



THE JEPSON GLOBE

A Newsletter from the *Friends of The Jepson Herbarium*

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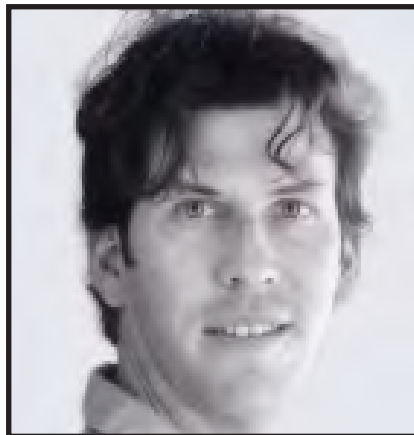
Special Curator's Column

by David Ackerly

Curator of Ecology

My research addresses the ecological and evolutionary processes that shape the functional diversity of terrestrial plants, with a particular focus on the California flora. I approach this broad topic from many perspectives, drawing on ecophysiology, population biology, community ecology and phylogenetics. My lab projects range from in depth physiological research testing the adaptive significance of traits such as stem hydraulics, to broad comparative studies that integrate large-scale ecological databases with recent advances in seed plant phylogeny. My current research is focused on three areas: i) The study of plant ecological strategies, based on comparative ecophysiological studies in groups of coexisting and/or closely related species. Variation and correlations among functional traits are frequently examined in closely related species, using methods such as phylogenetic independent contrasts, to test for replicated patterns of evolutionary divergence along climatic and edaphic gradients, ii) The processes shaping functional diversity, from local to regional scales. Projects range from analyses of leaf and seed trait variation in local communities, to the functional diversity of the woody plants of California in the context of their diverse biogeographic history, iii) Macro-evolutionary studies of ecological trait diversity,

Continued on page 3.



Andrew Doran, 2004

Welcome!

Andrew Doran Administrative Curator

Andrew Doran has joined the staff as Administrative Curator of the University and Jepson Herbaria. Andrew came to us from the University of Connecticut, Department of Ecology and Evolutionary Biology, where he was the Scientific Collections Manager and Curator of the Campus Arboretum. Andrew comes from a horticultural background, paying his way through college by working in a number of garden centers, nurseries, and gardens throughout England. His interest in plants stem from an early age. Andrew was sent to Charterhouse School (see photo), an English boarding school in leafy Surrey. Over wintering *Dahlia* Cav. tubers and weeding his housemaster's path for punishment were some of his formative botanical experiences.






Continued on page 3.

Jepson Flora Project Update: Introducing the *Ecological Flora of California*

The Ecological Flora of California is a new addition to the Jepson Flora Project that is being launched this year. The Ecological Flora (ucjeps.berkeley.edu/efc) will be an online database accompanying the second edition of *The Jepson Manual* providing data on a wide array of ecological attributes for the flora of California. The project is being launched by David Ackerly, a professor in Integrative Biology and Curator of Ecology in the Jepson Herbarium, who came to Berkeley in 2005. The goal of the Ecological Flora is to provide standardized ecological information across the entire flora. This will include traits that have traditionally appeared in floristic treatments (e.g., annual vs. perennial) as well as others that are of great ecological interest but are rarely included in either taxonomic descriptions or field identification man-

Continued on page 4.

ALSO IN THIS ISSUE

-  Cal Day Review
-  Revised Catalog of Lichens, Lichenicoles, and Allied Fungi in California
-  Contributions to the *Flora of North America North of Mexico*
-  Volunteer Opportunities
-  Announcements

CAL DAY REVIEW

Cal Day 2006 was a tremendous success and saw thousands of people come through the Valley Life Sciences Building. The Herbaria were one of the main attractions with numerous exhibits designed at educating and reaching the public by interaction with herbarium staff, students, and volunteers. Five 'behind the scenes' tours gave parties a historical insight and overview of what the functions of the Herbaria are and how plants are collected, processed, and archived. The wild flower showcase was equally popular and received a lot of attention from young and old alike. Other exhibits included edible fungi, economic plants, T-shirt sale, and a UC Botanical garden display.



Cal Day 2006 gave the Herbaria an opportunity to showcase research, outreach, and publications. We plan to make Cal Day 2007 equally as appealing with a host of new ideas to engage our visitors.



The wild flower display was hosted by staff and volunteers with children receiving miniature herbarium sheets that they could keep and use to identify by matching with living plants.

NEXT YEAR, CAL DAY
WILL BE HELD ON
APRIL 21st

We hope you will come see
the displays and take a tour
of the Herbaria!



Herbaria Director Brent Mishler explaining the use of historical specimens as part of the behind the scenes tour.

Doran, continued from page 1.

Early employment included working for the Cadogan Estate in Chelsea, central London. This included garden and landscape projects in Cadogan Place Gardens off Sloane Street in central London. This garden was originally designed by Sir Humphrey Repton; over several hundred years it has seen many changes including a woodland walk, an unlikely feature for a garden in central London.

After completing a degree in horticultural science at an agricultural college in the northwest of England, Andrew went on to enroll in the masters program in pure and applied plant and fungal taxonomy at the University of Reading, School of Plant Sciences. Reading was Andrew's first introduction into herbaria and also botanical databases, an area in which he has invested considerable time and efforts. While at Reading, he continued working in garden centers and established a small landscape design business. Projects included woodland, terraced and Japanese gardens.

After completing Reading and acquiring an interest in both botanical and horticultural nomenclature, he worked in the herbarium of the Royal Botanic Gardens, Kew, on the International Plant Names Index, an on-line nomenclatural project incorporating the names of and associated bibliographic data for all seed plants, ferns, and fern allies. From Kew, Andrew moved on to The Royal Horticultural Society's Department of Botany in Wisley Surrey where he worked on the Plant Finder and Plant Selector, database projects designed to record, query, and disseminate information on cultivated plants by coding simple morphological characteristics.

Andrew's move across the pond commenced at Denver Botanic Gardens where he worked as a horticultural taxonomist and Plant Records Manager. During this time, he developed a system to link the garden's herbaria to the living collections database and make the data available on-line. In Denver, Andrew also became the



Nymphaea 'William Phillips', a cultivated variety and the first proven intersubgeneric hybrid using molecular techniques. Waterlily hybridizers have long claimed a cross between different subgenera but lacked sufficient evidence. This tropical hybrid also has very ornamental qualities and was described by Andrew in *HortScience* 2004 39:446-447.

Registrar for Nymphaeaceae and still maintains an on-line bibliographic checklist of over 2000 species and cultivars attributed to this family in addition to recording specimens at multiple herbaria.

With returning to the University environment came the challenge of moving and merging the UConn biological collections from various locations around campus into a state-of-the-art combined collections facility. Eventually, 750,000 specimens were moved into the new building. Projects completed at UConn included thoroughly documenting the type specimens, which involved high resolution scans of specimens and protologues, creating a database of the phycoogy collection, and developing the herbarium website and on-line offerings.

His experiences both horticultural and botanical

Ackerly, continued from page 1.

based on the synthesis of ecological data, recent advances in phylogenetics, and the development of comparative phylogenetic methods. For example, a recent comparative study demonstrated that leaf traits of many chaparral shrubs are ancestral traits of the respective lineages, suggesting a strong role for species sorting in the assembly of this community, rather than in situ convergent evolution. Current collaborative projects are aimed at analyzing large global trait databases using phylogenetic comparative methods to obtain insights into the major factors influencing trait evolution during diversification of the seed plants and the assembly of regional floras. 🌱

have made him an all-rounder with particular interest in cultivated plants. Andrew also has a strong interest in collections databases and making scientific data available over the internet is one of his main concerns. Andrew is delighted to be working for the University and Jepson Herbaria and has had to hit the ground running with tasks ranging from incorporating Mary Bowerman collections/library, Cal Day to learning the day to day procedures of large herbaria. Andrew describes himself as a generalist with very broad botanical interests and welcomes comments and suggestions from friends of the Jepson Herbarium. 🌱



Charterhouse School, where Andrew first developed an interest in plants was founded in 1611 and has been attended by many notable old 'Carthusians' including John Wesley, Robert Baden-Powell, Ralph Vaughan Williams, and Peter Gabriel. The school has many gardens and extensive plant collections.

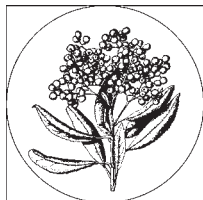
uals (e.g., seed size). The database will consist of two parts. The first is called the 'core traits,' a broad set of attributes identified in advance by Ackerly and the project's Advisory Board (listed on the web site above). Many of these (e.g., growth form, phenology, flower color) can be scored by knowledgeable observers, and the contributors to TJM2 will be invited to help fill in this part of the database. Other traits, such as nitrogen concentration in leaves, require quantitative measurements and will be filled in over time. The second part of the database will be a general repository for ecological data from the literature and ongoing ecological field research. The database, scheduled to be launched later this year, will be fully searchable by researchers and the general public, and will be closely integrated into the other components of the Jepson Flora Project.

The Ecological Flora project was inspired by the pioneering work of the late Herbert Baker, Professor of Botany at UC Berkeley. In the 1960's, Herbert and his wife Irene began to compile data on floral and seed traits — including flower color, nectar production, phenology, seed size — for thousands of California plant species. Only the seed size data were analyzed and published, in Baker's landmark 1972 Ecology paper (vol. 53, pp. 997-1010). Eventually, the rest of the Baker data set will be incorporated into the Ecological Flora and will be available for research. The Ecological Flora project also parallels several ongoing plant trait database projects in Europe and recent advances in the compilation and analysis of global trait data sets on leaves and seeds (see links and citations on the project web site).

If you would like more information on the Ecological Flora, see: <http://ucjeps.berkeley.edu/efc>,

or contact

David Ackerly
dackerly@berkeley.



Revised Catalog of Lichens, Lichenicoles, and Allied Fungi in California

Shirley C. Tucker and Bruce D. Ryan

The first catalog of California lichens (Tucker & Jordan, *Wasmann Journal of Biology* 36: 1–105) was published in 1979. Since that time, interest in lichenology has expanded both in California and worldwide, resulting in taxonomic revisions that have necessitated numerous changes in accepted names.

The recently published Revised Catalog of Lichens, Lichenicoles, and Allied Fungi in California by Shirley C. Tucker and Bruce D. Ryan (who died towards the end of the project) is intended to provide a current, comprehensive list of the species known to occur in California and an accounting of names that have been superseded. The Catalog is the most recent issue of *Constancea*, an online continuation of University of California Publications in Botany <<http://ucjeps.berkeley.edu/constancea/index.html>>.

The total number of lichen taxa reported for California is 1,574 (including infraspecific taxa), compared to 1060 in the previous catalog. The number of known species has nearly doubled since 1945, when Herre reported 794 species and varieties known in California. The lichen flora of California includes about 36% of the 4,429 species reported for the continental United States and Canada by Esslinger (online North American checklist, 2004). The number of genera represented in California has increased from 170 in 1979 to 297, about 61% of the genera found in the United States and Canada.

For each species, published references to California collections are cited. For some species, unpublished records are cited as herbarium specimen data. For each genus, accepted names are listed first, followed by synonyms and names of taxa that are either excluded or not confirmed. Synonyms are hyperlinked to current names. The bibliography includes 854 publications pertaining to California lichens. References are hyperlinked to the bibliography. All names are hyperlinked to the corresponding entry in *Index Fungorum*, the online nomenclator for fungi.

The Catalog and bibliography are downloadable as PDF files. A query function allows searching on scientific names.

Constancea

An online monograph series

Submissions welcome





Research Botanists from the University Herbarium make major contributions to the *Flora of North America North of Mexico*

Alan Smith, Research Botanist and Curator of Pteridophytes in the University Herbarium, was Pteridophyte Advisor to the Flora of North America Editorial Committee from 1986-1993. Following publication of the first two volumes of the Flora (1993), Smith became a member of Editorial Committee, from 1993-2004, and Chairman of the Management Committee for the entire project, from 1996-1997. In addition to editing and coordinating fern treatments for Vol. 2, as well as contributing the treatments of *Thelypteris* and *Aspidotis*, he and co-author Herb Wagner (Univ. Michigan) wrote a chapter on Pteridophytes in the introductory volume (Vol. 1). With the learning curve behind him, Alan thought it would be a “kick” to contribute the treatment of at least one genus to each of the anticipated 26 volumes for vascular plants; but reality — other commitments, and priorities — soon became apparent, and this idea was abandoned. Nonetheless, he did author the treatments of two genera of Plumbaginaceae, *Limonium* and *Plumbago*, for Vol. 5 (2005) and two helianthoid genera, *Heliopsis* (Oxeye) and *Zinnia*, for Vol. 21, Asteraceae (2006). He has now retired from active participation in the project, but remains an Emeritus Member of the Editorial Committee.

John L. Strother, Research Botanist in the University Herbarium, has been a member of the Flora of North America Editorial Committee since 1983. Strother has been a review-editor for all volumes except bryophytes and was taxon editor (with T. M. Barkley and L. Brouillet) for the Compositae volumes, published in 2006 (nos. 19--21). In addition to editing those volumes, he was author of treatments of 119 of the 418 genera and 401 of the 2413 spp. in the flora and co-author (with B. G. Baldwin and S. J. Bainbridge, among others) of 23 additional genera and 118 spp. With the other taxon editors for Compositae, he wrote the family description and discussion, accounts of the tribes and of the subtribes of Heliantheae, and keys to genera in artificial groups and in subtribes and tribes. To “keep his hand in” and to maintain a “Berkeley presence” in the project, Strother continues as a review-editor and has committed to write family accounts for Cistaceae (including authoring 2 of the 5 genera in the flora: *Cistus* and *Tuberaria*), Muntingiaceae (including the 1 genus: *Muntingia*), and Sterculiaceae (including 2 of the 8 genera in the flora: *Brachychiton* and *Fremontodendron*).



Illustration: *Dysodiopsis tagetoides* from Texas. Strother 445.

The Jepson Flora Project

Second Edition of *The Jepson Manual*
Online Interchange for California Floristics
Jepson Desert Manual
Online Horticultural Database
Electronic Publication of Jepson's
A Flora of California
Ecological Flora of California

Publications & Research Projects

Constancea: University of California electronic publications in botany
Tarweeds & Silverswords: Evolution of the Madiinae
DeCew's Guide to the Seaweeds
Flora of Mount Diablo
Unravelling the dynamics of mating-system evolution in tribe Collinsieae
Building the Tree of Life — A National Resource for Phyloinformatics and Computational Phylogenetics
Deep Green Plant Phylogenetics: Novel Analytical Methods for Scaling Data from Genomics to Morphology
Beyond “Deep Green”: Towards an Integration of Plant Phylogenetics and Plant Genomics
Demography and Germination Ecology of the Endangered Santa Cruz Tarplant
Phylogeny and evolution of the true thistles, genus *Cirsium* (Compositae)

Educational Services & Resources

Botanical Workshops & Courses
Plant Identification
2,200,000+ Worldwide Plant Specimens
Photographic Slide Collection
Map Collection & Locality File
Botanical Library (non-circulating)

Administration

Trustees: Vice Chancellor Emeritus Roderic Park, Chairman; Vice Chancellor Beth Burnside (on leave); UC Botanical Garden Director, Paul Licht; Professors John Taylor and Brent Mishler (ex officio)

Director: Professor Brent Mishler

Curator: Professor Bruce Baldwin

Database Admin: Richard Moe

Webmaster: Chris Meacham

Scientific Editor: Tom Rosatti

Managing Editor: Margriet Wetherwax

Project Research Sp.: Jeff Greenhouse

Research Associate: Bridget Wessa

Administrative Curator: Andrew Doran

Senior Museum Preparator: Ana Penny

Assistant Museum Scientist: Kim Kersh

Public Programs & Development:

Staci Markos

Cynthia Perrine

**VOLUNTEERS NEEDED TO HELP WITH
THE HORTICULTURAL DATABASE**

Recently, staff of the herbaria have begun improving the utility, design, and scope of the Jepson Horticultural Database <http://ucjeps.berkeley.edu/db/horticulture/>.

The database, derived from the horticulture information provided in the first edition of *The Jepson Manual*, contains information for ~3,500 native species.

Volunteers are needed to help obtain more detailed information for each taxon and review and/or submit photographs that will be displayed with each record.

For more information, please call or write to Andrew Doran (510) 642-2465, andrewdoran@berkeley.edu.

**VOLUNTEER
FOR THE
JEPSON FLORA PROJECT**

New taxonomic treatments that will be included in the Second Edition of *The Jepson Manual* are now available online <http://ucjeps.berkeley.edu/jepsonmanual/review/>

WE CAN USE YOUR HELP!

- 🕒 Log on and use the keys, read the descriptions, and send feedback to the Scientific Editor, Dr. Thomas Rosatti (rosatti@berkeley.edu).
- 🕒 Send voucher specimens for range extensions.
- 🕒 Donate items or services for the December 2006 auction.



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A Reception for
Friends of the Jepson Herbarium

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November 11, 2006

1001 Valley Life Sciences Building, UC Berkeley

Activities will include a banquet, silent auction, and presentation by Jepson Curator, Bruce Baldwin.

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*Are you an artist, book collector, or wine enthusiast?
Do you have an item or service you would like to donate to the auction?
If so, please contact Staci Markos
(510) 643-7008 or smarkos@berkeley.edu*

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FRIENDS OF THE JEPSON HERBARIUM

Name(s) _____

Address _____

City, State Zip _____

Telephone / email _____

- I would like to join the *Friends* / renew my membership (contribution to the annual fund).
- I would like to support the Second Edition of *The Jepson Manual* with my gift of _____.
- Enclosed is _____ of a total pledge of _____ to be paid over _____ years.
- Please acknowledge me as a sponsor of _____ (indicate genus name, e.g., *Lilium*, family name, e.g., Poaceae, or other category) by printing my name in *The Jepson Manual* (for gifts of \$1,000 or more, see side bar).
- Please acknowledge my gift as anonymous.
- My or my spouse's employer will match this gift. (Please enclose company form)
- This gift is _____ in honor of _____ in memory of _____

Please make your check payable to the *Friends of the Jepson Herbarium* or charge your gift.

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Account # _____

Exp. Date _____

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MAIL TO:

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1001 VLSB #2465
University of California
Berkeley, CA 94720-2465

The information you provide will be used for University business and will not be released unless required by law. A portion of all gifts is used to defray the costs of administering the funds. All gifts are tax deductible as prescribed by law.



CATEGORIES OF GIVING

GIFTS TO SUPPORT THE SECOND EDITION

- \$25,000** Honor the contributions and founding principles of W. L. Jepson, former Jepson Trustees Lincoln Constance and Robert Ornduff, and former Jepson Curators Rimo Bacigalupi and Lawrence R. Heckard
- \$10,000** Support taxonomic efforts in an organizing unit of the *Manual*: Ferns, Gymnosperms, Dicot, or Monocots
- \$5,000** Support floristic effort for a particular bioregion (Twenty-four listed in the *Manual*)
- \$2,500** Support taxonomic work in a particular family. See the Herbarium web site for an up-to-date, complete list
- \$1,000** Show enthusiasm for your favorite genus (pledge \$200 / 5 years)
- ANNUAL SUPPORT**
- \$500** Contribute to the illustration of a new species
- \$250** Help accession specimens from the backlog
- \$100** Support taxonomic research at the species level
- \$35/\$50** Basic membership in *Friends of the Jepson Herbarium*

SPONSORSHIP OPPORTUNITIES

are exclusive and will be available on a first-come, first-served basis. With approval from the donor, gifts at the \$1,000 level and above will be acknowledged in the front pages of *The Jepson Manual*. Gifts may be made as one-time payments or as a pledge, payable over 5 years.



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Berkeley, CA 94720-2465

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Jepson Herbarium Public Programs (remainder of 2005 - 2006 season)

June 2006

Lava Beds Flora
June 15 - 18

July 2006

Mt. Ashland Flora
July 6 - 9
Sierra Plants and Communities
July 20 - 23

October 2006

Mushroom Reunion
October 7
Medicinal Herbs & Fungi
October 8

December 2006

New Zealand Flora (WL)
December 1 - 12

For more information, contact Cynthia Perrine
(510) 643-7008, cperrine@berkeley.edu or visit our
Web site: <http://ucjeps.berkeley.edu/jepwkshp.html>

Botany 2006, Chico, California

The Jepson Herbarium will host a reception for editors, authors, and other parties interested in the Jepson Flora Project.

“An update on the JFP and an introduction to the Ecological Flora of California”

Monday, July 31, 2006
Beginning at 6:45 pm

Bruce Baldwin and Brent Mishler will give a brief presentation on the Jepson Flora Project—a summary of the status of current projects and a discussion of new initiatives. David Ackery will introduce the new Ecological Flora of California Project (ucjeps.berkeley.edu/efc).

<http://www.2006.botanyconference.org/>