



THE JEPSON GLOBE

A Newsletter from the *Friends of The Jepson Herbarium*

VOLUME 17 NUMBER 2 SEPTEMBER 2006

Curator's Column

by Bruce G. Baldwin

Advances in California Floristics

I had the pleasure this summer of attending Botany 2006, held this year in California (Chico), and an international meeting on Compositae systematics in Barcelona, Spain, organized by The International Compositae Alliance (TICA). Both meetings offered abundant evidence of progress in understanding the origins and relationships of California's native plants, with significant new findings in, for example, *Aquilegia*, *Arctostaphylos*, *Artemisia* and relatives, *Asclepias*, *Athysanus*, *Atriplex* and relatives, *Boerhavia*, *Brodiaea*, *Calochortus*, *Camassia*, *Camissonia* and relatives, *Castilleja*, *Cheilanthes*, *Dissanthelium*, *Draba*, *Eriogonum* and relatives, Fagaceae, *Garrya*, *Gentianopsis*, *Isoetes*, *Lycium*, *Maianthemum*, *Monardella*, *Pedicularis*, *Pellaea* and relatives, *Penstemon*, *Phacelia*, *Pinus*, *Rubus*, *Sidalcea*, *Sisyrinchium*, *Smilacina*, *Thalictrum*, *Thysanocarpus*, *Trifolium*, and many lineages of Compositae. Phylogenetic studies at deep- and fine-scale levels by a wide diversity of national and international research teams are revealing many surprising findings. The time is fast approaching when a comprehensive new assessment of evolutionary patterns across the California flora will be possible.

One exciting outcome of recent studies has been the resolution of

Continued on page 6.



Chelsea D. Specht, Hawai'i, Mauna Kea, 2004

Chelsea Specht Assistant Professor

New Curator of Monocots

Chelsea completed her Master's and Ph.D. programs at New York University in affiliation with the New York Botanical Garden and, following a postdoc at the Smithsonian (NMNH), joined the faculty of Plant and Microbial Biology in the fall of 2005. After her second year in graduate school, she received a Fulbright scholarship to go to Bolivia to study the use of evolutionary biology in local conservation efforts. She first worked with the local conservation organization "Fundacion Amigos de la Naturaleza" and later with the World Wildlife Fund. She (somewhat unexpectedly) stayed in Bolivia for three years, working with WWF first in the Bolivia Program office as the Amazonian Conservation Program Officer and later as the Ecoregional Coordinator for the Southwest Amazon

Continued on page 6.







New National Science Foundation Funding for Vernal Pool Research

California vernal pools are unique ecological communities that form in shallow depressions in grasslands. The pools fill with water during the winter rainy season and dry up in summer. Vernal pools are occupied by a diverse array of annual plant species, many of which are found exclusively in California, and they harbor endangered fairy shrimp and tiger salamanders. It is estimated that >90% of the original vernal pools of California have been destroyed by urbanization and agriculture. These threats persist, together with the added uncertainty of the effects of global climate change.

David Ackerly and Bruce Baldwin have received a NSF grant to study "Niche conservatism, functional trait evolution and the diversification of the California vernal pool flora." Nancy Emery, currently completing her Ph.D. at UC Davis, will join the team

Continued on page 4.

ALSO IN THIS ISSUE

-  Herbarium Graduate Students
-  Moss 2006, review
-  Botany 2006, awards and honor
-  Weekend Workshop in review
-  Volunteer Opportunities
-  Announcements

Graduate Students



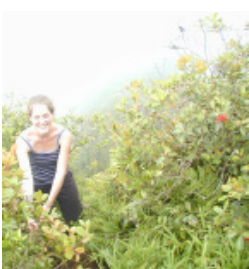
Vicente Garcia My research interests encompass vascular-plant systematics, floristics, and conservation with an emphasis on systematic and phylogenetic studies. I am particularly interested in the historical

biogeography, reproductive biology, taxonomy, evolutionary ecology, and ethnobotany of the genus *Piper* (Piperaceae). The pepper genus consists of well over 1,000 species in a pantropical distribution. It includes several commercially grown and ethnobotanically important species such as black pepper (*Piper nigrum*), betel leaf (*Piper betle*), and kava (*Piper methysticum*).



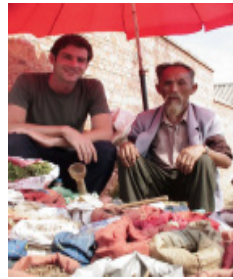
Danica Taylor Harbaugh My doctoral dissertation research focuses on the hemi-parasitic plant genus *Santalum* (Santalaceae), which includes the economically and ethnobotanically important sandalwoods, commonly used in incense and

perfume. A phylogeny of the entire genus, which includes nearly 30 named taxa, has been reconstructed using a combination of nuclear ribosomal (ITS, ETS), low-copy nuclear (*3' waxy*), and chloroplast (*3' trnK*) gene regions. The phylogeny has elucidated novel biogeographic patterns across the Pacific Basin, including two independent colonization events to Hawaii, and at least one dispersal out of Hawai'i. The phylogeny will be used to examine patterns in ethnobotanical uses, as well as to revise the taxonomy of the genus.



Anna Larsen I am studying the historical co-movement of plants and people in Oceania from a phylogenetic perspective. Within the last 5,000 years, the Lapita people migrated from Southeast Asia or Near Oceania as far east as Fiji and Tonga. Following at least 1,000 years of cultural isolation,

an ancestral Polynesian culture emerged in the Samoan and Tongan archipelagoes and evolved as humans spread through the islands of the Polynesian triangle over the next two thousand years. Consequently, variation in Polynesian cultural traditions, artifacts, and indicator plants reflects the chronology of island settlement. I am using two sources of data to reconstruct the human migration route: genetic variation in the Candlenut tree (*Aleurites moluccana* (L.) Willd.) and variation in the production, decoration and use of Polynesian barkcloth (tapa).



Eric SJ Harris I am interested in human uses of bryophytes, a field of study sometimes called “ethnobryology.” I have been researching two medicinally important mosses: *Plagiomnium* and *Rhodobryum*. *Plagiomnium* has been used to treat skin infections and swelling by the Bella Coola and Oweekeno First Nations of

western Canada. I have been studying the phylogeny and phytochemistry of *Plagiomnium* to understand the evolution of putatively bioactive chemicals in this genus. *Rhodobryum* is used in Southwest China to treat minor heart problems. I have been conducting ethnobotanical research to understand the variation in use and knowledge of *Rhodobryum* in the areas of Southwest China where this moss is used. I hope to use my research to shed light on the biological processes that make mosses amenable to human use, and the cultural processes that incorporate mosses into human life.



Ruth Kirkpatrick I study the fern genus *Pellaea* and other cheilanthoid relatives. Cheilanthoid ferns have a worldwide distribution and thrive in exposed rocky habitats where there are extended dry periods during part of the year. These

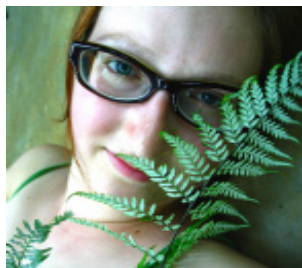
ferns have evolved structural and chemical adaptations that enable them to tolerate drought and desiccation, making them an ideal group to study for understanding genetic, morphological and physiological changes associated with drought and desiccation tolerance. Understanding how plants have responded to changes in their environments in the past will allow us to be better prepared to make more accurate predictions about their response to current and future environmental change.



Andrew Murdock My dissertation research focuses on the evolution of the tropical fern family Marattiaceae, a “living fossil” lineage whose morphology has seemingly changed very little for millions of years. For this research, I

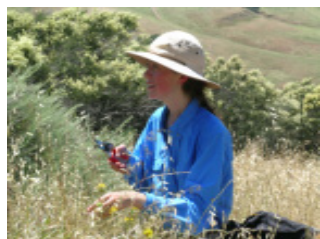
have collected ferns throughout the Pacific and Asia and have studied the morphological and DNA sequence evolution across the diversity of the Marattiaceae. Additionally, I am studying genomic and morphological evolution of green plants, working on floristics projects in the Carquinez Strait region of California and on the island of Moorea, French Polynesia, and actively pursuing research on ferns in California, Oregon, and Washington.

University and Jepson Herbaria



Bianca Knoll Several ferns in the family Pteridaceae are the only plants known to hyperaccumulate arsenic. My dissertation goal is to discern the phylogenetic relationships of these taxa in order to place the arsenic hyperaccumulation trait into an evolutionary perspective. Hopefully,

this will allow me to make suggestions for non-weedy species that can be used in arsenic phytoremediation. I focus on the fern genera *Pityrogramma* and *Pteris*, and conduct my fieldwork in Central America and South America.



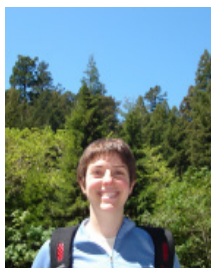
Abby Moore I am studying the genus *Grindelia* (Asteraceae). Members of the genus grow in a wide variety of habitats and many different soil types including salt marshes, coastal dunes, serpentine soils, dry roadsides, and open pine

woodlands. In addition to this diversity of habitats, *Grindelia* shows a wide range of morphologies from sub-shrubs and upright, much-branched perennials to plants with unbranched stems growing from a basal rosette and prostrate forms. However, all of these forms are connected by intermediates and it is not clear how much gene exchange there is and how much of the variation is phenotypic. I am currently examining the phylogeny of the genus using gene sequence data. In the future I hope to examine the morphological variation in western North American species more closely using common garden experiments and investigate gene flow among the populations growing in different habitats using population genetics approaches.



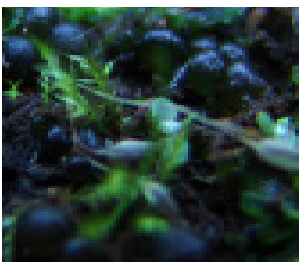
Michael Park I am interested in the evolution of leaf heteroblasty (seasonal heterophylly) in *Eryngium* (Apiaceae) of the New World and its consequences for adaptation to vernal pool habitats or other seasonally water inundated

environments. I am working with Bruce Baldwin on the pollination syndrome in *Collinsia*, specifically the link between flower size and self-fertilization. I am also taking a fresh look at the systematics of *Collinsia* as well as collaborating with Robert Preston on the *Eryngium* treatment for the second edition of *The Jepson Manual*. I am working on the conservation of the annual Mount Diablo buckwheat and researching the role of disturbance (landslide and animal use) and competition in the maintenance of the only known population.



Stephanie Stuart I am using the herbariums' collections of different species of modern *Azolla*, a water fern, to help build a morphological phylogeny of plants from this genus. Although my work focuses on fossil specimens from the University of California Paleontology Museum, access to a wide range of modern specimens is crucial if I am to

identify the fossil plants and place them in an evolutionary context. I have also used specimens from the herbarium in teaching students to identify plants – students really appreciate being able to see flowers, fruit and other reproductive structures at any time of year.



Rebecca Welch I am interested in the evolution of the full range of symbiotic interaction, from virulence to cooperation. Bryophyte hornworts in the genera *Anthoceros* and *Phaeoceros*, and their cyanobacterial symbiont, *Nostoc* are my

study organisms. What are the evolutionary dynamics of intimately interacting species at the molecular level? What role do ecological factors such as community structure and life history strategies play in those dynamics? In particular, do different hornwort reproduction strategies (vegetative vs. sexual) result in differing co-evolutionary outcomes for their respective *Nostoc* partners?



Elizabeth H. Zacharias My dissertation research investigates the evolutionary, biogeographical, and ecological history of North American members of the saltbush genus *Atriplex* (Chenopodiaceae) and related genera. I am integrat-

ing molecular phylogenetic methods with ecological and physiological data to understand the processes and patterns of plant evolution. *Atriplex* provides an extraordinary opportunity for comparative evolutionary studies; *Atriplex* taxa exhibit important ecological and physiological diversity, with many taxa appearing well adapted to stresses such as high temperature, limited water supply, and high salinity. Besides contributing to a better understanding of evolutionary relationships and processes, the phylogenetic framework allows me to test hypotheses about physiological and morphological change in an ecological context, such as the evolution of C₃ and C₄ photosynthesis, the origin of arid systems, and the evolution of salinity tolerance in angiosperm diversification. I am especially interested in how physiological differences among plants contribute to evolutionary divergence.



as a post-doctoral researcher and Michael Barbour, also at UC Davis, will be a collaborator on the project. The project will study the diversity and ecology of vernal pool plants to understand how these unique communities arose in relation to changing climates over the past 5-10 million years, and to determine how the species partition the environment of the vernal pools, for example, by living in deeper

vs. shallower locations, allowing many species to coexist.


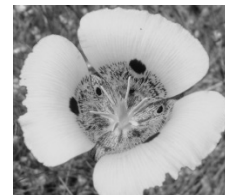
Results of this project will be of direct value for vernal pool conservation and restoration projects. Knowledge gained in this project will be disseminated to the public through web pages, education of docents at parks and reserves, and a conservation white paper aimed at resource managers responsible for land-use planning and management of vernal pool complexes. 

Photo: D. Ackerly at Jepson Prairie

Herbarium visit to Rockpile Ranch and Vineyard June 2006



Brent Mishler, Rod Park, and the group.

This past summer, faculty, staff, and students of the herbaria spent a special day at Rockpile Vineyard, home of Jepson Trustee, Rod Park and his wife Cathy. Rod and Cathy hosted the group in a lovely outdoor setting with a “wild” pig roast and tastings of wine from the vineyard. After lunch, the group went on a short excursion to view petroglyphs and add to the plant list that was started during the herbarium’s first trip to the ranch in the early 1990’s.



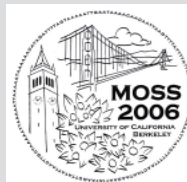
Lunch on the front lawn.



The fabulous buffet.

Moss 2006

An international meeting of moss experimental biologists, Moss 2006, was held at UC Berkeley from June 26th through July 1st, 2006, hosted by University and Jepson Herbaria Director Brent Mishler (greatly assisted by Sonia Nosratinia). The meeting, attended by 70 participants from all over the world, was timed to coincide with the completion of sequencing of the full nuclear genome of the moss *Physcomitrella* at the Joint Genome Institute (JGI); Dr. Mishler was one of two co-PIs on this project. This moss genome, nearly 500 million nucleotides in size, is the first land plant genome sequenced outside the flowering plants. The project is being carried out by an international group of collaborators — the Moss Genome Consortium — a remarkably interdisciplinary team. Many functional and evolutionary insights are already being discovered and were presented at Moss 2006. For more details, see: <http://ucjeps.berkeley.edu/bryolab/Moss2006/>



Forest Service Funding for geo-referencing

The Herbarium thanks Julie Nelson, Forest Botanist, Shasta-Trinity National Forest for procuring funding to geo-reference records from Shasta and Trinity counties. Using data from the Consortium of California Herbaria, there are just under 12,000 localities from the two counties. We expect to start the work this fall and complete it by October 2007.

Thank you to Julie and the Forest Service!



Honors and Awards received at national botany conference

Danica Harbaugh, graduate student in the Jepson Herbarium, was awarded the George R. Cooley award for best contributed paper in plant systematics. The American Society of Plant Taxonomist's Cooley Award recognizes the best paper in systematics given at the annual meeting by a botanist in the early stages of his/her career. Danica's paper was titled "Unraveling the complex history of sandalwoods (*Santalum*, Santalaceae)" and was co-authored with Bruce Baldwin.

Alan R. Smith, University Herbarium, and John T. Mickel, New York Botanical Garden, were awarded the prestigious Engler Medal in Silver by the International Association for Plant Taxonomy (IAPT) for *The Pteridophytes of Mexico*, an authoritative book describing and illustrating all known ferns in Mexico.

The IAPT's Engler Medal in Silver recognizes leading work in plant science. Established in 1990, it is awarded annually to the author(s) of an outstanding publication in the scientific classification of plants. In his presentation of the award, IAPT officer Warren Wagner praised the "magnum opus" of Mickel and Smith, *The Pteridophytes of Mexico*, calling it a "magnificent, monumental, and comprehensive treatment" of one of the largest fern floras in the world. It was judged by the IAPT to be the most outstanding publication in floristic or monographic plant systematics for 2004 and one of the most complete tropical fern floras [listings of all plants of a region] ever written.

About The Pteridophytes of Mexico

The Pteridophytes of Mexico was published by The New York Botanical Garden Press in June 2004. It is the first attempt at a country-wide fern flora since early in the 20th century, and fills the gap between two other recent major fern floras, those for North America north of Mexico and for Mesoamerica.

The book presents 1008 species and 16 additional varieties and subspecies, each fully illustrated and described. Forty new species are named in this book. These newly described species attest to the richness, novelty, and poorly studied nature of ferns in Mexico. Maps are included for all, so that the reader can see the fern's distribution in Mexico at a glance. Because many species also occur in countries both adjacent to as well as surprisingly distant from Mexico, this book is useful well beyond that country's boundaries. The book is a welcome and useful reference for scientists around the world, as well as for conservationists and gardeners.

Alan R. Smith was also honored in a special Centennial awards ceremony that honored scientists who have significantly contributed to the advancement of botanical studies and the Botanical Society of America.

THE JEPSON HERBARIUM PROJECTS & RESOURCES

The Jepson Flora Project

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

Publications & Current Research Projects

Constancea: University of California
electronic publications in botany
DeCew's Guide to the Seaweeds
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)
Niche conservatism, functional trait evolution and the diversification of the California vernal pool flora

Educational Services & Resources

Botanical Workshops & Courses
Plant Identification
2,200,000+ Worldwide Plant Specimens
Botanical Library and Slide Collection

Administration

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

Director: Professor Brent Mishler

Curator: Professor Bruce Baldwin
Research Associate: Bridget Wessa

Jepson Flora Project Staff:

Project Research Sp.: Jeff Greenhouse
Project Manager: Staci Markos
Webmaster: Chris Meacham
Database Admin: Richard Moe
Scientific Editor: Tom Rosatti
Managing Editor: Margriet Wetherwax
Administrative Curator: Andrew Doran
Senior Museum Preparator: Ana Penny
Assistant Museum Scientist: Kim Kersh

Development & Globe Editor:

Staci Markos

Public Programs: Cynthia Perrine

Californian or western North American lineages that are far more diverse than previous data had suggested. In other words, California and the West in general have evidently served as sites for more extensive evolutionary radiations of plants than was already suggested on the basis of earlier biosystematic work.

Excellent examples of such species-rich lineages are now evident in our most diverse plant family, the Compositae or Asteraceae. As noted in these pages recently, work at the Jepson Herbarium by Dean Kelch has established that most endemic Californian true thistles (*Cirsium*), previously thought to represent various groups of worldwide distribution, instead constitute a natural group that probably descended from a common Californian ancestor. Other work here has shown that California tarweeds are part of a more diverse lineage of mostly Californian species, including woolly sunflowers (e.g., *Eriophyllum*), goldfields (*Lasthenia*), and alpinegolds (*Hulsea*), and the more wide ranging arnicas (*Arnica*). In the chicory or dandelion tribe, ex-Jepson postdoc Joongku Lee (in collaboration with L. D. Gottlieb, UC Davis) established that the principally North American genera (e.g., *Malacothrix*, *Microseris*, *Stephanomeria*), including highly diverse Californian lineages, represent a single group that is distinct from other parts of that mostly Old World tribe. At the Barcelona TICA conference this summer, results to date reported by Pieter Pelser (Miami Univ.) and collaborators working on the senecio tribe suggest that the exceedingly disparate herbs and shrubs constituting our endemic western North American genera, all well represented in California (e.g., *Cacaliopsis*, *Crocidium*, *Lepido-spartum*, *Luina*, *Tetradymia*), and the ancestrally Californian *Blennosperma* probably stem from a common ancestor here in the far West.

New understanding of paleo-endemics or evolutionary relicts in the California flora also has emerged recently from systematic studies. In the Channel Islands, for example,

where woody endemics often have been regarded as likely relicts, two woody species of Compositae — each treated within a diverse genus in *The Jepson Manual* — are now placed in monotypic genera, *Constancea* (*C. nevinii*) and the resurrected *Munzothamnus* (*M. blairii*). Those taxonomic changes were based on results of studies conducted at the Jepson Herbarium that indicate more ancient divergence of the Channel Island endemics than of genera that previously included the island species (i.e., *Eriophyllum* and *Stephanomeria*). On the other hand, woody tarweeds from the California Islands (*Deinandra*) appear to include an example of recent diversification there (neoendemism), in support of a novel hypothesis by Californian botanist Sherwin Carlquist. On the Californian mainland, a bizarre member of Compositae endemic to the Death Valley region, *Hecastocleis shockleyi*, with compound heads and spinose leaves, has recently been shown by Jose Panero (Univ. of Texas, Austin) and Vicki Funk (Smithsonian Inst.) to be the only living representative of an extremely ancient lineage that probably predates most Compositae tribes represented in the California flora. In light of those findings, Panero and Funk recently treated *H. shockleyi* as the sole member of a new subfamily (Hecastocleioideae).

Perhaps the most timely, recent molecular phylogenetic finding for California botany from a conservation perspective was presented by Sang-Hun Oh and Paul Manos (Duke Univ.) at Botany 2006, where their results to date showed that tanoak (*Lithocarpus densiflora*) is only distantly related to the other, Asian members of *Lithocarpus* and appears to have diverged from a common ancestor with all of New World *Quercus* prior to diversification of the American red, white, and intermediate oaks. From that perspective, tanoak is clearly a California Floristic Province paleoendemic and should be given even more conservation priority than is warranted by its major ecological importance and extreme vulnerability to the sudden oak death

pathogen, *Phytophthora ramorum*.

As the second edition of *The Jepson Manual* winds toward completion, we plan to highlight other changes in understanding of our native plants with important scientific or conservation implications. Stay tuned! 🌀

Specht, continued from page 1.

Ecoregion, which includes Amazon lowland forest in Peru, Bolivia and Brazil. She eventually returned to New York to continue her graduate studies, but her experience in local and regional conservation administration enables her to direct her research goals towards studies that may be important to the conservation of the global patterns and biological processes that drive diversification and maintain biological diversity.

Chelsea's research interests center on the processes and patterns involved in the evolution and diversification of plants, especially the monocots. She uses a phylogenetic framework to test hypotheses of morphological evolution and to analyze temporal and spatial patterns of plant speciation.

Research in the Specht lab emphasizes the use of systematics in comparative plant biology. Current lab projects focus on (1) the evolution of developmental genes and the role of differential gene expression in generating floral diversity of monocots, (2) systematics and rates of diversification in tropical gingers, (3) co-radiation of plants and their pollinators, especially in Zingiberaceae, and (4) conservation genetics and the use of genetic tools to elucidate patterns of gene flow that enable us to trace historical migrations and distributions and to predict future threats to genetic diversity of extant plant populations. She and members of her lab, including IB graduate student Ruth Kirkpatrick, are also collaborating with the Instituto de Ecología in Xalapa, Mexico, to study the evolution of desiccation tolerance in cheilanthoid ferns and to develop a model for ancestral ecology reconstruction of these ferns.



2006 Weekend Workshops in Review



San Luis Obispo County workshop participants gather for a group photo atop a coastal terrace at the county's northern boundary.



During the Field Macro-photography workshop at Hastings Reserve, May Chen (left) gains assistance in lining up a shot from instructor David Gubernick (center, kneeling) with Gary Monroe (right) assisting.



Joel Perlstein (left) and Neal Kramer (right), engage Vegetation Classification and Mapping workshop instructor Todd Keeler-Wolf in a discussion on their way to "Total Vegetation Awareness."

Many thanks
to our
instructors
and participants
for another
unforgettable
and scenic
workshop season

See you next
year!



Steve Matson heads back to the boat after a day on San Miguel Island.



Lava Beds workshop participants gather to key an unknown on Gillen Bluff with Mt. Shasta in the background. (Paul Grunland)



Janice and Tara Forbis pause during the Mt. Ashland workshop to enjoy the view from Mt. McLaughlin. (Anna Larsen)

(Photos by C. Perrine unless otherwise credited)

VOLUNTEERS NEEDED TO HELP WITH UC/JEPS BACKLOG

One Saturday of each month (from 10 AM to 4 PM) is a Group Volunteer Day in the Herbaria at the University of California at Berkeley.

Our focus will be chipping away at the unmounted backlog of pressed plant collections, from California and around the world, some brand new, some decades old. Volunteers are greatly needed to mount, sort, and file these collections and to assist with related projects. No previous herbarium experience is necessary.

To be added to the Group Volunteer reminder list, please call Ana Penny (510) 642-2465. Opportunities are also available during the week (9-5, M-F).

Group Volunteer Saturdays for 2006-2007 : Sep 9, Oct 14, Nov 18, and Dec 9

CALIFORNIA BOTANICAL SOCIETY FREE LECTURES

- **Sep 21** Invasive *Spartina* in San Francisco Bay: the trouble with hybrids, Debra Ayres, UC Davis
- **Oct 19** Comparative water relations of semi-arid plant communities in California and Mexico, Radhika Bhaskar, Stanford University
- **Nov 16** The diversification of the world's redwoods: California and beyond, Jarmila Pittermann, UC Berkeley

Lecture starts at 7:00 p.m. Refreshments will be served before (starting at 6:45 p.m.) and after.

2063 Valley Life Sciences Building, UC Berkeley
www.calbotsoc.org



**P
L
E
A
S
E
D
O
N
A
T
E**

Do you have a vacation property or time-share? Do you own a nursery? Do you have a botanical art or a wine collection? Are you a season ticket holder? Do you have any unused gift cards? Would your business like to under-write the costs of the event?

Please consider donating an item or service to the fundraising auction for the Jepson Herbarium to be held on **November 11, 2006**. With permission, all donations will be acknowledged in the *Globe*, on the web, and at the event.

All donations are tax deductible!

This is a great way to gain recognition for your business!

Activities will include a banquet, silent auction, live auction, and mystery boxes
(please send donation items to the Herbarium before October 31, 2006)

**S
A
V
E
T
H
E
D
A
T
E**

For more information or to donate an item, service, or funds to under-write the



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.

____ Visa ____ Mastercard

Account # _____

Exp. Date _____

Signature _____

MAIL TO:

The Jepson Herbarium
 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, Dicots, 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.



FRIENDS OF THE JEPSON HERBARIUM
The Jepson Globe, Vol. 17 No. 2
1001 Valley Life Sciences Building #2465
University of California, Berkeley
Berkeley, CA 94720-2465

Nonprofit Organization
U.S. Postage PAID
University of California

ADDRESS SERVICE REQUESTED

Jepson Herbarium Public Programs (preview of the 2007 season)

Meet the Jepson Manual Authors

Potentilla (B. Ertter); *Eriogonum* (J. Reveal); *Chorizanthe* (J. Reveal); *Poaceae* (T. Columbus); *Lupinus* (T. Sholars)

Weekend Workshops

Imperial County (J. Rebman); Bryophyte Inventory Techniques (J. Shevock); *Pohlia* and related genera (J. Shaw); Panamint Range (D. York); White Mountains (J. Morefield); *Mimulus* in Sequoia & Kings Cyn (S. Schoenig)

Special Series

Mycorrhizae in Mendocino (M. Garbelotto and T. Sholars); A Comprehensive History of California Tanoaks (F. Bowcutt)

Topics in Wildlife Ecology

Ecology of Lyme Disease (Bob Lane & Reg Barrett)

Tree of Life Series

Free-living Soil Microbes and the Origins of Life (D. Buckley); Fungi (D. Hibbett)

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

Job Opportunity! **2007 field season**

The *Friends* are seeking the right person to join our team as a Field Leader for our workshop program. The field leader will be responsible for implementing a sub-set of the weekend workshops and duties including pre- and post-trip loading, driving to and from workshops, transporting participants during field excursions, maintaining trip itinerary, assisting cook as needed with meal preparation and clean-up, and handling any workshop leadership as needed. The right candidate will possess outdoor leadership skills, current first aid/CPR and/or wilderness first aid certification (may be obtained after hiring), clean DMV record and experience driving high occupancy, 12-passenger vans. Botanical experience is preferred. Interested parties should inquire about this part-time, temporary opportunity by contacting Cynthia Perrine or Staci Markos at (510) 643 – 7008 or cperrine@berkeley.edu or smarkos@berkeley.edu.