

*Flora of North America*

## *Contributors to Volumes 19–21*

Geraldine A. Allen	Arthur Haines	Thomas F. Patterson
Justin W. Allison	Neil A. Harriman	Donald J. Pinkava
Loran C. Anderson	Elizabeth M. Harris	A. Michael Powell
Susan J. Bainbridge	Ronald L. Hartman	Robert E. Preston
Gary I. Baird	Walter C. Holmes	Roland P. Roberts
Bruce G. Baldwin	Phillip E. Hyatt	Edward E. Schilling
Theodore M. Barkley†	John P. Janovec	Randall W. Scott
Randall J. Bayer	Dale E. Johnson	John C. Semple
Mark W. Bierner	Vesna Karaman-Castro	Leila M. Shultz
A. Linn Bogle	Brian R. Keener	Beryl B. Simpson
David J. Bogler	David J. Keil	Kunsiri Chaw Siripun
Kristin R. Brodeur	Robert W. Kiger	Alan R. Smith
Luc Brouillet	John C. La Duke	Pamela S. Soltis
Gregory K. Brown	Eric E. Lamont	David M. Spooner
Judith M. Canne-Hilliker	Michelle R. Leonard	Phyllis Spurr
Gerald D. Carr	Timothy K. Lowrey	John L. Strother
Robert L. Carr	Alison McKenzie Mahoney	Scott D. Sundberg†
Kenton L. Chambers	Staci Markos	Debra K. Trock
Raymund Chan	John S. Mooring	Billie L. Turner
Donna M. Cherniawsky	James D. Morefield	Matt W. Turner
Jerry G. Chmielewski	David R. Morgan	Lowell E. Urbatsch
Curtis Clark	Caleb A. Morse	Linda E. Watson
W. Dennis Clark	David F. Murray	William A. Weber
Jennifer A. Clevinger	Amy Trauth Nare	Ronald R. Weedon
Rachel E. Cook	Guy L. Nesom	Mark A. Wetter
Patricia B. Cox	Kurt M. Neubig	Molly A. Whalen
W. S. Davis	Jörg Ochsmann	R. David Whetstone
Robert D. Dorn	Robert J. O'Kennon	Dieter H. Wilken
A. Michele Funston	Robert Ornduff†	Steven J. Wolf
L. D. Gottlieb	James C. Parks†	Sharon C. Yarborough

## *Editors for Volumes 19–21*

Theodore M. Barkley†, Lead and Taxon Editor	Luc Brouillet, Taxon Editor	Helen Jeude, Technical Editor	John L. Strother, Taxon Editor
Kanchi Gandhi, Nomenclatural Editor	Robert W. Kiger, Bibliographic Editor	Kay Yatskievych, Managing Editor	James L. Zarucchi, Editorial Director

## *Volume Composition*

Pat Harris

Martha J. Hill

Ruth T. King

Kristin Pierce

*Flora of North America*  
*North of Mexico*

*Edited by* FLORA OF NORTH AMERICA EDITORIAL COMMITTEE

VOLUME 21

*Magnoliophyta: Asteridae, part 8: Asteraceae, part 3*

ASTERALES, part 3 (Aster order)

Oxford University Press, Inc., publishes works that further  
Oxford University's objective of excellence  
in research, scholarship, and education.

Oxford New York  
Auckland Cape Town Dar es Salaam Hong Kong Karachi  
Kuala Lumpur Madrid Melbourne Mexico City Nairobi  
New Delhi Shanghai Taipei Toronto

With offices in  
Argentina Austria Brazil Chile Czech Republic France Greece  
Guatemala Hungary Italy Japan Poland Portugal Singapore  
South Korea Switzerland Thailand Turkey Ukraine Vietnam

**Copyright © 2006 by Flora of North America Association**

Published by Oxford University Press, Inc.  
198 Madison Avenue, New York, New York 10016  
<http://www.oup.com>

Oxford is a registered trademark of Oxford University Press

All rights reserved. No part of this publication may be reproduced,  
stored in a retrieval system, or transmitted, in any form or by any means,  
electronic, mechanical, photocopying, recording, or otherwise,  
without the prior written permission of the Flora of North America Association.

Library of Congress Cataloging-in-Publication Data  
(Revised for volumes 19–21)

Flora of North America north of Mexico  
edited by Flora of North America Editorial Committee.  
Includes bibliographical references and indexes.

Contents: v. 1. Introduction—v. 2. Pteridophytes and gymnosperms—  
v. 3. Magnoliophyta: Magnoliidae and Hamamelidae—  
v. 22. Magnoliophyta: Alismatidae, Arecidae, Commelinidae (in part), and Zingiberidae—  
v. 26. Magnoliophyta: Liliidae: Liliales and Orchadales—  
v. 23. Magnoliophyta: Commelinidae (in part): Cyperaceae—  
v. 25. Magnoliophyta: Commelinidae (in part): Poaceae, part 2—  
v. 4. Magnoliophyta: Caryophyllidae (in part): part 1—  
v. 5. Magnoliophyta: Caryophyllidae (in part): part 2—  
v. 19. Magnoliophyta: Asteridae (in part): Asteraceae, part 1  
v. 20. Magnoliophyta: Asteridae (in part): Asteraceae, part 2  
v. 21. Magnoliophyta: Asteridae (in part): Asteraceae, part 3

ISBN-13: 978-0-19-530565-4 (v. 21)

ISBN-10: 0-19-530565-4 (v. 21)

1. Botany—North America.

2. Botany—United States.

3. Botany—Canada.

I. Flora of North America Editorial Committee.

QK110.F55 2002 581.97 92-30459

Printing number: 9 8 7 6 5 4 3 2 1

Printed in the United States of America  
on acid-free paper

## Contents

<i>Founding Member Institutions</i>	vi
<i>Donors</i>	vii
<i>Editorial Committee</i>	viii
<i>Project Staff</i>	ix
<i>Contributors</i>	x
<i>Reviewers</i>	xiii
<i>Acknowledgments</i>	xiv
<i>Preface for Volume 21</i>	xv
<i>Introduction</i>	xvii

### ASTERIDAE, in part

---

### ASTERALES, in part

Asteraceae	
Heliantheae	3
Eupatorieae	459

<i>Literature Cited</i>	554
<i>Index</i>	600

FOUNDING MEMBER INSTITUTIONS

*Flora of North America Association*

Arnold Arboretum <i>Jamaica Plain, Massachusetts</i>	Kansas State University <i>Manhattan, Kansas</i>	University of California <i>Davis, California</i>
Agriculture and Agri-Food Canada <i>Ottawa, Ontario</i>	Missouri Botanical Garden <i>St. Louis, Missouri</i>	University of Idaho <i>Moscow, Idaho</i>
Canadian Museum of Nature <i>Ottawa, Ontario</i>	New Mexico State University <i>Las Cruces, New Mexico</i>	University of Illinois <i>Urbana-Champaign, Illinois</i>
Carnegie Museum of Natural History <i>Pittsburgh, Pennsylvania</i>	New York State Museum <i>Albany, New York</i>	University of Iowa <i>Iowa City, Iowa</i>
Field Museum of Natural History <i>Chicago, Illinois</i>	Northern Kentucky University <i>Highland Heights, Kentucky</i>	The University of Kansas <i>Lawrence, Kansas</i>
Fish and Wildlife Service United States Department of the Interior <i>Washington, D.C.</i>	The New York Botanical Garden <i>Bronx, New York</i>	University of Michigan <i>Ann Arbor, Michigan</i>
Harvard University Herbaria <i>Cambridge, Massachusetts</i>	The University of British Columbia <i>Vancouver, British Columbia</i>	University of Oklahoma <i>Norman, Oklahoma</i>
Hunt Institute for Botanical Documentation Carnegie Mellon University <i>Pittsburgh, Pennsylvania</i>	The University of Texas <i>Austin, Texas</i>	University of Ottawa <i>Ottawa, Ontario</i>
Jacksonville State University <i>Jacksonville, Alabama</i>	Université de Montréal <i>Montréal, Québec</i>	University of Southwestern Louisiana <i>Lafayette, Louisiana</i>
Jardin Botanique de Montréal <i>Montréal, Québec</i>	University of Alaska Fairbanks <i>Fairbanks, Alaska</i>	University of Western Ontario <i>London, Ontario</i>
	University of Alberta <i>Edmonton, Alberta</i>	University of Wyoming <i>Laramie, Wyoming</i>
	University of California <i>Berkeley, California</i>	Utah State University <i>Logan, Utah</i>

*For their support of the preparation of this volume,  
we gratefully acknowledge and thank:*

Chanticleer Foundation

National Science Foundation  
(Award DEB-0206645)

The Fairweather Foundation

ChevronTexaco

ESRI

FLORA OF NORTH AMERICA EDITORIAL COMMITTEE

(as of 10 October 2005)

VASCULAR PLANTS

Guy Baillargeon <i>Agriculture and Agri-Food Canada Ottawa, Ontario</i>	Kanchi Gandhi <i>Nomenclatural Editor Harvard University Herbaria Cambridge, Massachusetts</i>	J. Scott Peterson <i>Coordinator for Governmental Agencies United States Department of Agriculture Natural Resources Conservation Service National Plant Data Center Baton Rouge, Louisiana</i>	Grady L. Webster† <i>Taxon Editor and Regional Coordinator, Southwestern United States (-1999) University of California Davis, California</i>
Theodore M. Barkley† <i>Taxon Editor Botanical Research Institute of Texas Fort Worth, Texas</i>	Ronald L. Hartman <i>Taxon Editor and Regional Coordinator, Rocky Mountains Rocky Mountain Herbarium University of Wyoming Laramie, Wyoming</i>	Jackie M. Poole <i>Taxon Editor and Regional Coordinator, South Central United States Texas Parks and Wildlife Department Austin, Texas</i>	Kay Yatskievych <i>Managing Editor Missouri Botanical Garden St. Louis, Missouri</i>
Mary E. Barkworth <i>Taxon Editor Intermountain Herbarium Utah State University Logan, Utah</i>	Robert W. Kiger <i>Bibliographic and Taxon Editor Hunt Institute for Botanical Documentation Carnegie Mellon University Pittsburgh, Pennsylvania</i>	Richard K. Rabeler <i>Taxon Editor University of Michigan Ann Arbor, Michigan</i>	James L. Zarucchi <i>Editorial Director Missouri Botanical Garden St. Louis, Missouri</i>
David E. Boufford <i>Taxon Editor and Regional Coordinator, Northeastern United States Harvard University Herbaria Cambridge, Massachusetts</i>	Barney L. Lipscomb <i>Botanical Research Institute of Texas Fort Worth, Texas</i>	Jay A. Raveill <i>Taxon Editor Central Missouri State University Warrensburg, Missouri</i>	
Luc Brouillet <i>Taxon Editor and Regional Coordinator, Eastern Canada Institut de recherche en biologie végétale Université de Montréal Montréal, Québec</i>	Aaron Liston <i>Regional Coordinator, Northwestern United States and Canada Oregon State University Corvallis, Oregon</i>	Leila M. Shultz <i>Taxon Editor Utah State University Logan, Utah</i>	BRYOPHYTES
Wayne J. Elisens <i>Taxon Editor University of Oklahoma Norman, Oklahoma</i>	John McNeill <i>Nomenclatural Advisor Royal Botanic Garden Edinburgh, Scotland</i>	John L. Strother <i>Reviewing and Taxon Editor University of California Berkeley, California</i>	Marshall R. Crosby <i>Nomenclatural and Taxon Editor Missouri Botanical Garden St. Louis, Missouri</i>
Bruce A. Ford <i>Regional Coordinator, Western Canada University of Manitoba Winnipeg, Manitoba</i>	Nancy R. Morin <i>Taxon Editor and Regional Coordinator, Southwestern United States Point Arena, California</i>	Frederick H. Utech <i>Taxon Editor Hunt Institute for Botanical Documentation Carnegie Mellon University Pittsburgh, Pennsylvania</i>	Claudio Delgadillo M. <i>Taxon Editor Universidad Nacional Autónoma de México Mexico City, Mexico</i>
Craig C. Freeman <i>Taxon Editor and Regional Coordinator, North Central United States R. L. McGregor Herbarium The University of Kansas Lawrence, Kansas</i>	David F. Murray <i>Taxon Editor and Regional Coordinator, Alaska University of Alaska, Museum of the North Fairbanks, Alaska</i>	Michael A. Vincent <i>Taxon Editor Miami University Miami, Ohio</i>	Lloyd R. Stark <i>Taxon Editor University of Nevada Las Vegas, Nevada</i>

Emeritus/a Members of the Editorial Committee

George W. Argus <i>Merrickville, Ontario</i>	Barbara M. Murray <i>University of Alaska, Museum of the North Fairbanks, Alaska</i>	Richard W. Spellenberg <i>New Mexico State University Las Cruces, New Mexico</i>	Barbara M. Thiers <i>The New York Botanical Garden Bronx, New York</i>
Marie L. Hicks <i>Moab, Utah</i>	Alan R. Smith <i>University of California Berkeley, California</i>	John W. Thieret† <i>Northern Kentucky University Highland Heights, Kentucky</i>	Rahmona A. Thompson <i>East Central University Ada, Oklahoma</i>

*Project Staff — past and present  
involved with the preparation of Volumes 19–21*

Justin W. Allison, *Administrative Assistant*  
Barbara Alongi, *Illustrator*  
Michael Blomberg, *Scanning Specialist*  
Trisha K. Consiglio, *GIS Analyst*  
Shellie Davis Eldredge, *Editorial Assistant*  
Sheila Flinchpaugh, *Illustrator*  
Bee F. Gunn, *Illustrator*  
Pat Harris, *Editorial Assistant and Composer*  
Linny Heagy, *Illustrator*  
Claire A. Hemingway, *Technical Editor*  
Martha J. Hill, *Technical Editor and Composer*  
Helen Jeude, *Senior Technical Editor*  
Fred Keusenkothen, *Scanning Supervisor*  
Ruth T. King, *Editorial Assistant and Composer*  
Marjorie C. Leggitt, *Illustrator*  
Asha McElfish, *Editorial Volunteer*  
John Myers, *Illustrator and Illustration Composer*  
Amy Trauth Nare, *NSF Summer Intern*  
Guy L. Nesom, *Staff Botanist*  
Kristin Pierce, *Editorial Assistant and Composer*  
Heidi H. Schmidt, *Editorial Assistant*  
Hong Song, *Programmer*  
Linda Ann Vorobik, *Illustrator*  
Yevonn Wilson-Ramsey, *Illustration Coordinator and Illustrator*  
George Yatskievych, *Technical Adviser*

## Contributors to Volumes 19–21

Geraldine A. Allen  
*University of Victoria*  
Victoria, British Columbia

Justin W. Allison  
*Botanical Research Institute of*  
Texas  
Fort Worth, Texas

Loran C. Anderson  
*Florida State University*  
Tallahassee, Florida

Susan J. Bainbridge  
*University of California*  
Berkeley, California

Gary I. Baird  
*Brigham Young University-Idaho*  
Rexburg, Idaho

Bruce G. Baldwin  
*University of California*  
Berkeley, California

Theodore M. Barkley†  
*Botanical Research Institute of*  
Texas  
Fort Worth, Texas

Randall J. Bayer  
*Australian National Herbarium*  
*Centre for Plant Biodiversity*  
Research  
Canberra, Australia

Mark W. Bierner  
*Boyce Thompson Arboretum*  
Superior, Arizona

A. Linn Bogle  
*University of New Hampshire*  
Durham, New Hampshire

David J. Bogler  
*Missouri Botanical Garden*  
St. Louis, Missouri

Kristin R. Brodeur  
*Oxford, Alabama*

Luc Brouillet  
*Université de Montréal*  
Montréal, Québec

Gregory K. Brown  
*University of Wyoming*  
Laramie, Wyoming

Judith M. Canne-Hilliker  
*University of Guelph*  
Guelph, Ontario

Gerald D. Carr  
*Oregon State University*  
Corvallis, Oregon

Robert L. Carr  
*Eastern Washington University*  
Cheney, Washington

Kenton L. Chambers  
*Oregon State University*  
Corvallis, Oregon

Raymund Chan  
*University of Hawaii at Manoa*  
Honolulu, Hawaii

Donna M. Cherniawsky  
*The Provincial Museum of Alberta*  
Edmonton, Alberta

Jerry G. Chmielewski  
*Slippery Rock University*  
Slippery Rock, Pennsylvania

Curtis Clark  
*California State Polytechnic*  
University  
Pomona, California

W. Dennis Clark  
*Arizona State University*  
Tempe, Arizona

Jennifer A. Clevinger  
*Walsh University*  
North Canton, Ohio

Rachel E. Cook  
*Chicago Botanic Garden*  
Glencoe, Illinois

Patricia B. Cox  
*TVA Heritage Program*  
Knoxville, Tennessee

W. S. Davis  
*Louisville, Kentucky*

Robert D. Dorn  
*Lingle, Wyoming*

A. Michele Funston  
*Missouri Botanical Garden*  
St. Louis, Missouri

- L. D. Gottlieb  
*Ashland, Oregon*
- Arthur Haines  
*New England Wild Flower Society  
Garden in the Woods  
Framingham, Massachusetts*
- Neil A. Harriman  
*University of Wisconsin-Oshkosh  
Oshkosh, Wisconsin*
- Elizabeth M. Harris  
*University of Central Florida  
Orlando, Florida*
- Ronald L. Hartman  
*University of Wyoming  
Laramie, Wyoming*
- Walter C. Holmes  
*Baylor University  
Waco, Texas*
- Philip E. Hyatt  
*USDA Forest Service  
Atlanta, Georgia*
- John P. Janovec  
*Botanical Research Institute of  
Texas  
Fort Worth, Texas*
- Dale E. Johnson  
*Timber Press  
Portland, Oregon*
- Vesna Karaman-Castro  
*Louisiana State University  
Baton Rouge, Louisiana*
- Brian R. Keener  
*The University of Alabama  
Tuscaloosa, Alabama  
The University of West Alabama  
Livingston, Alabama*
- David J. Keil  
*California Polytechnic State  
University  
San Luis Obispo, California*
- Robert W. Kiger  
*Carnegie Mellon University  
Pittsburgh, Pennsylvania*
- John C. La Duke  
*University of North Dakota  
Grand Forks, North Dakota*
- Eric E. Lamont  
*The New York Botanical Garden  
Bronx, New York*
- Michelle R. Leonard  
*Sudbury, Ontario*
- Timothy K. Lowrey  
*University of New Mexico  
Albuquerque, New Mexico*
- Alison McKenzie Mahoney  
*Minnesota State University-  
Mankato  
Mankato, Minnesota*
- Staci Markos  
*University of California  
Berkeley, California*
- John S. Mooring  
*Santa Clara University  
Santa Clara, California*
- James D. Morefield  
*Department of Conservation  
& Natural Resources  
Nevada Natural Heritage Program  
Carson City, Nevada*
- David R. Morgan  
*University of West Georgia  
Carrollton, Georgia*
- Caleb A. Morse  
*The University of Kansas  
Lawrence, Kansas*
- David F. Murray  
*University of Alaska,  
Museum of the North  
Fairbanks, Alaska*
- Amy Trauth Nare  
*Fort Worth, Texas*
- Guy L. Nesom  
*Botanical Research Institute of  
Texas  
Fort Worth, Texas*
- Kurt M. Neubig  
*Florida Museum of Natural  
History  
Gainesville, Florida*
- Jörg Ochsmann  
*Göttingen, Germany*
- Robert J. O'Kennon  
*Botanical Research Institute of  
Texas  
Fort Worth, Texas*
- Robert Ornduff†  
*University of California  
Berkeley, California*
- James C. Parks†  
*Millersville University  
Millersville, Pennsylvania*
- Thomas F. Patterson  
*South Texas Community College  
McAllen, Texas*
- Donald J. Pinkava  
*Arizona State University  
Tempe, Arizona*
- A. Michael Powell  
*Sul Ross State University  
Alpine, Texas*
- Robert E. Preston  
*Jones & Stokes  
Sacramento, California*
- Roland P. Roberts  
*Towson University  
Towson, Maryland*
- Edward E. Schilling  
*University of Tennessee  
Knoxville, Tennessee*
- Randall W. Scott  
*Northern Arizona University  
Flagstaff, Arizona*
- John C. Semple  
*University of Waterloo  
Waterloo, Ontario*

Leila M. Shultz  
*Utah State University*  
Logan, Utah

Beryl B. Simpson  
*University of Texas*  
Austin, Texas

Kunsiri Chaw Siripun  
*Kasetsart University*  
*Kamphaengsaen Campus, Nakhon*  
*Pathom, Thailand*

Alan R. Smith  
*University of California*  
Berkeley, California

Pamela S. Soltis  
*University of Florida*  
Gainesville, Florida

David M. Spooner  
*University of Wisconsin-Madison*  
Madison, Wisconsin

Phyllis L. Spurr  
*University of Northern Kentucky*  
Highland Heights, Kentucky

John L. Strother  
*University of California, Berkeley*  
Berkeley, California

Scott D. Sundberg†  
*Oregon State University*  
Corvallis, Oregon

Debra K. Trock  
*California Academy of Sciences*  
San Francisco, California

Billie L. Turner  
*The University of Texas at Austin*  
Austin, Texas

Matt W. Turner  
Austin, Texas

Lowell E. Urbatsch  
*Louisiana State University*  
Baton Rouge, Louisiana

Linda E. Watson  
*Miami University*  
Oxford, Ohio

William A. Weber  
*University of Colorado Museum*  
Boulder, Colorado

Ronald R. Weedon  
*Chadron State College*  
Chadron, Nebraska

Mark A. Wetter  
*University of Wisconsin-Madison*  
Madison, Wisconsin

Molly A. Whalen  
*Flinders University*  
Adelaide, Australia

R. David Whetstone  
*Jacksonville State University*  
Jacksonville, Alabama

Dieter H. Wilken  
*Santa Barbara Botanic Garden*  
Santa Barbara, California

Steven J. Wolf  
*California State University*  
Stanislaus  
Turlock, California

Sharon C. Yarborough  
Yerington, Nevada

## *Reviewers*

Ray Angelo  
*New England Botanical Club*  
*Cambridge, Massachusetts*

Susan J. Bainbridge  
*University of California*  
*Berkeley, California*

Bruce Bennett  
*NatureServe Yukon*  
*Whitehorse, Yukon*

David E. Boufford  
*Harvard University Herbaria*  
*Cambridge, Massachusetts*

Larry E. Brown  
*Spring Branch Science Center*  
*Herbarium*  
*Houston, Texas*

Kenton L. Chambers  
*Oregon State University*  
*Corvallis, Oregon*

Tom S. Cooperrider  
*Kent State University*  
*Kent, Ohio*

Craig C. Freeman  
*The University of Kansas*  
*Lawrence, Kansas*

Arthur Haines  
*New England Wild Flower Society*  
*Garden in the Woods*  
*Framingham, Massachusetts*

Robert Kral  
*Cairo, Georgia*

David F. Murray  
*University of Alaska,*  
*Museum of the North*  
*Fairbanks, Alaska*

Richard W. Spellenberg  
*New Mexico State University*  
*Las Cruces, New Mexico*

Edward G. Voss  
*University of Michigan Herbarium*  
*Ann Arbor, Michigan*

Dieter H. Wilken  
*Santa Barbara Botanic Garden*  
*Santa Barbara, California*

Richard P. Wunderlin  
*University of South Florida*  
*Tampa, Florida*

## *Acknowledgments*

Members of the Flora of North America Association (FNAA), especially those involved in the preparation and production of the three Asteraceae volumes, extend special and heartfelt gratitude to:

Sy Sohmer, Director of the Botanical Research Institute of Texas (BRIT), for inviting Dr. Barkley and the Asteraceae project to locate there;

The Botanical Institute of Texas and staff for warmly and graciously welcoming and housing the Flora of North America (FNA) Editorial Center at BRIT;

Barney Lipscomb, editor of *Sida*, who went to incredible lengths to make sure all new species and combinations were published promptly, ensuring that these taxa could be included in the Asteraceae volumes;

Guy Nesom, BRIT staff botanist and part-time botanist for FNA, who provided many insights concerning numerous treatments, helped with many questions, and provided additional botanical support for the technical staff at BRIT and elsewhere;

Claire A. Hemingway, Mary Ann Schmidt, and Kay Yatskievych for spirited and rewarding discussions regarding finer points of editing and style; and

Justin W. Allison, BRIT Administrative Assistant, for his steadfast competence in communications, statistics, and tracking.

In addition, we appreciate the efforts of many individuals who provided advice, corrections, and support for the Asteraceae team. Some are members of FNAA; they went well beyond their normal jobs in providing extra aid and encouragement. They include: Bruce G. Baldwin, Richard G. Beidleman, Frédéric Coursol, Kanchi Gandhi, Werner Greuter, Vernon L. Harms, Larry Hufford, Philip Jenkins, Robert W. Kiger, Leslie R. Landrum, John McNeill, Sue Meades, David F. Murray, Dan H. Nicolson, Mike Oldham, Jackie M. Poole, John F. Pruski, Alan R. Smith, Richard W. Spellenberg, Robert Vogt, Dieter H. Wilken, George Yatskievych, and James L. Zarucchi.

To the authors who contributed treatments to the Asteraceae volumes, we extend our appreciation and thanks for their hard work, their scholarly contributions, and their enduring patience with relentless rounds of editings and questions.

Many botanists are fortunate to have a significant other who is supportive beyond the call of duty. We wish to acknowledge the crucial support provided the late Theodore M. Barkley and Scott D. Sundberg by their respective spouses, Mary Barkley and Linda K. Hardison, as both were putting finishing touches to their contributions during their last months.

Taxon editors Brouillet and Strother extend special recognition and thanks to Helen Jeude. Throughout the project, she was not only our stalwart “tech” editor, she was also our advisor, comforter, and friend.