products**. What will result from the proposed research? We expect, at minimum, a project report and a brief account for publication in *Douglasia*, the journal of the society.
- **Curriculum vitae** of all project personnel.

Members of the Research and Inventory Committee will rate the proposal based on (1) appropriateness of the project to the aims of WNPS, (2) adequacy of proposed methods to the project's aims, (3) researcher's experience in the types of research proposed, and (4) importance of the research in relation to the funds requested.

For consideration, please submit an electronic copy of your proposal to the research and inventory committee chair: researchinventory@wnps.org

SUBMISSION DEADLINE: January 15, 2020