



THE JEPSON GLOBE

A Newsletter from the *Friends of The Jepson Herbarium*

VOLUME 20 NUMBER 3, Fall 2010

Curator's Column: Continuing Discoveries in California Floristics

By Bruce G. Baldwin

As we conclude the final phase of editing of the revised *Jepson Manual*, most treatments already have been posted for online viewing (see <http://ucjeps.berkeley.edu/jepsonmanual/review/>) and the great magnitude of change in understanding of California's flora since 1993 is beginning to be absorbed by botanists everywhere, prior to publication. An especially valuable outcome of the effort by our many dedicated authors to produce revised floristic treatments for the new *Manual* is major progress in systematic studies of Californian plants. As a result of the stimulus provided by the *Manual* project, discoveries of new Californian plant lineages have been made recently, and are reflected in part by new taxa recognized in the revised treatments.

Other discoveries could not be incorporated in the revised *Manual* because of insufficient time to publish formal descriptions of new taxa in scientific journals, but are nonetheless a by-product of the project and will be incorporated in the online version of the *Jepson Manual* after valid publication elsewhere. Our intent for the future is to revise floristic treatments as needed, so that the online *Manual* will track progress as it occurs rather than on a once-per-decade or longer time interval. As the threats to California's flora magnify and the pace of discovery quickens, more vigilance will be necessary to ensure that taxonomies

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The Bay Area Early Detection Network — An Exciting New Collaboration

The University and Jepson Herbaria, along with more than 100 other organizations, are now partners in the Bay Area Early Detection Network (BAEDN). BAEDN is an initiative that coordinates early detection and rapid response to plant invasions across the nine counties of the San Francisco Bay Area. BAEDN works to proactively deal with the highest priority outbreaks before they grow into large and costly threats. BAEDN partners are working together to develop a scientifically rigorous list of the most harmful invasive plants, train each other in detection techniques, make detections and report them to the shared database, Calflora; intriguing finds are vouchered and included in the Consortium of California Herbaria database as well. Individual populations

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Distinguished Sabbatical Visitors Investigate California Plants

Toward the end of last year, Bruce Baldwin hosted two distinguished visitors, Professor Joachim W. Kadereit from the Institute of Systematic Botany and Botanic Garden, Johannes Gutenberg University, Mainz, Germany, and Dr. Gudrun Kadereit from the Botanical Institute, Univ. of Mainz. They came to Berkeley with their four children and while they were here, they were involved in several collaborative projects described below.

The two projects pursued by Joachim during his visit originated from his interest in the systematics and phylogeny of Papaveraceae and the subfamily Papaveroideae, which consists of two major lineages, a New World lineage with *Arctomecon*, *Argemone*, *Romneya*, *Canbya*, *Hesperomecon*, *Meconella*, and *Platystemon*, and a primarily Old World lineage with *Meconopsis*, *Papaver*, *Roemeria*, and *Stylomecon*.

In the mostly Old World lineage, *Papaver californicum* and *Stylomecon heterophylla* are the only New World representatives (apart from some arctic-alpine poppies). Although quite unlike in capsule morphology — *P. californicum*

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ALSO IN THIS ISSUE

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- Mike Park Awarded a DDIG
- Mistletoe Acquisition
- Recent Books and Discoveries
- Welcome Jeanne Marie Acceturo
- Welcome Amy Kasameyer

Cover image by Andrea Williams

Digital Photographic Leaf Venation Enhancement: Investigating Fossil Plants from the Eocene Douglas Creek Arch Flora

By Bruce Handley

Research Associate, University of California Museum of Paleontology

I am working on a fossil flora (paleoflora) project entitled “The Eocene Douglas Creek Arch Flora of Northwestern Colorado and Northeastern Utah”. This paleoflora was deposited in advance of a prograding delta pushing into the closing phase of ancient Lake Uinta. Lake Uinta, located today in eastern Utah, was one of the largest fossil lakes preserved within the Eocene Green River Formation deposited over 50 million years ago. Vein patterns in the Douglas Creek Arch (DCA) leaves are so well preserved they can be compared to modern herbaria specimens, with most fossil leaves identifiable to genus. Based on these modern plant comparisons, in combination with geological data, we know the Uinta plants grew in the lake, along its margin, in area wetlands and on the surrounding low hills of the DCA roughly 46 million years ago.

My study is not unlike that of many other paleobotanists since much of the



Photo B. Step 1 cropped digital photo of herbarium specimen, non-destructive.



Photo C. Step 2 cropped digital photo of herbarium specimen enhanced by LED array, non-destructive.

paleoflora is limited to isolated fossil leaves. There are many constraints inherently built into the identification of fossil leaves but I am using a technique that I hope will improve my ability to identify leaves. Using digital images of herbarium specimens, I can compare leaf architectural characters of fossil plants and extant plants to determine their nearest living relative. This is not a phylogenetic approach but rather one that relies on morphological comparisons and statistical inferences.

The technique I am using, digital photographic leaf enhancement, digitally preserves the leaf morphology and architectural characters of herbarium specimens. This is a non-destructive method that produces a high-resolution digital image of the herbarium specimen and an enhanced venation record using a specially constructed photo stand light box. The results vary from excellent to no enhancement. The method is preferable to the older method of clearing leaves, which was destructive to herbarium specimens, time consuming, and exposed the researcher to harmful chemicals (Photo A).

The digital photographic leaf enhancement technique can be summarized as follows: Step 1 is to photograph the herbarium specimen as seen in photo-B using just side and overhead

lighting. Step 2 is to photograph the herbarium specimen with bright light from an LED array that is transmitted up through the specimen from below as seen in photo-C.

I'll be working on this project for years to come and would like to thank all the people and botanists that have contributed to making the University and Jepson Herbaria a tremendous resource of the world's flora. Special thanks go to Andrew Doran and the staff of the University and Jepson Herbaria and Diane M. Erwin of UCMP for their assistance and support of this project. 📷



Photo A. An example of a cleared leaf (UCMP), removed from a UC herbarium specimen. Destructive method.

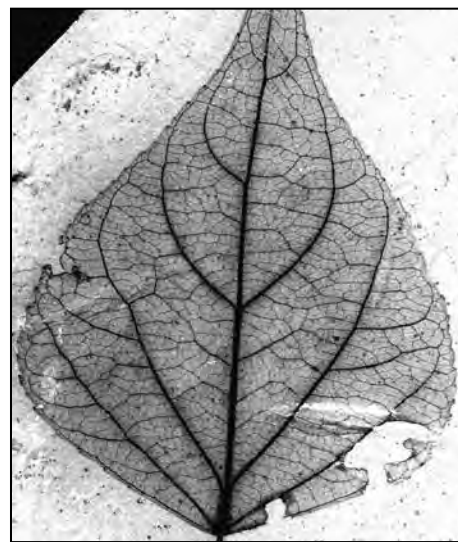
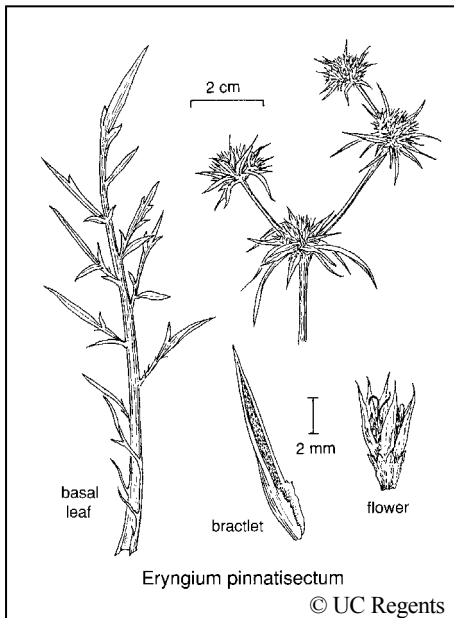


Photo D - Fossil Populus leaf from the Douglas Creek Arch paleoflora showing well-preserved veins.

Mike Park Awarded a Doctoral Dissertation Improvement Grant from NSF



Mike Park, a graduate student in the Baldwin lab, has been awarded a prestigious DDIG from the National Science Foundation. Mike's research titled "Adaptation and historical ecology in vernal pool *Eryngium* (Apiaceae)" is now underway. Below is an excerpt from his grant proposal that provides an overview of the project.

Vernal pools are island-like topographic depressions characterized by inundation during the wet winter season and desiccation during dry summer months. The strongly bimodal Mediterranean climate of California has led to the formation of an extensive, highly endemic vernal pool flora. Though the diversity of vernal pool flora is well documented, little is known about the processes that accompany the switch from strictly terrestrial to vernal pool habitats or whether vernal pool adaptation is irreversible.

Heterophylly is known in all vernal pool *Eryngium* and varies seasonally. Winter leaves may be functionally adapted to live in water and are morphologically similar to those of many strictly aquatic plants. Summer leaves possess expanded blades with increased

photosynthetic capacity that satisfies the energetic demands of reproduction. Acquisition of heterophylly is thought to be associated with the switch to vernal pool habitats.

Phylogenetic methods using nrDNA (ITS), chloroplast (*trnQ-5' trnK*), and single-copy nuclear (LEAFY, 2nd intron) markers will be employed to unravel the evolutionary relationship of heterophylly to habitat change and the biogeographical origin of vernal pool *Eryngium*. Vernal pool lineages and close relatives will be studied. The following questions will be addressed:

How do vernal pool lineages arise from terrestrial lineages? Does the process involve increasing specialization from terrestrial to semi-aquatic habitats, and finally into vernal pools?

Did heterophylly evolve in vernal pools or in an intermediate (semi-aquatic) habitat?

Does Cope's "Law of the Unspecialized" apply? Does vernal pool specialization lead to an evolutionary dead-end? Can ecological generalists evolve from vernal pool specialists?

Changes in the leaf morphology of heterophyllous taxa of *Eryngium* are thought to be triggered by environmental cues such as seasonal changes in photoperiod or water level. The observed changes in leaf morphology may result from heteroblasty, en-

vironmental plasticity, or a mixture of both. Growth-chamber experiments will provide the first test to distinguish among the three alternative processes and, in turn, will help to inform evolutionary understanding of a possible key-innovation of vernal pool lineages.

Because vernal pools are one of the most imperiled habitats in California, the study also has broader impacts. Two *Eryngium* taxa are on the Federal list of Endangered species: *E. constancei* and *E. aristulatum* var. *parishii* (*E. aristulatum* var. *hooveri* is not listed, but is known only from two populations). Conservation efforts are currently hindered by widely acknowledged taxonomic difficulties and insufficient knowledge of life history. Agencies such as the US Fish & Wildlife Service and California Department of Fish & Game could more effectively apply conservation policies with improved knowledge of rare taxa. The experiments in this study will also provide opportunities for underrepresented minority students from UC Berkeley to learn scientific research techniques otherwise not available to undergraduates. 📷

Mike Park at Hill Slough Wildlife Area in the Suisun Delta, August 2007



Photo by Abigail J. Moore

The Story of How UC/JEPS Gained a Collection of ~12,000 Mistletoes

By Job Kuijt

Retired Professor, University of Victoria, British Columbia, Canada

When I was a graduate student at Berkeley, I was fortunate to meet Rafael Rodriguez from Costa Rica, who invited me to come to his country for a couple of weeks. I took him up on it when I finished my Ph.D. (1958), and it was one of the best things I have ever done. Costa Rica was a splendid place to be introduced to the mistletoes of the New World, as it had elements from both North America and South America, plus a real elevational range, its upper reaches having species from the páramo (a high elevation neotropical ecosystem located between the upper forest line, about 3000 m, and the permanent snow line, about 5000 m).

I eventually monographed the mistletoes of Costa Rica, and wrote my first generic monograph (*Dendrophthora*). Gradually the realization dawned upon me that not a single neotropical mistletoe genus had been monographed before, and I saw how much work needed to be done; the New World seemed to be a dark continent for mistletoes. Contacts with the New York Botanical Garden, the Smithsonian, the Field Museum, and, especially, the Missouri Botanical Garden came about easily — Peter Raven and I had been fellow students in Adriance Foster's Plant

Anatomy course at Berkeley.

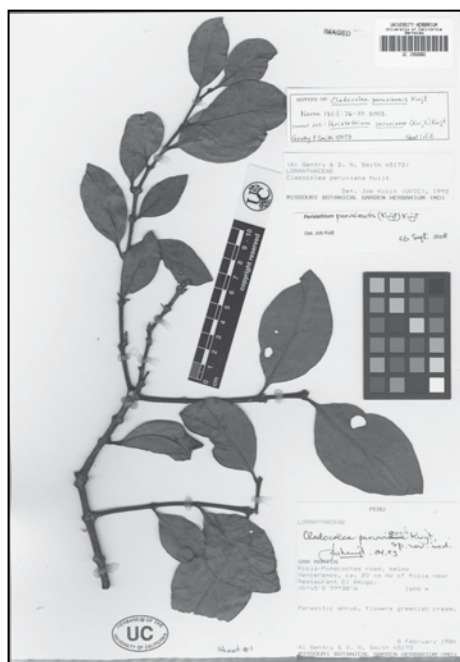
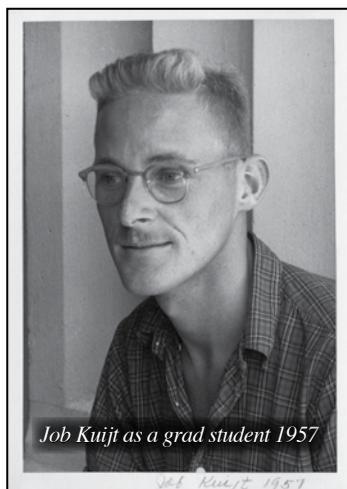
After Costa Rica, I very slowly expanded my active systematic interest in neotropical mistletoes. Slowly, because I was also intrigued by the anatomy and ultrastructure of the haustoria of parasitic plants generally, a topic that I had explored anatomically for *Arceuthobium* in my Ph.D. thesis. Then, Scanning Electron Microscopes burst upon the world, eventually sweeping me into pollen work for mistletoes. Somewhere along the way I had a sabbatical year in Berkeley, where I wrote *Biology of Parasitic Flowering Plants*, providing a broad basis for further work. In later years I began to drift back to full-time taxonomic and morphological work, tackling some of the smaller genera like *Cladocolea*, *Oryctanthus*, and *Tristerix*. I dreaded the huge, difficult genus *Phoradendron*, but picked away at its edges whenever I could. It was not until 2003 that I was able to publish a monograph of that dreadful genus. I swore I would never look at another *Phoradendron* specimen again, but I have already broken that vow several times, as the materials I kept receiving from various institutions often contained new

species. At the time of writing, for example, I again have materials for 7 new species of *Phoradendron*; heaven knows how many more are hiding in the neotropical canopies. Throughout the years, my mistletoe herbarium naturally kept expanding. Canada has no significant tropical involvement in systematic botany (notwithstanding a few notable excep-

tions), and a large neotropical mistletoe herbarium would have been a white elephant there. I am therefore greatly relieved to have that collection, including numerous types, safely looked after in the Berkeley herbaria.

Meanwhile, I am busying myself in finishing a number of manuscripts largely based on those specimens. 🌿

Job Kuijt is considered the world expert on New World mistletoes. He has published about 150 scientific papers and a general text on parasitic plants and has discovered and described about 250 new mistletoe species.



Isotype of Cladocolea peruviana Kuijt, a specimen that came with the collection. Type specimens are now being scanned at high resolution for our type specimen project (see Vol. 19 No. 1, May 2008), the results of which can be found at: <http://plants.jstor.org/>.

(Curator's Column, cont. from page 1.)

and other floristic information remain as up-to-date as possible.

I just returned from Beijing, China, where an international conference on New Frontiers in Plant Systematics and Evolution was held in early July. The meeting was inspirational in showcasing the rapid rate of progress by

researchers from throughout the world in addressing systematic questions that were out of reach only a decade ago. As evolutionary analysis at the level of the entire genome becomes feasible, both methodologically and economically, problems in California plant evolution and systematics that have resisted resolution because of recent diversification and

complex histories (e.g., involving hybridization) will likely become tractable.

The area I chose to focus on for the conference was cryptic diversity and the importance of focusing effort at resolving fine-scale lineages that have been overlooked or are confusingly similar to one another in morphology but may

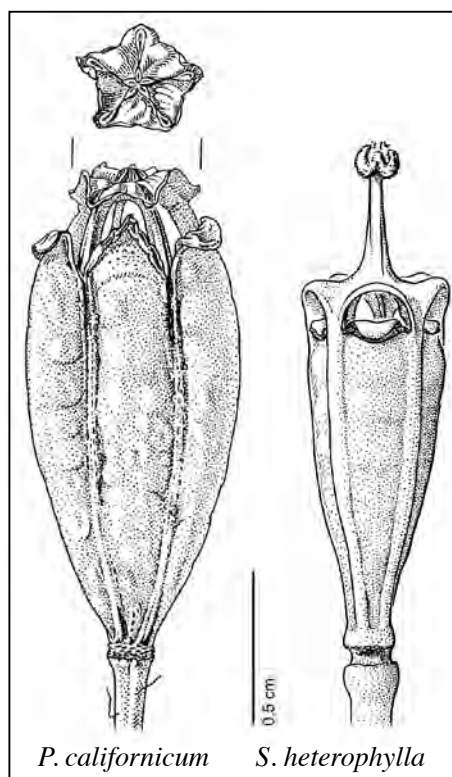
(Continued on page 5)

(Sabbatical Visitors, cont. from page 1.)

has a “proper” poppy capsule with stigmatic rays arranged in a stigmatic disc (see figure), whereas *S. heterophylla* has a capsule with a distinct style — these two annual species are sister to each other and apparently split more than 10 million years ago. Interestingly, the same differentiation in capsule morphology is also found in the Old World, for example when comparing *Meconopsis cambrica* with *Papaver* s.str. Considering the phylogeny of Old World Papaveroideae, it is hypothesized that capsules with a style are plesiomorphic, and that capsules without a style and with a stigmatic disc originated several times independently in a polyphyletic *Papaver*.

To study capsule development, Joachim grew *P. californicum* and *S. heterophylla*. In so doing, he investigated when in their ontogeny the striking differences in adult morphology arise. He also compared capsule development between *P. californicum*/*S. heterophylla* and *M. cambrica*/*Papaver* s.str. to investigate whether the styles found in *S. heterophylla* and *M. cambrica* are structurally homologous or not. Joachim also intends to hybridize the two species in order to gain access to the genetic basis of this morphological difference.

Joachim’s work also investigated the biogeography of *P. californicum* and *S. heterophylla* whose distribution in western North America provides an example of a Mediterranean-Southwest Asian/Californian disjunction. Whereas eastern North American/East Asian disjunctions are well investigated and well understood, western Eurasian/western North American disjunctions are not. They may have originated through a Beringian or a North Atlantic connection between the two continents, or through long-distance dispersal. To some extent, these alternative explanations can be distinguished by the geological age of the



split between the lineages from either side of the Atlantic (or Pacific). Joachim screened the literature for additional examples of this type of distribution. Starting with a simple comparison of genera in *The Jepson Manual* and *Flora Europaea*, genera of potential interest were identified. In a second step, literature on the phylogeny of these genera was screened to see whether species or lineages from the Mediterranean-Southwest Asian area are most closely related to Californian species or lineages, and whether these splitting events have been dated with a molecular clock approach. The phylogenetic literature will also help to identify suprageneric lineages with such distributional pattern. Although rather incomplete taxon sampling in many phylogenetic studies designed for other purposes leaves many uncertainties, the list of Mediterranean-Southwest Asian/Californian disjuncts

known and discussed so far in the literature was substantially expanded, and general patterns were investigated.

During her visit to UC/JEPS, Gudrun’s research was focused on the phylogeny, systematics, and biogeography of Chenopodiaceae (goosefoot family). Chenopodiaceae comprise c. 110 genera with about 1700 species (of which c. 550 are C4-species) and often are dominant elements of arid to semi-arid, saline, disturbed, and agricultural habitats of temperate and subtropical regions. The North American flora, and especially California, make attractive study areas because of the high diversity of *Atriplex* and a number of small, rare genera such as *Allenrolfea*, *Aphanisma*, *Athrocnemum*, *Neokochia*, and *Nitrophila*.

Gudrun’s molecular systematic and phylogenetic work focused on the Chenopodioideae-Atripliceae and *Nitrophila* (Polycnemoideae) with a special interest in the evolution of morphological traits and C4-photosynthesis. Elizabeth Zacharias, a former Baldwin graduate student (now at Harvard Univ.) and David Ackerly (Dept. of Integrative Biology, UC Berkeley) also joined the collaboration. Gudrun compiled a comprehensive phylogeny of Chenopodiaceae based on two molecular markers and a data set of plant traits related to C4-photosynthesis in order to run phylogeny-based correlation analyses and discover traits that might have played a major role in the evolution of C4-photosynthesis in Chenopodiaceae. The following traits were studied: photosynthetic pathway, salinity tolerance, occurrence in coastal habitats, succulence, leaf reduction, and growth form. The collaborative work with Elizabeth has resulted in a paper that will soon be published in the American Journal of Botany. 🍷

(Curator’s Column, cont. from page 4.)

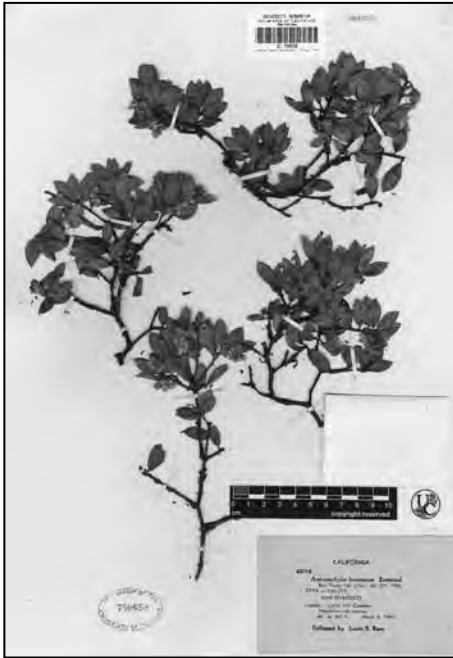
be ecologically divergent and not necessarily as closely related as they appear to be superficially. Such diversity has been found in almost every group of Californian plants that have been studied in the Jepson Herbarium over the last

15 years and no doubt much remains to be discovered. The urgency of such discovery comes in part from the need to delimit evolutionarily significant plant lineages that are irreplaceable and may differ ecologically, so that they can be recognized taxonomically and

considered in conservation planning in the face of rapid environmental change, including climate change. We have come a long way in California floristics since publication of *The Jepson Manual* in 1993, and still have a significant frontier ahead! 🍷

RECENT BOOKS AND DISCOVERIES FROM HERBARIUM ASSOCIATES

Franciscan Manzanita Rediscovered



Label from above specimen:

CALIFORNIA
46016
Arctostaphylos franciscana Eastwood
 Bull. Torrey Bot. Club, 32: 201, 1905
TYPE LOCALITY
 SAN FRANCISCO
 Locality: Laurel Hill Cemetery
 Serpentine rock outcrop
 Alt. Ca. 300 ft. March 8, 1946
 Collected by Lewis S. Rose

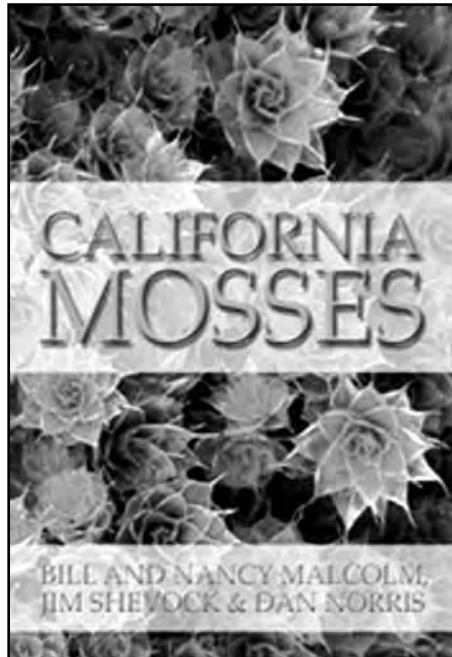
The San Francisco Manzanita, *Arctostaphylos franciscana*, thought to survive only in cultivation, was rediscovered last year in the wild for the first time since 1942. Daniel Gluesenkamp of Audubon Canyon Ranch spotted it in a part of the Presidio where a new highway is planned.

Gluesenkamp is currently Director of Habitat Restoration for Audubon Canyon Ranch. He earned his Ph.D. at the University of California at Berkeley with research that revealed how populations of native and alien thistles are shaped by plant competition, by insect herbivory, and by effects of habitat productivity on the relative intensity of

competition versus herbivory.

The Franciscan manzanita has had a long history of attempts to save it from destruction, starting with Alice Eastwood saving specimens from the burning California Academy after the 1906 quake, and Lester Rowntree trying to save plants from the Laurel Hill Cemetery before it was bulldozed in 1947. Currently, Wild Equity Institute submitted a petition to list the species under the Endangered Species Act.

The recently found plants have been relocated to a site within the Presidio.



California Mosses by Bill and Nancy Malcolm, Jim Shevock, and Dan Norris. Micro-Optics Press, Nelson, New Zealand, 2009. 430 pp. \$68 hardcover. ISBN 9582224-5-2. Available from California Native Plant Society.

Described as “stunning” and “magical,” as well as “enormously useful,” this book is for the amateur plant enthusiast as well as those who wish a more thorough study of mosses. It contains dramatic photomicrographs and the

species can be identified from pictures. You can even identify mosses without needing a hand lens, by matching “leaves” to the illustrations. For more in-depth study, this book works well in conjunction with the descriptions and keys to California Mosses by Norris and Shevock in *Madroño* 51 (1&2), 2004.



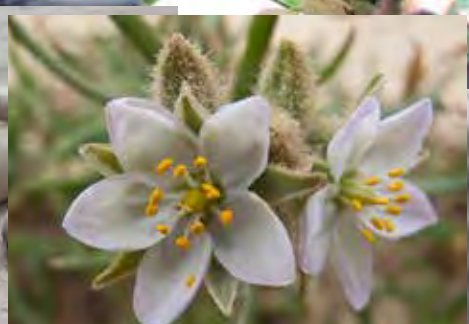
Magnificent Chinese and American Redwoods (English and Chinese Edition) Momei Chen (Editor) ISBN 7030238990. Available for \$45 from Amazon.com and Save the Redwoods League.

This bilingual overview of all three redwood species, *Metasequoia glyptostroboides*, *Sequoia sempervirens*, and *Sequoiadendron giganteum*, not only gives the latest scientific evidence on redwoods, but also tells stories of their discovery and preservation. Various redwood locations are described along with their associated flora and fauna. New findings from Chen’s research in China and the United States are included.



2010 YEAR IN REVIEW

This year the Jepson workshops were held in many many wonderful places in California and beyond, including Costa Rica, Hawaii, and Oregon. Some of the highlights included (clock-wise from top) keying out plants in 51 Families, *Spergularia* and seals on San Nicolas Island, lunchtime, climbing on San Nicolas, and Kings Canyon.



Photos courtesy of Roxanne Bittman, John Game, Anna Larsen, and Abby Moore

Welcome Amy Kasameyer, Archivist

Amy joined the University and Jepson Herbaria in April 2009 to work on the Cataloging the Hidden Archives of Western American Botany and Beyond project, funded by a Cataloging Hidden Collections Grant from the Council on Library and Information Resources. Previously, she worked at Shields Library at UC Davis. Amy received her B.S. in biology from UC Davis and worked as a botanist with the California Natural Diversity Database for several years before getting her Master's Degree in library and information science at San Jose State University. While she was in library school she interned at the USFWS library in Sacramento.

She was happy to find a job that combines her botanical and archival expertise. She loves learning more about California's botanists and enjoys helping researchers access these unique, primary source materials. When she is not working she enjoys hiking, bicycling, cooking, and eating.



More About the Archives

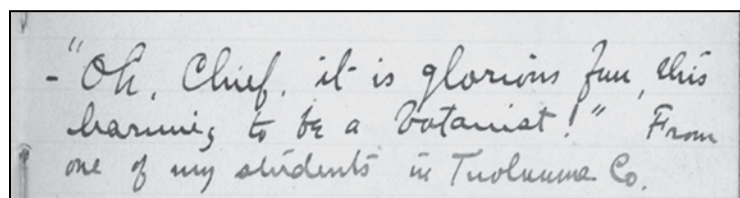
Our archives, one of the primary resources for the history of western American botany from the 1860's on, include institutional records, such as visitor logs and correspondence, as well as personal papers of botanists associated with the Herbaria including Willis Jepson, William Setchell, Townsend and Katharine Brandegee, Lincoln Constance, and many others. The collection is rich in correspondence, field notes, and photographs. Materials cover California and beyond as botanists associated with the Herbaria traveled and corresponded internationally.

The end result of this project will be a searchable online database containing finding aids for our archival collections, available online at: <http://ucjeps.berkeley.edu/archon>

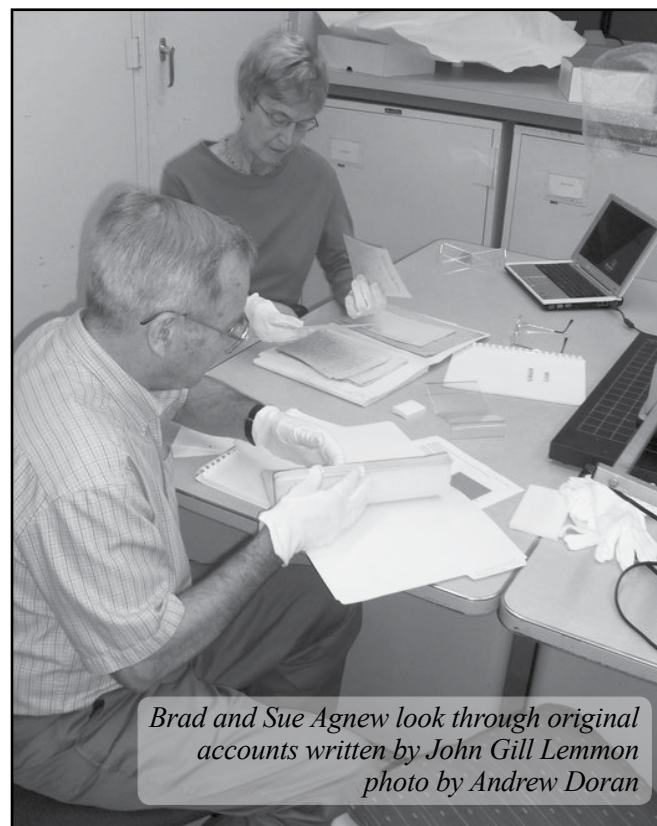
We are using Archon, the open source archival management software developed by University of Illinois Archives at the University of Illinois Urbana-Champaign Library, to create this database. Please note that this database is currently a work in progress, and only a portion of our holdings are represented in the catalog. Additional collections will be added as they are processed. Contact Amy to see if we have material that does not show up in the database.

If you are interested in doing research at the University and Jepson Herbaria archives, we ask that you make an appointment due to limited space in our reading room and the need to retrieve some collections from storage. We are also happy to answer questions via email or phone:

akasameyer@berkeley.edu
(510) 642-2465



From Jepson's Field book Vol. 32, entry on April 14, 1916.



Brad and Sue Agnew look through original accounts written by John Gill Lemmon
photo by Andrew Doran

In 2009 the University and Jepson Herbaria received a Cataloging Hidden Collections Grant from the Council on Library and Information Resources for the project *Cataloging the Hidden Archives of Western American Botany and Beyond*. Readers of the Jepson Globe may be familiar with the Herbaria archives from Dr. Richard Beidleman's articles describing the treasures he has uncovered through his many years of work as the Herbaria's volunteer archivist. This project will build on the work done by Dr. Beidleman to rehouse and catalog our unprocessed archival collections.

Welcome Jeanne Marie Acceturo Public Programs Coordinator

The Jepson Herbarium welcomes Jeanne Marie Acceturo as the new Public Programs Coordinator. If you count organizing neighborhood talent shows and college orientation events, Jeanne Marie has been planning programs for her entire life. Her professional public programs experience includes four years in the education department at The Oakland Zoo, where she handled live animals for school classes, taught nature crafts to preschoolers, and developed the popular sleepover program. In 2005, Jeanne Marie left the Zoo



to join the public programs team at the Exploratorium. While there, she organized a wide variety of art and science events including a Funny Noise Contest, a Puzzle Party, and the annual Rubik's Cube Competition.

Jeanne Marie has also catered concerts, written about rock music, and taught literacy workshops. Most recently, she delved into the world of museum exhibit design, spending almost three years as a Senior Exhibit Developer with West Office Exhibition Design in Oakland. Lucky for us, though, she decided that she likes programs better than exhibits. "I am so excited to have a job that allows me to learn so much and go to so many amazing places!" she said.

A California almost-native, Jeanne Marie grew up in San Jose and attended Cal Poly San Luis Obispo. After graduating with a very useful degree in English Literature, she returned to the Bay Area, spending 10 years in San Francisco's Mission District before moving to Berkeley. When she isn't making charts or double-checking campsite reservations, Jeanne Marie can be found cooking, pulling weeds, or exploring Berkeley's pathways with her mate Jim and their energetic Cardigan Corgi puppy, Mr. Skillet. 🐾

WORKSHOP WISH LIST

Here's a chance to clean out your cupboards and closets of those things you never use, and help out the herbarium. These are some of the items Jeanne Marie needs for the Workshop program:

- Large plastic or metal serving bowls
- Large plastic or metal serving trays
- GSI baked enamelware bowls (25)
- REI folding camp table, XL (2)
- Medium-sized wooden cutting boards
- New dish towels
- Pocket-sized digital camera with macro feature

THE JEPSON HERBARIUM PROJECTS & RESOURCES

The Jepson Flora Project

The Jepson Manual & Jepson Desert Manual
Online Interchange for California Floristics
Online Horticultural Database
A Flora of California (electronic)

Educational Services & Resources

Botanical Workshops & Courses
Plant Identification
2,200,000+ Worldwide Plant Specimens
Botanical Library & Archives

Publications & Research Projects

Constancea: UC publications in botany

Director: Brent Mishler

Deep Green Plant Phylogenetics: Novel
Analytical Methods for Scaling Data from
Genomics to Morphology

Moorea Biocode Project (a complete inventory
of an island ecosystem)

Systematics and ecology of *Syntrichia*

Curator: Bruce G. Baldwin

Systematics and Evolution of Calif. tarweeds
and relatives (tribe Madieae, Compositae)

Unravelling the dynamics of mating-system
evolution in tribe Collinsieae

Curator of Ecology: David Ackerly

Niche conservatism, functional trait evo-
lution, and the diversification of the Cali-
fornia vernal pool flora

Ecological Flora of California

Evolution and origin of the California flora

Curator of Monocots: Chelsea D. Specht

Evolution and biogeography of Calif. alliums
Systematics and evolution of *Heliconia*
Floral developmental evolution in the tropical
gingers (Zingiberales)

Curator of W. N. Am. Botany: Barbara Ertter
Flora of Mount Diablo & Flora of the East Bay
North American Potentilleae

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

Administrative Curator: Andrew Doran

Jepson Flora Project Staff:

Project Research Specialists:

Jeff Greenhouse, Scott Simono

Project Manager: Staci Markos

Manag. of Collections Data: Richard Moe

Scientific Ed.: Tom Rosatti, Doug Goldman

Admin. Assistant: Edith Summers

Managing Editor: Margriet Wetherwax

Research Associate: Bridget Wessa

Archivist: Amy Kasameyer

Collections Manag. Staff: Kelly Agnew,
Heather Driscoll, Kim Kersh, & Ana Penny

Public Programs: Jeanne Marie Acceturo
Development & Globe Editor: Staci Markos

FRIENDS OF THE JEPSON HERBARIUM

Name(s) _____

Address _____

City, State Zip _____

Telephone / email _____



- ☐ I would like to contribute to the annual fund: ____ join the *Friends* / ____ renew my membership
(____ \$35 individual / ____ \$50 family).
- ☐ My or my spouse's employer will match this gift. (Please enclose company form.)
- ☐ This gift is ☐ in honor of ☐ in memory of _____

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Thank you for supporting the Herbarium and its programs!

ANNUAL FUND

\$250 Help accession specimens from the herbarium backlog

\$100 Support taxonomic research at the species level

\$35/\$50 Annual membership in *Friends of the Jepson Herbarium*

MAIL TO:

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

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Consortium of North American Lichen Herbaria (CNALH)

The CNALH Consortium was created to serve as a gateway to data resources of interest to the taxonomic and environmental research community in North America. Through a common web interface, they offer tools to locate, access, and work with a variety of lichen data, including keys to species, an image library, and species lists for particular geographic regions.

The CNALH is more than just a web site — it is a suite of data access technologies and a distributed network of universities, botanical gardens, museums, and agencies that provide taxonomic and environmental information. Initially created to integrate databases between Arizona State University and the Santa Barbara Botanical Garden, the consortium is growing to extend its network to other partners within North America (12 collections are now included).

Check it out!
<http://symbiota.org/nalichens/>



Cladonia carneola
Photo by Stephen Sharnoff

(BAEDN, continued from page 1.)

of invasive plants are prioritized so that dangerous outbreaks can be removed before they spread and cause harm.

This approach aims to minimize the environmental and economic damage caused by invaders and dramatically reduce the resources required to control large, established invasive plant populations. This approach also educates citizens by involving them in Early Detection and Rapid Response (EDRR) activities.

What you can do. There are several ways to participate. First, you can detect and report unusual or harmful invasive plants; please go to <http://BAEDN.org> and use the Google maps driven database. Second, please subscribe to the Partners email list so you can participate in efforts to build and refine this important system.

Directors: Daniel Gluesenkamp and Andrea Williams; Early Detection Coordinator: Aviva Rossi; Rapid Response Coordinator: Mike Perlmuter.

New Seminar Room for Botany Lunches and Meetings

Our new Seminar Room in 1002 Valley Life Sciences Building will be used for our Botany Lunch series this fall. The room is right off the hallway near the north entrance of the ground floor, so people no longer have to go through the stacks of the herbarium. There is more space to accommodate the crowds we have been getting for our Botany Lunch and other events.

Fall Semester 2010 Botany Lunch Schedule

Botany Lunch is held Fridays at 12:10 pm.

- Sep 10** Dena Vallano (Postdoctoral Scholar, Environmental Studies Department UC Santa Cruz) *Herbaria record of increasing nitrogen pollution inputs to serpentine grasslands.*
- Sep 17** Trevor Hodgkinson (Senior Lecturer in Botany, Trinity College Dublin) *Phylogenetics and systematics of the biomass and bioenergy crop Miscanthus.*
- Sep 2** Jim Shevock (Research Associate, University and Jepson Herbaria) *Botany Explorations in the Gulf of Guinea Islands.*
- Oct 1** John Miller (Volunteer, University & Jepson Herbaria) *“Paleozoic Origin of Angiosperms: Potential Molecular Coevolution with Insects.*
- Oct 8** Tom Madsen (Grad Student, Mishler Lab) *Exploring for myco-heterotrophic plants in the western U.S.*
- Oct 15** Danica Harbaugh (President and CEO, AuthenTechnologies LLC; Visiting Scholar, University of California, Berkeley) *The Bad, the Good, and the Only: A Revealing Look at Medicinal Herb Authentication Methods from the Dark Ages to DNA.*
- Oct 22** Amy Kasamayer, (Archivist, University & Jepson Herbaria) *Cataloging the Hidden Archives of University and Jepson Herbaria.*
- Oct 29** Mike Park (Grad. Student, Baldwin Lab) *Studies in Collinsia and Eryngium.*
- Nov 5** Nathalie Nagalingum (Postdoc, Marshall lab) *Understanding the evolution of heterosporous ferns, with special reference to the importance of herbarium collections.*
- Nov 12** Christopher Davidson, *Flora of the World: We may not finish, but it's lots of fun trying.*
- Nov. 19** Lech Naumovich (Conservation Analyst, California Native Plant Society, East Bay Chapter) *The East Bay Flora Project.*
- Nov 26** No Botany Lunch
- Dec 3** Cindy Looy (Assistant Professor, Department of Integrative Biology, UC Berkeley) *Pleuromeia sternbergii - the success story of an Early Triassic lycopod.*
- Dec 10** Elizabeth Brusati, (Science Program Manager, California Invasive Plant Council). *Weeds on the move: Predicting the spread of invasive plants in California.*

If you are interested in giving a seminar for the Spring 2011 season, contact Andrew Doran at 643-4344 or andrewdoran@berkeley.edu.

Curatorial Volunteers Needed at the University and Jepson Herbaria!

Attend a volunteer Saturday or call to set up an individual appointment: (510) 642-2465.

Are you interested in: a) learning more about the California flora; b) gaining first-hand experience with herbarium techniques; c) providing much-needed assistance with the specimens that are the raw data on which our knowledge of the California flora is based; d) socializing with fellow native plant enthusiasts; e) all of the above? Then have we got a deal for you!

One Saturday of each month is a Group Volunteer Day in the Herbaria at the University of California at Berkeley, in which we hope to welcome back participants from previous years and greet a diversity of new faces. What better way to spend those rainy winter weekends!

Group Volunteer Saturday begins at 10 am and finishes up by 4 pm (participants need not stay the full time). To be added to the Group Volunteer reminder list, please call Ana Penny (510) 642-2465. We also welcome individual volunteers who can come in during our regular hours (M-F 8-5). We will try to match your unique interests, abilities and schedule to one of the numerous curatorial projects that have been gathering dust. For more information about individual volunteer opportunities, call (510) 642-2465.

Volunteer Saturdays for 2010-2011

September 18,	December 11	March 12
October 16,	January 22	April 16 (Cal Day)
November 20,	February 12	May 14



FRIENDS OF THE JEPSON HERBARIUM
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Jepson Herbarium Public Programs

We're still hard at work planning our 2011 workshop season, and it's shaping up to be a great one! The following workshops are confirmed, with more on the way:

- 🕒 Phylogeny, Taxonomy, and Upcoming Name Changes in the Calif. Flora
- 🕒 Asteraceae
- 🕒 50 Families in the Field
- 🕒 51 Families in the Field
- 🕒 A Crash Course in Flowering Plant Families
- 🕒 Lichens and Biological Soil Crusts of the eastern Mojave
- 🕒 Flora of San Diego County
- 🕒 50 — or at least 25 — Families in the Field in Monterey County, Asilomar
- 🕒 Rare Flora of the Santa Cruz Sandhills
- 🕒 *Mimulus*
- 🕒 Rare Flora of the Panamint Mountains, Death Valley National Park

The full 2011 schedule will be available in late fall. Stay tuned for updates!

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