

Flora of North America



Volume 22, Number 2

Newsletter

July – December 2008

PRESIDENT'S REPORT

Flora of North America Association

Luc Brouillet, FNAA president

As can be gathered from the volume progress reports, 2008 was a fruitful year for the Flora of North America project. Volumes 7 and 8 are in the last stages of production and will be published during 2009. Volume 9 has made great strides and should be ready to go to press in 2009. And many volumes are now in simultaneous production at each of the editorial centers to ensure timely publication within the next few years, notably volumes 10–11, which will include the important family Fabaceae. To ensure steady progress, a new editorial center was established for volume 12, with Geoff Levin and Lynn Gillespie as lead editors.

The FNA managerial team is making every effort to ensure sustained production of volumes. I commend Jim Zarucchi, vice-president and editorial director; Heidi Schmidt, managing editor; and the personnel at FNA Central in St. Louis, as well as our specialist editors, lead and taxon editors, regional coordinators and reviewers, technical editors, and artists at various locations for their remarkable work. The success of the FNA project is largely attributable to their collective effort.

The project could not function as well as it does, let alone subsist, without financial support. Grants received from the Chanticleer and Mellon foundations, and from an anonymous donor, will allow FNA to pursue volume production for the next few years. The FNA board is grateful for this support and the faith in the project that these large contributions represent. I take this occasion to thank Nancy Morin, vice president for business and development, for her outstanding work in securing funding, and Dr. Peter Raven,

president of the Missouri Botanical Garden, for his exceptional help in obtaining a significant donation.

The creation of the Information Technology committee is starting to pay dividends, and this will be visible when better ways to present data to users and to network with other botanical information providers become available. Thanks to the efforts of Heidi Schmidt and others, information on the FNA Web page is being updated and improved, particularly with respect to information concerning volumes in production. Do not hesitate to visit our Web page (<http://www.fna.org>) to see how FNA is progressing.

Last but not least, I would like to thank our large constituency of volunteer authors and reviewers for their exceptional contributions to FNA. Without their work, the project would simply not exist. Many groups remain orphaned, however, and we will need more authors before the project ends. I urge you to visit our Web site to see whether you could help us with one or more of these genera.

General Activities

Nancy Morin, FNAA vice president for business and development

The Flora of North America Association has made great progress on:

1. **Organizational Activities:** Most of the efforts of the project have been focused on completing volumes 7, 8, 9, and 28 and confirming authors, developing schedules, providing materials, and organizing work on the remaining volumes. Taxon

editors have met with lead editors to develop strategies for the next volumes being prepared.

2. **Training and materials:** To ensure quality of treatments and make the best use of efforts of authors, reviewers and editors, FNA held the first of what is expected to be ongoing workshops for editors in St. Louis at the end of November, 2007. That workshop resulted in revision of the Guide for Contributors and more explicit procedures for communicating with authors. The updated Guide is available at www.fna.org.
3. The decision (by the FNA Board in 2007) to adopt the Angiosperm Phylogeny Group (APG) system of classification for the remaining volumes of vascular plants in place of that published by Arthur Cronquist has necessitated determining how genera are to be placed, what the impact is on work already underway, and how to manage that impact. Those discussions among authors and editors have been underway.
4. Dr. Guy Nesom has been contracted to work with Dr. James Zarucchi on elements toward an FNA checklist of the vascular plants of North America

based on published volumes, updates to those volumes, and in anticipation of taxa to be recognized in the remaining volumes. He also is providing treatments of taxa for which there is no author available.

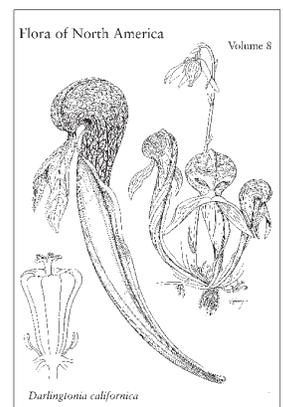
5. Flora of North America has been committed to making its information available electronically from its inception. All published treatments are available on its Web site. In April 2008, the FNA Information Technology Committee met with a range of informatics specialists at Harvard University to develop strategies for improving access to FNA information. To this end FNA has contracted with Dr. Hong Cui, a faculty member in the School of Information Resources and Library Science at University of Arizona, to use automated language recognition to parse the descriptive components of the treatments, thereby allowing much more sophisticated searching than is now possible. The group also discussed ways to assist in linking to other Web sites or presenting FNA information on other Web sites, and how to manage updating the information in the future.
6. The Flora of North America Web site has been redesigned by Dan Lipsitt and James Macklin using Drupal (<http://www.fna.org>) in order to make it more useful as an editorial management tool and to make it easier to update.

The Flora of North America (FNA) project is a cooperative program to produce a comprehensive account of the plants of North America north of Mexico. The *FNA Newsletter* is edited by Barney Lipscomb, Newsletter Editor, Botanical Research Institute of Texas, with the assistance of Kristin Pierce, Assistant Editor, Missouri Botanical Garden. The newsletter is published twice a year by the Flora of North America Association to communicate news about the FNA project and other topics of interest to North American floristic researchers. For more information, please see the FNA Web site, <http://www.fna.org>.

Readers are invited to send appropriate news items to:
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Items also can be sent by e-mail to: barney@brit.org or Kristin.Pierce@mobot.org

FNA Promotional Items for Sale

FNAA Composition and Editorial Center located in St. Louis has several FNA promotional items for sale. Currently available are volume 8 commemorative t-shirts with a stunning illustration of *Darlingtonia californica* by Linny Heagy. These t-shirts are heather green and made of 69% Pre-consumer Recycled Cotton, 29% Acrylic, and 2% other; they were a best seller at the BOTANY 2008 meetings in Vancouver this past July.



Also available are volume 7 and 8 commemorative tote bags, each with a reproduction of the color frontispiece for the individual volume. *Salix ovalifolia* is illustrated by John Myers for volume 7 and *Rhododendron maximum* is illustrated by Yevonn Wilson-Ramsey for volume 8 (as reproduced in this newsletter). The tote bags are organic cotton and large enough for grocery shopping and other heavy hauling. Approximate size is 13" wide × 15.5" long × 6.75" gusset with 18" carrying straps.

The cost is \$10 for each of these items, shipping not included. Please contact Heidi Schmidt (heidi.schmidt@mobot.org) to place an order.

FNA Illustration Reuse Policy

From an online series about at risk ecosystems, to an advanced course in plant systematics, to status reports on endangered plant species, FNA illustrations can have a second life in a variety of places. While a fee may be charged for commercial use of these illustrations, the fee is usually waived in the case of educational or non-profit use. Illustration reuse requests should be sent to Heidi Schmidt (managing editor) at heidi.schmidt@mobot.org.

Volume 6 Update Robert Kiger and Mary Ann Schmidt

- Publication target: 2010
- Lead Editorial Center: Hunt Institute for Botanical Documentation; Lead editor Robert Kiger; Technical Editor Mary Ann Schmidt
- Taxon Editors: David Boufford (Harvard University), Robert Kiger (Hunt Institute for Botanical Documentation), Jackie Poole (Texas Parks and Wildlife), Leila Shultz (Utah State University), Ron Hartman (University of Wyoming), Nancy Morin (FNA), Rich Rabeler (University of Michigan), Fred Utech (Hunt Institute)
- Families: 19 families, 106 genera, ca. 545 species: Apodantheraceae, Begoniaceae, Bixaceae, Cistaceae, Clusiaceae, Cucurbitaceae, Datisceae, Droseraceae, Elatinaceae, Frankeniaceae, Hypericaceae, Malvaceae, Muntingiaceae, Passifloraceae, Podostemaceae, Tamaricaceae, Thymelaeaceae, Turneraceae, Violaceae
- Illustrations: ca. 140 species as full habit

Status: Treatments for 68 genera have been received; of these 20 are in the review process and 24 are in later stages of editing.

Volume 7 Update Heidi H. Schmidt

- Publication target: 2009
- Editorial Center: Missouri Botanical Garden; Lead Editor Jim Zarucchi, Managing Editor Heidi Schmidt; Technical Editor Martha Hill (assisted by Michele Funston, Kristin Pierce, Cassandra Howard, and others)
- Taxon Editors: Dave Boufford (Harvard University Herbaria), Craig Freeman (The University of Kansas), Jackie Poole (Texas Parks & Wildlife Dept.), and Leila Shultz (Utah State University)



Salix ovalifolia illustrated by John Myers for volume 7.

- Families: Salicaceae, Tropaeolaceae, Moringaceae, Caricaceae, Limnathaceae, Koeberliniaceae, Bataceae, Resedaceae, Capparaceae, Cleomaceae, and Brassicaceae
- Illustrations: 269 species as full habit; 96 additional insets

Status: To date, treatments of all genera have been received, passed through 02rev stage, and the bibliographic first pass. Sixty-eight of the 91 illustration panels are composed and have been sent out with galley proofs. As of press time for this newsletter, all but one family is in galleys and furthermore, seven of the 11 families have been placed into pages.

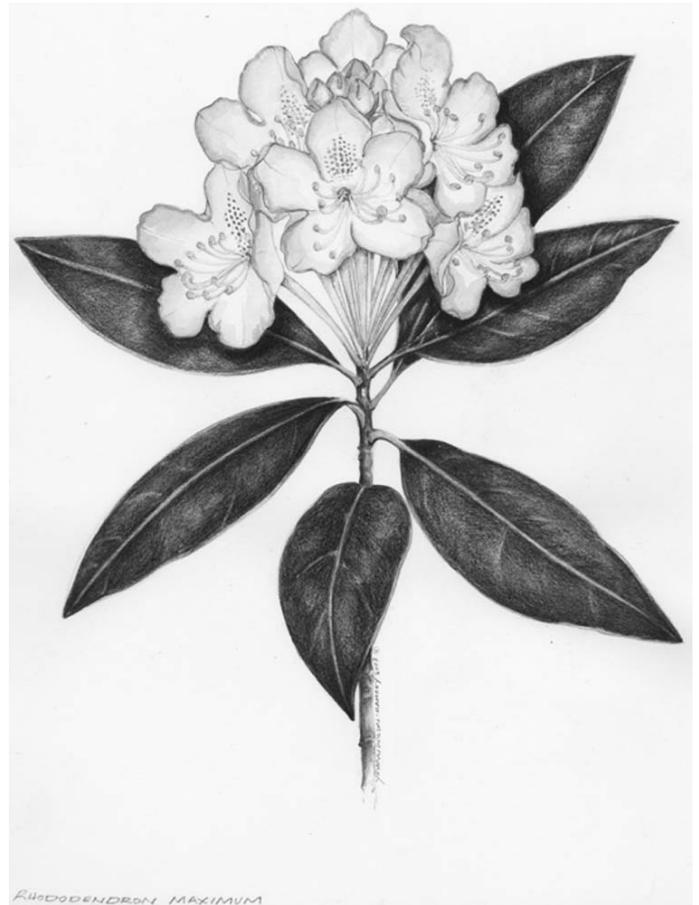
Volume 8 Update

Craig C. Freeman and Richard K. Rabeler

- Publication target: early 2009
- Lead Editorial Center: The University of Kansas; Lead Editors Craig Freeman and Rich Rabeler; Technical Editor Mary Ann Schmidt (Hunt Institute)
- Taxon Editors: Wayne Elisens (University of Oklahoma), Craig Freeman (The University of Kansas), Ron Hartman (University of Wyoming), Nancy Morin (FNA), Rich Rabeler (University of Michigan), Gordon Tucker (Eastern Illinois University), Beth Wells (George Washington University)
- Families: 19 families, 125 genera, 682 species: Clethraceae, Crassulaceae, Cyrillaceae, Diapensiaceae, Ebenaceae, Ericaceae, Grossulariaceae, Iteaceae, Myrsinaceae, Paeoniaceae, Penthoraceae, Primulaceae, Sapotaceae, Sarraceniaceae, Saxifragaceae, Styracaceae, Symplocaceae, Theaceae, and Theophrastaceae
- Illustrations: 194 species as full habit, 21 additional insets

Status: Adjustments to the volume for better alignment with APG II resulted in the export of treatments for 5 families, 15 genera, and 44 species to other volumes (Bataceae [1 genus, 1 species], Escalloniaceae [1 genus, 1 species], Hydrangeaceae [9 genera, 25 species], Parnassiaceae [2 genera, 10 species], and Pittosporaceae [2 genera, 7 species]). Those treatments, originally prepared for volume 8, are mostly at the 05 review stage. Imported to the volume were 3 families, 6 genera, and 18 species (Paeoniaceae [1 genus, 2 species], Theaceae [3 genera, 4 species] and Sarraceniaceae [2 genera, 12 species]).

As of 15 January 2009, all illustrations have been completed, all 150 manuscripts were in galleys, and 16 of 19 families (442 species) were in pages. Most of the remaining editorial work is in Ericaceae (final revisions of *Arctostaphylos* and nomenclature reviews); work in Sapotaceae and Sarraceniaceae is negligible.



Rhododendron maximum illustrated by Yevonn Wilson-Ramsey for volume 8.

Volume 9 Update

Luc Brouillet

- Publication target: 2009
- Lead Editorial Center: Canada Center; Lead Editor Luc Brouillet; Technical Editor Helen Jeude
- Taxon Editors: Luc Brouillet (University of Montreal) and Jim Phipps (University of Western Ontario)
- Families: 4 families, 37 genera, 693 species: Rosaceae, Crossosomataceae, Staphyleaceae, Picramniaceae
- Illustrations: 152 species as full habit; 60 additional insets

Status: Volume 9 is nearing completion in terms of manuscripts to be submitted. Near-finished drafts of Picramniaceae and *Rubus* exist and should be sent to the editorial center shortly. Two manuscripts are still outstanding, *Aphanes* (2 spp.) and *Spiraea* (20 spp.). Thus, 93% of genera and 90% of species have been delivered and pushed to regional review or later stages (2 treatments are in regional review and 15 are being revised by authors). We regret to report that Dr. Günter Staudt, author of *Fragaria*, died last May before he had had time to do corrections to his treatment. Therefore, the editors will endeavor to make these corrections with the help of one of his collaborators, Dr. Klaus Olbricht. Major editing is presently being carried out on the large genera *Crataegus*, *Rosa*, and *Potentilla*, before they are returned to their authors. Among the genera received, 53% have been prepared or have been sent to taxonomic review. Nearly half the treatments (48%) have gone to styling and indexing and are ready to assemble before going to galley, including the families Staphyleaceae and Crossosomataceae. Furthermore, 10 (44%) of 17 family, subfamily, or tribal descriptions of Rosaceae have been reviewed, styled, and indexed. We will be able to assemble these with generic treatments as soon as all genera within a subdivision are also styled and indexed. The other supra-generic treatments are being finished. So far, however, none of the major starting points (except the two families mentioned above) are

ready to be assembled and sent to FNA Central. With respect to illustrations, instructions and specimens have been received by our artist for 96% of illustration units (five genera are due). Drafts have been done for 67% of these, 64% are inked, and 58% scanned (but not cleaned). Our artist is steadily progressing toward completion of the artwork. The proportion of scanned artwork will enable FNA Central to start assembling plates soon. The Canada Center should be able to start assembling treatments before the end of winter. Thus, it will be possible to produce the first galley in the spring. Provided there is no significant slippage with manuscripts during the winter and spring, we are aiming at finishing production of volume 9 this summer.

Volumes 10 and 11 Update

Heidi H. Schmidt

- Publication target: 2010
- Lead Editorial Center: Missouri Botanical Garden (various components of the volumes will be processed at Miami University in Ohio, University of Central Missouri); Lead Editor Jim Zarucchi; Managing Editor Heidi Schmidt; Technical Editor Martha Hill (assisted by Michele Funston, Kristin Pierce, Cassandra Howard, and others)
- Taxon editors: for legumes Mike Vincent (Miami University) and Jay Raveill (University of Central Missouri), and for non-legume families Dave Boufford (Harvard University Herbaria), Luc Brouillet (University of Montreal), Geoff Levin (Illinois Natural History Survey), Jackie Poole (Texas Parks & Wildlife Dept.), and Leila Shultz (Utah State University)
- Families: 13 families, 200+ genera, 1900+ species. Proteaceae (3 genera/3 species), Buxaceae (2/3), Gunneraceae (1/1), Haloragaceae (4/19), Combretaceae (5/7). Lythraceae (11/31), Onagraceae (16/270), Myrtaceae (10/32), Melastomataceae (2/13), Fabaceae (147/1480), Surianaceae (1/1), Polygalaceae (2/57), and Elaeagnaceae (3/9)

- Illustrations: 415 species as full habit; 53 additional insets

Status: Treatments of 61 genera with 1078 species have been received. Over 40% of specimens have been pulled for illustration; 23% of illustrations are in the pencil stage; 15% are in the ink stage; and 3% have been scanned.

Volume 12 Update

Geoffrey A. Levin and Lynn Gillespie

- Lead Editors: Geoffrey A. Levin and Lynn Gillespie. The Technical Editor is unassigned.
- Families: 28 families, 114 genera, 705 species (see below for discussion)

Status: The groups covered in this volume are mostly core Eudicots as defined by the Angiosperm Phylogeny Group (APG II). The change from Cronquist's system to APGII, compromised by the constraints of our publication schedule, has resulted in volume 12 being somewhat heterogeneous. The largest number of families is from Malpighiales (only part of order), and the volume also includes families from Aquifoliales, Caryophyllales (small part of order), Celastrales, Cornales, Garryales, Rosales (only part of order), Santalales, Vitales, and Zygophyllales.

Our efforts since the last Executive Committee meeting, at which time we became lead editors, have focused on resolving the contents of the volume, verifying author and editor assignments, and finding authors for orphan genera. The family placement of genera formerly in Euphorbiaceae and Santalales has been radically changed as a result of phylogenetic analyses, and we have resolved the circumscription to be used for the newly recognized or redefined families. Authors (36) and taxon editors (9 in addition to the volume editors) have been confirmed for all except one genus with a single species. Jun Wen has been secured as editor for Vitaceae, the treatment of which was submitted several years ago and the author is now deceased. New treatments have been received for 22 genera containing 93 species, bring the total submitted to 50 genera (44%) containing 235 species

(33%). A technical editor is not yet assigned to the volume, but we have worked with FNAA administration to secure short-term support to get treatments formatted and sent out for review. Except for some treatments transferred here from volumes with earlier production schedules, treatments that have been received are at the 01 or 02 stages.

The projected number of illustrations for the volume, based on the 1:6 guideline, is 175. Illustrations have been started for some species in families transferred to volume 12 from other volumes (with earlier production schedules), but the process of pulling specimens for illustration for more recently submitted treatments is just beginning.

Volume 13 Update

Luc Brouillet

- Lead Editorial Center: Canada Center; Lead Editor Luc Brouillet. The Technical Editor is unassigned.
- Taxon Editors: Luc Brouillet (University of Montreal), Bruce Ford (University of Manitoba), Geoff Levin (Illinois Natural History Survey), Nancy Morin (FNA), Rich Rabeler (University of Michigan), Gordon Tucker (Eastern Illinois University), Alan Weakley (University of North Carolina)
- Families: 13 Families, 152 genera, ca. 631 species: Geraniaceae, Nitrariaceae, Burseraceae, Anacardiaceae, Sapindaceae, Simaroubaceae, Meliaceae, Rutaceae, Balsaminaceae, Escalloniaceae, Araliaceae, Pittosporaceae, Apiaceae

Status: Since the last report published in the summer of 2008, there has been significant progress in finding authors for orphan genera, but a lot remains to be done in some families. The following families are fully accounted for now: Nitrariaceae, Burseraceae, Anacardiaceae, Simaroubaceae, Geraniaceae, Araliaceae, (being edited after corrections), Pittosporaceae (in galley), and Balsaminaceae. Two manuscripts (*Acer*, *Aesculus*, Sapindaceae) have been received and are being revised by the taxon editor

prior to regional review. Authors are needed for some genera in Sapindaceae (14 gen.), Meliaceae (2 gen.), Rutaceae (13 gen.), and Apiaceae (56 gen.). Please see the volume 13 page on the FNA Web site (<http://hua.huh.harvard.edu/FNA/Review/under-prod-13.shtml>) for detailed information on orphan genera. Taxon editors are actively seeking authors for these genera and would welcome suggestions. Assigned manuscripts are due in 2009, mostly in July or September.

Volume 14 Update

Bob Kiger and Mary Ann Schmidt

- Lead Editorial Center: Hunt Institute, Lead Editor Bob Kiger; Technical Editor Mary Ann Schmidt
- Taxon Editors: Dick Brummitt (Royal Botanic Gardens, Kew), Bob Kiger (Hunt Institute), Aaron Liston (Oregon State University), Jay Raveill (University of Central Missouri)
- Families: 8 families, ca. 110 genera, ca. 660 species: Apocynaceae (including Asclepiadaceae), Convolvulaceae (including Cuscutaceae), Gelsemiaceae, Gentianaceae, Hydroleaceae, Loganiaceae, Solanaceae, and Sphenocleaceae

Status: Menyanthaceae has been moved to Volume 18. Many genera in this volume have not yet been assigned to authors. Please contact Bob Kiger if you might be interested in providing a treatment in any of these families.

Volume 15 Update

Heidi H. Schmidt

- Lead Editorial Center: Missouri Botanical Garden Editorial Center; Lead Editor Jim Zarucchi (tentative), Managing Editor Heidi Schmidt. The Technical Editor is unassigned
- Taxon Editors: Ron Hartman (University of Wyoming), James Miller (The New York Botanical Garden), Ron Kelley (Eastern Oregon University), Nancy Morin (FNA) and Jackie Poole (Texas Parks & Wildlife Dept.)

- Families: 4 families, 73 genera, 869 species: Fouquieriaceae (1 genus/1 species), Polemoniaceae (18/268), Hydrophyllaceae (16/235), and Boraginaceae (38/365)
- Illustrations: 160 species as full habit; currently 8 additional insets

Status: All authors have been assigned for Polemoniaceae; Hydrophyllaceae have all been assigned except for *Nama*; many Boraginaceae are without authors although Ron Kelley has taken on most western genera. The treatment for Fouquieriaceae is at the 02review stage. Illustrations have been completed through the ink stage for Fouquieriaceae; Ms. Anna Strong, from the Center for Plant Conservation located at the Missouri Botanical Garden, financially sponsored this illustration.

Volume 16 Update

Heidi H. Schmidt

- Lead Editorial Center: unassigned; Managing Editor Heidi Schmidt. The Technical Editor is unassigned.
- Taxon Editors: Nancy Morin (FNA), Arthur Tucker (Delaware State University), and Alan Weakley (University of North Carolina)
- Families: Oleaceae (11 genera/56 species), Lamiaceae (82 genera/453 species), and Verbenaceae (14/100)
- Illustrations: ca. 150 species as full habit

Status: Several treatments have recently been received. The treatment for *Syringa* (Oleaceae) is at the 01 stage. All Verbenaceae and most Lamiaceae genera have been assigned to authors. *Clinopodium*, *Collinsonia*, *Lamium*, *Lycopus*, *Macbridea*, *Piloblephis*, and *Synandra* (Lamiaceae) have been received.

Specimens have been pulled for illustrations in five genera in Lamiaceae; *Agastache*, *Blephilia*, *Collinsonia*, *Cunila*, and *Lycopus*.

Volume 17 Update

Craig C. Freeman and Richard K. Rabeler

- Lead Editorial Center: The University of Kansas; Lead Editors Craig C. Freeman and Richard K. Rabeler. The Technical Editor is unassigned.
- Taxon Editors: Wayne Elisens (University of Oklahoma), Craig Freeman (The University of Kansas), Deb Lewis (Iowa State University), Rich Rabeler (University of Michigan), and Leila Shultz (Utah State University)
- Families: 8 families, 89 genera, 931 species; Linderniaceae (3 genera, 13 species), Orobanchaceae (26 /281), Paulowniaceae (1/1), Pedaliaceae (2/2), Phrymaceae (4/112), Plantaginaceae (44/468), Scrophulariaceae (8/53), and Tetrachondraceae (1/1)
- Illustrations: 190 species as full habit

Status: This volume encompasses the Scrophulariaceae s.l., treated here following the work of the Angiosperm Phylogeny Group (APG II), and several small families. Most of the species in the volume are distributed among the Plantaginaceae (50%), Orobanchaceae (30%), and Phrymaceae (12%). In Plantaginaceae, more than half of the species are in the genus *Penstemon*.

Craig Freeman (The University of Kansas) and Richard Rabeler (University of Michigan) are co-lead editors. Wayne Elisens, the taxon editor for Plantaginaceae, has taken on a prominent role in the organizing efforts for the volume. A technical editor is not yet assigned to the volume. We expect there to be at least 98 manuscripts representing the efforts of four taxon editors and more than 40 contributing authors.

Efforts thus far have focused on verifying author and editor assignments, finding authors for orphan genera, and distributing commitment letters and welcome packets to authors who will be contributing to the volume. The lead editors met in St. Louis in October 2008 to carry out additional preparatory work. Draft family treatments have been written for all 8 families, and a draft genus template for the volume, based on the family template and genus descriptions that have been submitted, has been developed.

The template will be distributed to authors and editors in early 2009.

Author assignments have been confirmed for 75 of 89 genera (84%). Commitment letters have been sent to these authors by managing editor Heidi Schmidt; authors for 48 genera (54%) have returned their signed commitment letters. As of this writing, 14 genera totaling 152 species do not have authors. A list of orphan genera is available from the lead editors. Four treatments (*Dasistoma*, *Leucophyllum*, *Striga*, and *Vernonicastrum*; 7 species) have been submitted. “Rough draft” treatments exist for 4 additional genera (*Gratiola*, *Orthocarpus*, *Synthyris*, and *Triphysaria*) totaling 45 species.

The lead editors have started pulling specimens for illustration and will be working with authors and the managing editor when staff artists become available to begin work on the volume.

Volume 18 Update

Heidi Schmidt

- Lead Editorial Center: California Academy of Sciences with Lead Editor Debra K. Trock. The Technical Editor is unassigned.
- Taxon Editors: Dave Boufford (Harvard University Herbaria), Craig Freeman (The University of Kansas), Lynn Gillespie (Canadian Museum of Nature), Jay Raveill (University of Central Missouri), Leila Shultz (Utah State University), Gordon Tucker (Eastern Illinois University), and Frederick Utech (Hunt Institute)
- Families: 16 families, 127 genera, 570 species: Rubiaceae (36 genera/163 species), Lentibulariaceae (2/29), Acanthaceae (25/85), Bignoniaceae (15/19), Martyniaceae (1/1), Aquifoliaceae (2/14), Campanulaceae (19/112), Menyanthaceae (3/8), Goodeniaceae (1/2), Calyceraceae (1/2), Adoxaceae (3/29), Diervillaceae (2/5), Caprifoliaceae (4/50), Linnaeaceae (3/3), Dipsacaceae (6/14), Valerianaceae (4/34)
- Illustrations: ca. 200 species as full habit

Status: *Galium* (Rubiaceae) is at the 01 stage, submitted by L. Dempster; no other treatments have been submitted for volume 18.

The projected number of illustrations for the volume, based on the 1:6 guideline, is ca. 200.

Bryophyte Editorial Center Update Richard H. Zander

For Volume 28, scheduled for late 2009, authors are finishing treatments and sending appropriate material for illustration. Each genus will have at least one plate (half panel) and, then, as many additional as there is time, but no less than 1 plate per six species for each genus. Eighty percent of the genera and 77 percent of the species have been submitted. This is a significant advance in spite of taxonomic inflation of genera and species. Sixty-five percent of the plates are finished. Introductory Chapters for Volume 28 will be Preface (R. Zander); Classification and Phylogeny of the Mosses (J. Shaw); and, Keys to the Genera of Mosses (D. Vitt and W. Buck). There is continued juggling of genera and families with considerable phylogenetic changes, but there should be no ultimate problem. We hope to have manuscripts finished by the end of summer 2009, but as usual this depends on the actual completion of treatments by authors.

Volume 29, hepatics and anthocerotales, is due to be published in 2011. Thirty-eight percent of the genera and 21 percent of the species are submitted, and 2 percent of the plates finished. Authors have been apprised that their volume is to be completed in the not too distant future. An FNA microgrant allowed Dr. Vadim Bakalin, of the Institute of Biology and Soil Science, Vladivostok, Russian Federation, to visit the Missouri Botanical Garden for one month, November 5 through December 5, 2008, to work on the large and difficult hepatic genus *Lophozia*. He has submitted a first draft of this work.

The Web site for the bryophyte volumes mounts all treatments and illustrations after scientific review: <http://www.mobot.org/plantscience/bfna/bfnamenu.htm>.

The Bryophyte Editorial Center, the Taxon Editors, and, indeed, all bryologists associated with the FNA greatly regret the passing of Dr. Wilfred Schofield, University of British Columbia, who has contributed many treatments of both mosses and liverworts to the FNA. His encouragement and example are much missed (obit. in this issue).

Electronic Resources

BPH Online

BPH Online is a fully indexed and searchable database documenting (as comprehensively as possible) periodicals published between 1665 and the present, which routinely address the plant sciences. *BPH Online* is composed of the datasets used to create the print editions of *Botanico-Periodicum-Huntianum*, its supplement, and *BPH-2*. *BPH Online* is essentially a Web-based version of *BPH-2*, with some corrections, and searching and browsing options intended to make it more interrogable. The scope of the database encompasses the larger disciplines of botanical literature (agriculture, agronomy, bacteriology, biology, ecology, floriculture, forestry, fruit growing, genetics and plant breeding, geography, horticulture, hydrobiology and limnology, microbiology and microscopy, palaeontology, pharmacology and pharmacognosy, plant pathology, and vegetable crops), and includes over 33,000 title entries. *BPH Online* is a living document that will be updated and revised continually.

It can be found at: http://fmhibd.library.cmu.edu/fmi/iwp/cgi?-db=BPH_Online&-loadframes

The Biodiversity Heritage Library

The Biodiversity Heritage Library is a consortium of ten major natural history libraries and is a cornerstone organization of the *Encyclopedia of Life* (<http://www.eol.org>). The institutions are the American Museum of Natural History, the Field Museum, Harvard University Botany Libraries, Harvard University, Ernst Mayr Library of the Museum of Comparative Zoology, Marine Biological Laboratory of the Woods Hole Oceanographic

Institution, Missouri Botanical Garden, Natural History Museum, the New York Botanical Garden, Royal Botanic Gardens Kew, and the Smithsonian Institution.

The group is developing a strategy and operational plan to digitize the published literature of biodiversity held in their respective collections. This literature is available through a global “biodiversity commons.” One recent addition to BHL is 45 years of *Sida, Contributions to Botany*. BRIT’s journal, *Sida, Contributions to Botany* was first published in 1962 at SMU by Lloyd Shinnars. In 2007 the journal changed names and is now published under the new name, *Journal of the Botanical Research Institute of Texas*. *Sida, Contributions to Botany* was published over the course of 45 years (1962–2006). It is a pleasure to announce that the entire run of *Sida, Contributions to Botany* (15,413 pages, 22 volumes, 94 issues) is available online via the Biodiversity Heritage Library (BHL). BRIT Press shipped individual issues of *Sida, Contr. Bot.* from back stock to the Missouri Botanical Garden for scanning and

contribution to BHL. Guy L. Nesom also contributed personal back issues. All 22 volumes were scanned by the Missouri Botanical Garden and contributed to the BHL Web site where they are now available online (<http://www.biodiversitylibrary.org/Default.aspx>). Missouri is one of 10 participating institutions in BHL.

iPlants – The World’s Plants Online

Go online (<http://www.iplants.org/>) to check out this national and international effort to produce an index of all of the world’s plants species together with, where possible, an image and a preliminary conservation assessment.

Resource for Elevation Data

Elevation for most U.S., Canadian, and Mexican towns (or towns near them) can be found at <http://www.wunderground.com>; this may be especially useful to authors treating taxa with distributions in areas where elevation often is omitted on collections.

Herbarium and Botanical Garden News

Herbarium of the Academy of Natural Sciences (PH)

With support from NSF and the Mellon Foundation, PH is currently digitizing and imaging its holdings of more than 35,000 types. Because the Academy, founded in 1812, was one of the first scientific institutions in the New World, the herbarium holds more specimens collected prior to the early 1800s than any other institution in the Western Hemisphere. PH has the highest proportion of types to total number of specimens of any herbarium in the United States. It has more than 1.4 million botanical specimens collected by more than 600 botanists, including Baldwin, Barton, de la Billiardière, Canby, Clark, Elliott, Fogg, Jr., Forsters, Henry, Horsfield, Lambert, von Ledebour, Lewis (PH-LC), Long, Michaux, Mill, Muhlenberg, Nuttall, Parmentier, Pennell, Porter, Pursh, Rafinesque, Roxburgh, Royle, von Schlagintweit, Schweinitz, Short, Stone,



Type specimen of *Berberis aquifolium* Pursh, collected by Lewis and Clark (L), and represented (R) and described by Frederick T. Pursh (1774–1820). The specimen is deposited at the PH Herbarium, and Pursh’s publication (*Flora Americae Septentrionalis* 1813) is deposited at the Ewell Sale Stewart Library at the Academy of Natural Sciences.

Tuckerman, Wahl, Wallich, Wherry and Zeyher (see Mears 1981 www.ansp.org/research/biodiv/botany/pdf/Mears1981.pdf).

PH has especially strong holdings of vascular plants from southeast Pennsylvania and adjacent regions of New Jersey, Delaware, and northeastern Maryland. Intensive collecting in these areas started soon after the founding of the Philadelphia Botanical Club in 1891. In particular, the holdings of plants growing in the unique New Jersey Pine Barrens are considered to be the best in the world (PH Herbarium Brochure 2005).

In addition to vascular plants, PH has also an important historical collection of macrofossils, including 200 types, as well as types and historical collections of bryophytes, fungi, and algae.

Because the collections of many of the botanists represented at PH are the foundation of North American botany, the study of PH holdings would enhance the family treatments for the series Flora of North America North of Mexico. Therefore, we extend our invitation to visit PH to our colleagues working on these treatments or to contact us for loan of specimens.—*Alina Freire-Fierro*

Reference

Mears, J. 1981. Guide to Plant Collectors Represented in the Herbarium of the Academy of Natural Sciences of Philadelphia. *Proc. Acad. Nat. Sci. Philadelphia* 133:141–165.

The University of Louisiana at Monroe, Louisiana State University, Tulane University, Southeastern Louisiana University, and Nicholls State University

The National Science Foundation's Biological Resource Collections program has recommended \$500,000 in funding to digitize all 1.1 million plant specimens in the 15 Louisiana herbaria. The University of Louisiana at Monroe Herbarium (NLU) will coordinate the three-year project. Collection information will be extracted from the labels with software tools developed by MorphBank to help populate SPECIFY

databases. The digitized images and data will be freely available online through a central Web site called CyberFlora Louisiana. It will offer fast data sorting and filtering, rapid delivery of zoomable images, mapping of specimen locations, and checklists of plants for particular locations. The Web site will be supplemented with digital images of live plants, plant parts, and identifying features for species found in Louisiana. Visual identification keys will be developed that are easier to use than traditional ones with difficult terminology.—*Thomas Sasek, Lowell Urbatsch, Steven Darwin, Rick Miller, and Alex Lasseigne*

Botanical Research Institute of Texas and University of North Texas

The Botanical Research Institute of Texas (BRIT) and the Texas Center for Digital Knowledge (TxCDK) at the University of North Texas have received a \$738,075 grant from the Institute of Museum and Library Services (IMLS) to conduct fundamental research with the goal of identifying how human intelligence can be combined with machine processes for effective and efficient transformation of textual museum specimen label information into high-quality machine-processible parsed data for use in digitized biological collections, including herbaria. Digitizing these collections in a well-planned and standardized way increases their use by a wider audience, reduces the physical handling of the original object, and produces a permanent digital archive. This two-year project will advance understanding of the workflow and processes best able to increase access to and use of digitized biological collection metadata. All project documents will be shared on the project Web site (<http://www.apiaryproject.org>) through other open-access digital libraries to ensure long-term access. BRIT IT Manager Jason Best and Herbarium Director Amanda Neill oversee this research project, called Apiary, in collaboration with P.I. Bill Moen, Director of TxCDK.

Publications

W*ildflowers of the Coastal Plain: a Field Guide*, Ray Neyland. April 2009. (ISBN 978-0-8071-3407-8, flexible hbk.). Louisiana State University Press, <http://www.lsu.edu/lsupress/bookPages/9780807134078.html>. \$34.95, 352 pp, 535 color photos, 65 line drawings, 1 map, 6" × 9".

From the LSU Press Web site.—*Wildflowers of the Coastal Plain* provides detailed information on 535 species of herbaceous plants, vines, and shrubs inhabiting one of the great floristic provinces of the United States. The coastal plain extends from southeast Texas eastward to Florida and includes the Mississippi River flood plain, which stretches from southern Illinois to the Gulf of Mexico. It embraces all but the southern tip of the Florida peninsula and proceeds up the eastern seaboard into southern New Jersey and includes parts of Long Island and Cape Cod. In this indispensable guide, botanist Ray Neyland catalogs the native flora, as well as the naturalized species found throughout the far-flung but unified coastal plain.

Each illuminating entry includes a vivid color photograph of the wildflower in its natural setting, the plant's scientific and common names, and a precise description of the species, including its range and blooming time. Some entries describe modern and historical applications for the plants—such as use by Native Americans for food or medicine—and mention closely related species to prevent confusion in identification. The volume's simplified glossary and a series of line drawings explain essential botanical terms. Dichotomous keys facilitate a helpful step-by-step identification method, allowing readers to begin with what they know—a flower's color—and then follow a process of elimination (Is the plant aquatic or not? Are the leaves fan shaped or linear?).

R*are Wildflowers of Kentucky*, Thomas G. Barnes, Deborah White, and Marc Evans. 2008. (ISBN: 978-0-8131-2496-4, hbk.). The University Press of Kentucky, 663 South Limestone Street, Lexington, KY 40508-4008; <http://www.kentuckypress.com/>. \$39.95, Hardcover, 220 pp, 5½" × 7½".

From the UK Press Web site.—*Rare Wildflowers of Kentucky* provides readers with the unique opportunity to view disappearing wildflowers that are seldom seen by the average person, such as the Cumberland Rosemary and the Blue Coyote Mist Flower. Recognizing that these wildflowers are part of Kentucky's natural heritage, environmentalists Thomas G. Barnes, Deborah White, and Marc Evans use this collection to spread awareness and promote environmental preservation.

This collection provides an introduction to Kentucky's rare plants. Barnes, both a naturalist and an award-winning photographer, shot the 220 full-color images that grace its pages. This is not simply a photography collection celebrating the beauty of the wildflowers, but the plants are organized by habitat and each picture is accompanied by a detailed description of the species. The accompanying text describes the ecological communities the wildflowers belong to and the ways in which they are being threatened. The authors use this collection as a means to entertain, inform, and educate readers, by using its pages to suggest concrete steps for conservation and preservation efforts and by including a list of references of the plants' scientific species names and endangered statuses.

T*he Manzanitas of California: also of Mexico and the World*, Philip V. Wells. 2000. (ISBN: 0-933994-22-2, hbk.). Department of Botany, University of Kansas (Orders: check or money order with order to: Dr. Anke M. Wells, 4638 Bluebird Lane, McLouth, KS 66054-3109; \$5.00 shipping/handling, Kansas residents pay sales tax). \$55.00, acid-free paper and bound with Kivar 7, 151 pp, 150 illustrations, mostly black-and-white digital scans of nascent inflorescences and endocarps, 8½" × 11". Approximately 200 copies available.

Published by the author in 2000, this book is based on more than 40 years of field and herbarium studies of *Arctostaphylos* by the late Philip V. Wells, Professor Emeritus of Ecology and Evolutionary Biology at the University of Kansas in Lawrence, Kansas. His lifelong interest in manzanitas started in

the late 1950s while working at the University of California in Santa Barbara and culminated in this 151-page treatise. The book provides keys, synonyms, descriptions, and distributions for 61 species.

OBITUARIES

Dr. Steven Clemants

1954–2008

Steve Clemants, a senior scientist at Brooklyn Botanic Garden, died in Brooklyn on Sunday, November 2, 2008. He was an author or co-author for many FNA treatments in *Amaranthaceae*, *Chenopodiaceae*, and *Juncaceae*.

Steve graduated from the University of Minnesota in 1976 but remained there to pursue a master's degree in botany with a minor in horticulture, which he obtained in 1979. Steve's botanical pursuits took him to the City University of New York (CUNY) where, working at the New York Botanical Garden with curator James Luteyn, he pursued a doctorate in botany. His graduate work focused on New World members of the blueberry family in the genus *Bejaria*. He obtained his doctorate in botany from CUNY in 1984.

In 1989, Steve accepted a position as a research taxonomist at Brooklyn Botanic Garden, where he later served as director of Science; vice president of

Science, Publications, and Library; and senior research scientist. As Steve continued his botanical research, he developed additional interests in urban ecology and conservation. Shortly after arriving at the Garden, he founded the New York Metropolitan Flora program, which has become an international model for studying plants in urban environments. Data from this pioneering project are now yielding important information on how human-caused phenomena, such as global warming and development, are affecting the region's plants. He also was one of the people most responsible for development for the North American Strategy for Plant Conservation, which identified Flora of North America as the vehicle for the goal of working toward a complete list of the flora of North America. His treatment of *Bejaria* (*Ericaceae*) will be published as part of FNA volume 8.

The Dr. Steven Clemants Wildflower Fund has been established to honor our late colleague and friend. Steve's widow, Grace Markman, is working with the Greenbelt Native Plant Center to plan a living memorial that will foster the planting of native wildflower species in New York City parks. Donations in his memory should be made out to "City Parks Foundation, Dr. Steven Clemants Wildflower Fund," and mailed to City Parks Foundation, c/o Greenbelt Native Plant Center, 3808 Victory Blvd., Staten Island, NY 10314.

Meetings and Workshops

5th Southwest Rare Plant Conference

MARCH 16–20, 2009

University of Utah, Salt Lake City, Utah
For more information contact
Mindy Wheeler wheelermindy@yahoo.com.

Botany and Mycology 2009

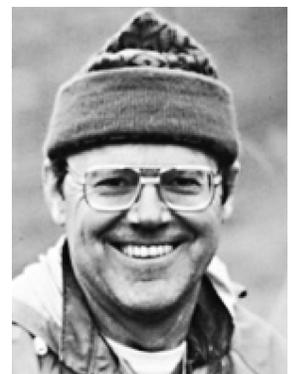
JULY 25–30, 2009

Snowbird, Utah
Joint meeting with the Mycological Society of America, ABLs, AFS, and ASPT.

Dr. Wilfred Schofield

1927–2008

It is with great sadness that I report the death of Wilf Schofield, an *emeritus* professor in Botany at the University of British Columbia, Vancouver, Canada, who died of cancer on November 5, 2008. His death was very sudden and just a few months before he died he was on Umak Island, in the Aleutian Islands, doing one of the things he excelled at and loved to do the best, collect bryophytes.



Wilf was born in Brooklyn Corner, Nova Scotia on July 19, 1927. He decided he wanted to become a school teacher so he attended Acadia University in Wolfville, Nova Scotia (1946–50) where he graduated with his B.A. degree. John S. Erskine, a botanist who collected many Nova Scotia records, was on staff at Acadia University and this was no doubt where Wilf started his interest in bryophytes. Wilf then did some internships and residencies, obtaining his Teacher's License at Normal College, Nova Scotia in 1951. However, after doing some teaching in Nova Scotia his passion for the bryophytes helped him decide to go on to graduate school, so he attended Stanford University (1954–56) where the well known bryologist William C. Steere was Dean. After receiving his M.A. degree (Dissertation: "The Relationships and Geographic Distribution of Canadian and Alaskan species of *Hypnum*") he attended Duke University (1957–60) where he studied ecology under H.J. Oosting, obtaining his Ph.D. degree (Dissertation: "The Ecotone between Spruce-Fir and Deciduous Forest in the Great Smoky Mountains"). The same year after graduation in 1960 he obtained a position in the faculty of the Botany Department at the University of British Columbia where he eventually became Professor in Botany in 1971, remaining there until he retired to an Emeritus Professor position in 1992 until his death.

Wilf was an excellent teacher and well liked by his numerous students throughout his teaching career. He had several graduate students, including two Ph.D. graduates that are presently scheduled to publish genera in Volume 28 (Bryophytes: Mosses, part 2) in the Flora of North America series.

He has over 100 publications, mostly on bryophytes, but also some on vascular plants. He was the author of chapters in several botanical books, as well as the sole author of three books, the most distinguished one being, "Introduction to Bryology" published in 1985 (revised in 2001), which was the first comprehensive textbook in bryology. The book received many awards from several organizations, among them the Association of American Publishers and the Canadian Botanical Association.

Wilf was known as one of the best collectors in North America. He collected almost 129,000 plants and lichens, with roughly 90% of them being bryophytes. Most of his bryophytes were collected in Canada, many on the Queen Charlotte Islands off the coast of British Columbia. He traveled extensively to numerous places around the world often collecting during his travels. Among the places where he traveled were Australia, New Zealand, Tasmania, Japan, Europe and Hawaii. However, recent collecting for the past 15 years of his life was in the Aleutian Islands with Stephen Talbot (U.S. Fish and Wildlife Service, Anchorage, Alaska) and his wife, Sandy (U.S. Geological Survey, Anchorage). As a result of all of his collecting, several plants were named in his honor: one genus and seven species of mosses, one genus and one species of liverworts, two lichen species and one vascular plant species. With his numerous collections and those from other institutions with which he exchanged specimens, the Bryophyte Herbarium of the University of British Columbia has become the largest in Canada and one of the largest in the world.

Professionally, he was the Vice-President (1965–67) and President (1967–69) of the American Bryological and Lichenological Society, Director of the Canadian Botanical Association (1970–72), along with other duties in a number of other societies. He held many Bryophyte Workshops in several places in North America and he was an invited lecturer numerous times in many places throughout the world.

His most recent publications have been with the bryophyte (moss) volumes of the Flora of North America. He was the author or coauthor of treatments of five families and six genera in volume 27, part 1, and he will be the author or coauthor of treatments of one family and 5 genera in volume 28, part 2 when it is published. In addition, he will be author of three families and three genera in volume 29 (hepatics and hornworts) when it is published in the near future.

His research accomplishments, especially on his specialty the family Hypnaceae (Musci), and his professional services are immense. There will be a more complete obituary on Wilf published early this year in the journal, *The Bryologist*.

He was an extraordinary man with great accomplishments as a botanist, a true professional bryologist who was always willing to help anyone with their bryological problems, and a person who had very high human values. There is little doubt that he will be missed by everyone who had the pleasure of knowing him personally.—*Robert Ireland*

Georgia Mason

1910–2007

Oregon botanist Georgia Mason died in Eugene-Springfield, Oregon, on October 8, 2007, at the age of 97. Ms. Mason played an important role in Oregon botany. She was Curator of the University of Oregon (UO) Herbarium in Eugene in 1961–62 and from 1969 to 1976. She earned a B.A. degree from Montclair State University in New Jersey in 1941, and an M.S. from Oregon State University in 1960. She was an expert on the flora of the Willowa Mountains of northeast Oregon and also catalogued the wetland plants of the Willamette Valley. After her retirement from the UO, she taught field botany at the local Community College and led educational botany walks in the Eugene area. Later she lived a quiet life with her beloved dogs. Georgia Mason has approximately 4,550 herbarium sheets at the Oregon State University Herbarium in Corvallis.

Georgia Mason published two books: The first was her *Guide to the Plants of the Willowa Mountains of Northeastern Oregon* (UO Museum of Natural History, 1975). She revised the book in 1980 and it remains in print. Her second book was *Plants of Wet to Moist Habitats in and Around Eugene Oregon* (self-published, 1982).

Donations in Georgia Mason's name may be made to the Oregon Flora Project c/o L. Hardison, Botany Department, Oregon State University, Cordley Hall, Corvallis, OR 97331.

Harlan Lewis

1919–2008

Harlan Lewis, 89, passed away December 12, 2008, at his home in Southern California. He collected California's plants starting at age 10, and pursued his passion by studying with Carl Epling at UCLA (1941, M.A. 1942, PhD in botany 1946) and was on the faculty there until he retired in 1981. Harlan was intrigued by the sources of variation in natural populations, and for his doctorate investigated population genetics, cytological and morphological characteristics, and evolutionary significance of diploids and tetraploids in three native perennial species of *Delphinium*.



Harlan became a pioneer in the genetics of plant speciation as The Modern Synthesis was taking shape, and showed leadership in investigating cases where hybridization, polyploidy, aneuploidy, and novel cytogenetic mechanisms were involved in speciation. His research in the 1950s shifted almost exclusively to the roughly four dozen species of *Clarkia* (Onagraceae), a group of annual plants centering in California. This genus is now automatically associated with Harlan Lewis, who authored the FNANM treatment. He realized that rapid speciation, sympatric speciation, and genetic barriers between populations could be addressed by using the showy clarkias. From cytological and genetic studies, Harlan Lewis and his students revolutionized the field of evolutionary biology. The insights they gained ultimately led to a comprehensive understanding of the evolution and relationships of the family Onagraceae.

—*Arthur Gibson and Peter Raven*

Flora of North America Alphabetical list of Pteridophyte, Gymnosperm, and Angiosperm families with volume numbers

[**Bold** = published; Updated 5 Feb 2009]

- Acanthaceae - 18
Achatocarpaceae - 4
Acoraceae - 22
Adoxaceae - 18
Agavaceae - 26
Aizoaceae - 4
Alismataceae - 22
Aloeaceae - 26
Amaranthaceae - 4
Anacardiaceae - 13
Anemiaceae - 2
Annonaceae - 3
Apiaceae - 13
Apocynaceae - 14
Apodanthaceae - 6
Aponogetonaceae - 22
Aquifoliaceae - 18
Araceae - 22
Araliaceae - 13
Arecaceae - 22
Aristolochiaceae - 3
Aspleniaceae - 2
Asteraceae - 19–21
Azollaceae - 2
Balsaminaceae - 13
Basellaceae - 4
Bataceae - 7
Begoniaceae - 6
Berberidaceae - 3
Betulaceae - 3
Bignoniaceae - 18
Bixaceae - 6
Blechnaceae - 2
Boraginaceae - 15
Brassicaceae - 7
Bromeliaceae - 22
Burmanniaceae - 26
Bursereaceae - 13
Butomaceae - 22
Buxaceae - 10
Cabombaceae - 3
Cactaceae - 4
Calycanthaceae - 3
Calyceraceae - 18
Campanulaceae - 18
Canellaceae - 3
Cannabaceae - 3
Cannaceae - 22
Capparaceae - 7
Caprifoliaceae - 18
Caricaceae - 7
Caryophyllaceae - 5
Casuarinaceae - 3
Celastraceae - 12
Ceratophyllaceae - 3
Cervantesiaceae - 12
Chenopodiaceae - 4
Chrysobalanaceae - 12
Cistaceae - 6
Cleomaceae - 7
Clethraceae - 8
Clusiaceae - 6
Combretaceae - 10
Commandraceae - 12
Commelinaceae - 22
Convolvulaceae - 14
Cornaceae - 12
Crassulaceae - 8
Crossosomataceae - 9
Cucurbitaceae - 6
Cupressaceae - 2
Cymodoceaceae - 22
Cyperaceae - 23
Cyrillaceae - 8
Datisceae - 6
Dennstaedtiaceae - 2
Diapensiaceae - 8
Diervillaceae - 18
Dioscoreaceae - 26
Dipsacaceae - 18
Droseraceae - 6
Dryopteridaceae - 2
Ebenaceae - 8
Elaeagnaceae - 11
Elatinaceae - 6
Ephedraceae - 2
Equisetaceae - 2
Ericaceae - 8
Eriocaulaceae - 22
Escalloniaceae - 13
Eucommiaceae - 12
Euphorbiaceae - 12
Fabaceae - 10–11
Fagaceae - 3
Fouquieriaceae - 15
Frankeniaceae - 6
Fumariaceae - 3
Garryaceae - 12
Gelsemiaceae - 14
Gentianaceae - 14
Geraniaceae - 13
Ginkgoaceae - 2
Gleicheniaceae - 2
Goodeniaceae - 18
Grammitidaceae - 2
Grossulariaceae - 8
Gunneraceae - 10
Haemodoraceae - 26
Haloragaceae - 10
Hamamelidaceae - 3
Heliconiaceae - 22
Hydrangeaceae - 12
Hydrocharitaceae - 22
Hydroleaceae - 14
Hydrophyllaceae - 15
Hymenophyllaceae - 2
Hypericaceae - 6
Illiciaceae - 3
Iridaceae - 26
Isoëtaceae - 2
Iteaceae - 8
Juglandaceae - 3
Juncaceae - 22
Juncaginaceae - 22
Koeberlinaceae - 7
Krameriaceae - 12
Lamiaceae - 16
Lardizabalaceae - 3
Lauraceae - 3
Leitneriaceae - 3
Lemnaceae - 22
Lentibulariaceae - 18
Liliaceae - 26
Limnathaceae - 7
Limnocharitaceae - 22
Linaceae - 12
Linderniaceae - 17
Linnaeaceae - 18
Loasaceae - 12
Loganiaceae - 14
Lycopodiaceae - 2
Lygodiaceae - 2
Lythraceae - 10
Magnoliaceae - 3
Malpighiaceae - 12
Malvaceae - 6
Marantaceae - 22
Marsileaceae - 2
Martyniaceae - 18
Mayaceae - 22
Melastomataceae - 10
Meliaceae - 13
Menispermaceae - 3
Menyanthaceae - 18
Molluginaceae - 4
Moraceae - 3
Moringaceae - 7
Muntingiaceae - 6
Musaceae - 22
Myricaceae - 3
Myrsinaceae - 8
Myrtaceae - 10
Najadaceae - 22
Nelumbonaceae - 3
Nitrariaceae - 13
Nyctaginaceae - 4
Nymphaeaceae - 3
Nyssaceae - 12
Oleaceae - 16
Onagraceae - 10
Ophioglossaceae - 2
Orchidaceae - 26
Orobanchaceae - 17
Osmundaceae - 2
Oxalidaceae - 12
Paeoniaceae - 8
Papaveraceae - 3
Parkeriaceae - 2
Parnassiaceae - 12
Passifloraceae - 6
Paulowniaceae - 17
Pedaliaceae - 17
Penthoraceae - 8
Phrymaceae - 17
Phyllanthaceae - 12
Phytolaccaceae - 4
Picramniaceae - 9
Picrodendraceae - 12
Pinaceae - 2
Piperaceae - 3
Pittosporaceae - 13
Plantaginaceae - 17
Platanaceae - 3
Plumbaginaceae - 5
Poaceae - 24–25
Podostemaceae - 6
Polemoniaceae - 15
Polygalaceae - 11
Polygonaceae - 5
Polyodiaceae - 2
Pontederiaceae - 26
Portulacaceae - 4
Potamogetonaceae - 22
Primulaceae - 8
Proteaceae - 10
Psilotaceae - 2
Pteridaceae - 2
Putranjivaceae - 12
Ranunculaceae - 3
Resedaceae - 7
Rhamnaceae - 12
Rhizophoraceae - 12
Rosaceae - 9
Rubiaceae - 18
Ruppiaceae - 22
Rutaceae - 13
Salicaceae - 7
Salviniaceae - 2
Santalaceae - 12
Sapindaceae - 13
Sapotaceae - 8
Sarraceniaceae - 8
Saururaceae - 3
Saxifragaceae - 8
Scheuchzeriaceae - 22
Schisandraceae - 3
Schizaeaceae - 2
Schoepfiaceae - 12
Scrophulariaceae - 17
Selaginellaceae - 2
Simaroubaceae - 13
Simmondsiaceae - 12
Smilacaceae - 26
Solanaceae - 14
Sparganiaceae - 22
Sphenocleaceae - 14
Staphyleaceae - 9
Stemonaceae - 26
Styracaceae - 8
Surianaceae - 11
Symlocaceae - 8
Tamaricaceae - 6
Taxaceae - 2
Tetrachondraceae - 17
Theaceae - 8
Thelypteridaceae - 2
Theophrastaceae - 8
Thesiaceae - 12
Thymelaeaceae - 6
Tropaeolaceae - 7
Turneraceae - 6
Typhaceae - 22
Ulmaceae - 3
Urticaceae - 3
Valerianaceae - 18
Verbenaceae - 16
Violaceae - 6
Viscaceae - 12
Vitaceae - 12
Vitariaceae - 2
Ximeniaceae - 12
Xyridaceae - 22
Zamiaceae - 2
Zannichelliaceae - 22
Zingiberaceae - 22
Zosteraceae - 22
Zygophyllaceae - 12
267 families