



# THE JEPSON GLOBE

A Newsletter from the *Friends of The Jepson Herbarium*

VOLUME 16 NUMBER 1 APRIL 2005

## **Jepson Manual Update**

by *Margriet Wetherwax*

The following are some of the changes in the taxonomy of higher plants that have occurred since *The Jepson Manual* was published in 1993. We will attempt to keep our *Friends* up to date on changes that will be made in the Second Edition (to be published in 2008).

### **On the family level:**

**Aceraceae and Hippocastanaceae**  
to be recognized within Sapindaceae

### **Amaranthaceae**

to include Chenopodiaceae

### **Apocynaceae**

to include Asclepiadaceae

### **Boraginaceae**

to include Hydrophyllaceae and Lennoaceae

### **Brassicaceae**

to include Capparaceae

### **Orobanchaceae**

to include all of the parasitic and hemi-parasitic members of Scrophulariaceae *s.l.*

### **Myrsinaceae**

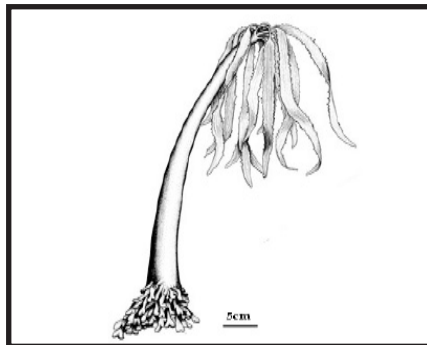
to include *Anagallis*, *Glaux*, *Lysimachia*, and *Trientalis*

### **Plantaginaceae**

to include Callitricaceae, Hippuridaceae, and a large part of Scrophulariaceae *s.l.*

### **Primulaceae**

to include *Androsace*, *Dodecatheon*, and *Primula*



*Postelsia palmaeformis*, the sea palm

## **DeCew's Online Guide to Marine Algae**

by *Richard L. Moe*

The California coastline supports some of the most diverse communities of marine algae (seaweeds) in the world. The University Herbarium, University of California, Berkeley has, since its inception, been in the forefront of seaweed taxonomic research. The most recent curator of algae, Paul Silva, has carried on the tradition of the first curator, W. A. Setchell, by building up and cataloging a library of worldwide seaweed literature.

One of Silva's graduate students, Tom DeCew, became interested in assembling a complete inventory of what had been published about marine algae of the northeast Pacific and in cataloging data from herbarium specimens about distribution and seasonal reproductive patterns.

DeCew began work on this project as a master's student at Humboldt State University and continued,

## **Consortium of California Herbaria**

by *Staci Markos*

The Consortium of California Herbaria is a new database initiative that is supported by the California Digital Library. The goal of the project is to serve as a gateway to information from California vascular plant specimens that are housed in herbaria throughout the state. The database now includes information for over 463,000 specimens, all searchable through a single interface ([http://ucjeps.berkeley.edu/chc\\_open.html](http://ucjeps.berkeley.edu/chc_open.html)). Originally developed around botanical collections from University of California herbaria, the consortium continues to grow as more collections are added. Currently, eight collections are accessible through this interface (JEPS, SBBG, DAV, IRVC, UCR, UCSB, UCSC, and UC).

Another goal of the consortium is to provide latitude/longitude data for as many California specimens as possible. Currently, specimens from all eight participating institutions are being georeferenced. It is our hope that the project will continue to grow. If your institution is interested in joining, please email Richard Moe: ([rlmoe@berkeley.edu](mailto:rlmoe@berkeley.edu)).

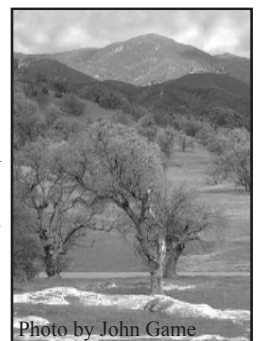


Photo by John Game

# New Research Grants at the University and Jepson Herbaria

## *California Native Plant Georeferencing: A fundamental Conservation Tool*

Earlier this year, The National Fish and Wildlife Foundation awarded the Jepson Herbarium a grant to support efforts to georeference plant collections housed at the University and Jepson Herbaria. Localities are sorted by county and then the process of georeferencing begins. The data are run through two “automated” georeferencing programs and the localities that remain are georeferenced using maps. As counties are completed, the data will be incorporated into SMASCH and will be made publicly available. The results of this project will greatly enhance conservation efforts in California by allowing the application of powerful geographic information system (GIS) technology to understand and predict plant distributions.

## *Developing Global Access to the Index Nominum Algarum*


The Index Nominum Algarum (INA) was initiated in 1949 by Paul C. Silva and it has developed into a comprehensive nomenclator and bibliography of ~250,000 names and references. The INA is all-inclusive, comprising scientific names of all algae, both living and fossil, at all ranks, from superregnum to subforma. The INA information resides on 3x5 cards and images of the cards are available on the web. The University Herbarium has received funding from the Global Biodiversity Information Facility to complete the index of the images, thereby enabling queries and hyperlinks to be made.

<http://ucjeps.berkeley.edu/INA.html>

## **Phylogeny and ecological radiation of the true thistles, genus *Cirsium***

A grant to Bruce Baldwin and Dean Kelch from the National Science Foundation

The true thistles (genus *Cirsium*) are highly diverse, taxonomically problematical, and ecologically and economically important components of north temperate floras worldwide. Minimal genetic variation across species has hampered resolution of relationships in *Cirsium* but can now be overcome with the identification of three highly variable, nuclear gene regions that provide phylogenetic information at fine-scale levels within the genus. Phylogeny of the true thistles will be studied by comparing DNA sequences from three nuclear gene regions (G3pdh, the B1 promoter, and histidine kinase). Hypotheses to be tested include: (1) Do the ecologically diverse New World thistles constitute a natural group? (2) Are the New World species (especially the Californian endemics) good examples of adaptive radiation? (3) Did the New World thistles arise from a common European or Asian ancestor? (4) Is *Cirsium* distinct from the closely related genus *Carduus*? Resolution of natural groupings within *Cirsium* also will be used to replace the prevailing, highly unnatural, sectional classification of the genus. Achieving a natural classification of *Cirsium* is critically important to provide a biologically meaningful framework for future basic and applied research on true thistles.

This research will have the broader impacts of enriching undergraduate education at the University of California, Berkeley. Undergraduate students will be enlisted in the efforts and will participate in laboratory research. The project will also involve at-risk, ethnically diverse high school students, who will be introduced to biological research and will participate in growing research plants. By defining natural species groups within *Cirsium*, this research will aid biological-control researchers in choosing new agents for controlling non-native weedy thistles. Land resource professionals and the lay public will be instructed in the conservation of rare thistles by means of a field workshop and a larger group will have access to results on the Jepson Online Interchange website, thereby obtaining information on the importance of modern systematic approaches to understanding regional plant diversity and classification. 



*Cirsium hydrophilum* var. *vaseyi*  
Mount Tamalpais Thistle  
Photo by John Game

*DeCew's Guide, continued from page 1.*

with the collaboration of Paul Silva, during his Ph.D. studies at Berkeley and afterwards. The project eventually became a bibliography to the biology of common northeast Pacific seaweeds with line drawings and tabular displays of latitudinal distribution and reproductive phenology. DeCew canvassed West Coast herbaria to compile phenology and distribution data and searched the macroalgal literature for studies pertaining to West Coast seaweeds. The project, which DeCew called *Guide to the Seaweeds of British Columbia, Washington, Oregon, and Northern California* was intended to complement *Marine Algae of California* (M.A.C.) by I.A. Abbott and G.J. Hollenberg (Stanford University Press, 1976): to provide documentation for the treatments in M.A.C. and to increase its geographic coverage.

The project started during an explosion of interest in marine botany, and DeCew continuously expanded its scope, so that the goal of completion seemed to recede even as the assembled data burgeoned. Furthermore, Tom himself was additionally occupied in contributing to the explosion by completing life-history studies on a variety of red algae.


DeCew's book was begun on an original Macintosh computer using one of the first desktop publishing programs—Ready Set Go. DeCew intend-

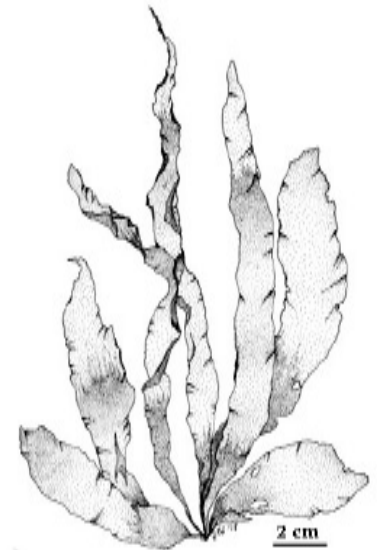
ed to self-publish the book, and worked on what amounted to galley-proofs, keeping the project always in a state of incipient publication. Shortly before his untimely death in 1997, DeCew realized that it would be advantageous to convert his data to a form that could accommodate other programs.

Paul Silva, Robert Rasmussen (DeCew's teacher at Humboldt State University), and Richard Moe decided a little more than a year ago to take advantage of this conversion to release a Web version of part of DeCew's book—the pages on green and brown algae, which comprise somewhat less than half of the whole. The Web version contains all of the taxa and references included by DeCew, with the bibliography having been brought up to date by Silva. Most of DeCew's illustrations, many of which were commissioned specially for the book, were scanned by Rasmussen at high resolution, and then reduced for screen display.

The format of the Web pages approximates DeCew's intended layout, with illustrations at the top of each page followed by a list of synonyms, localities, and references indexed by subject. At the bottom of each page is a table showing reproductive state in each month in each of five precincts from British Columbia to Monterey. The pages are hyperlinked in various

ways. Several features projected by DeCew: descriptive paragraphs for taxa not covered by Abbott and Hollenberg and taxonomic commentary necessitated by new systematic treatments have been omitted from the Web pages. They will be included eventually, along with additional illustrations. The taxonomy of the red algae has been especially affected by recent investigations, so those pages will demand more effort before their eventual Web publication.

If you're interested in seaweeds, check out the DeCew Guide: <http://ucjeps.berkeley.edu/guide>. The Jepson Herbarium is also sponsoring a workshop on seaweeds June 24-26, 2005. Call the Herbarium (510) 643-7008 for details. 



*Petalonia fascia*

May 19, 2005

***Diversification of floral development in the papilionoid legume tribe Amorphaeae***

Michelle McMahon,  
Department of Evolution and Ecology, UC Davis

7:30 pm in 2063 Valley Life Sciences Building, UC Berkeley  
Lectures are open to all. Refreshments will be served following the lecture.



## *A Special message for our Jepson Workshop Participants*

*The Jepson Herbarium is excited to be welcoming a new addition to our family – Cynthia is expecting her first child in June! The necessary travel restrictions and maternity leave coincides with many of this season's workshops and we want to assure you that “the show will go on” – this year is shaping up as an excellent year for the flowers.*

*We're pleased to introduce Anna Larsen as our interim workshop coordinator for 2005. The workshops will continue to provide a wonderful learning experience for our participants with the same high standards of excellence that is our tradition. Anna has been a volunteer on several weekend workshops and she is a graduate student in the herbaria so you may recognize her.*

*If you have any questions about the season or any of the workshops, please call the Herbarium at (510) 643-7008. Cynthia will be in the office until mid-May and will return to the Herbarium in August to coordinate Aquatic Plants and Compositae. While Cynthia is away, you can contact Anna at [alarsen@berkeley.edu](mailto:alarsen@berkeley.edu). We can't wait to see you on a workshop soon!*



*Anna Larsen*

### **MEMORIALS AND SPECIAL GIFTS**

*The Jepson Herbarium is pleased to offer thanks to those who chose to honor or remember others with gifts to the herbarium.*

*In honor of Teresa Sholars  
Lori Hubbard & Gregory A. Jirak*

*In memory of Lawrence Heckard  
Cherie Wetzel*

*In memory of Dr. Vernon Oswald  
Beth Lowe Corbin*

*In memory of Julie Davis Leap  
Sally Davis*

*In memory of Dr. Vernon Oswald  
Gary D. Schoolcraft*

*In memory of Dr. Elizabeth McClintock  
Carlyn Halde*

*In memory of Dr. Glenn Savelle  
Julia Savelle*

*In memory of May Stekel  
Peter Stekel*

*In honor of Herb and Garrison Norvell  
Craig Norvell*

**Scrophulariaceae** in California will include only *Buddleja* (moved from Buddlejaceae in TJM1), *Myoporum* (moved from Myoporaceae in TJM1), *Scrophularia*, and *Verbascum*. *Mimulus* will be recognized in the Phrymaceae.

**Typhaceae** recognized as separate from Sparganiaceae

#### On the genus level:

Asteraceae:

*Aster* to be recognized as: *Almutaster*, *Eucephalus*, *Eurybia*, *Ionactis*, *Oreostemma*, *Sericocarpus*, and *Symphyotrichum*

*Conyza coulteri* A. Gray is now recognized as *Laennecia coulteri* (A. Gray) G. L. Nesom

*Senecio* in California to be recognized as *Senecio*, *Packera*, and *Pericallis*

Fabaceae: *Caesalpinia virgata* to be recognized as *Hoffmannseggia microphylla*

Nyctaginaceae: *Selinocarpus nevadensis* recognized as *Acleisanthes diffusus*

Polemoniaceae: many changes have occurred over the last few years, including changes in generic delimitations of *Gilia*, *Linanthus*, and *Navarretia*

Primulaceae:

*Centunculus minimus* to be recognized as *Anagallis minima*

*Samolus* to be recognized in Theophrastaceae, from Primulaceae

Liliaceae *s.l.*:

*Disporum* recognized as *Prosartes*

*Smilacina* recognized as *Maianthemum*

Cyperaceae: *Scirpus* to be recognized as *Amphiscirpus*, *Bolboschoenus*, *Isolepis*, *Schoenoplectus*, and *Trichophorum*

For current news on family standings, please check the Angiosperm Phylogeny Group's website at <http://www.mobot.org/MOBOT/Research/APweb/welcome.html> This website is updated daily!

For changes in California taxa on the species level, please see the *Index to California Plant Names*, at <http://www.ucjeps.berkeley.edu>. Please click on 'online resources' and from there go to the 'Jepson Interchange'

Changes in tarweeds can be found at: <http://ucjeps.berkeley.edu/tarweeds.html>

For more information on the Scrophulariaceae, see:

Olmstead, R. G. 2002. Whatever happened to the Scrophulariaceae? *Fremontia* 30(2): 13-22

Albach et al. 2005. Piecing together the "new" Plantaginaceae. *American J. Bot.* 92: 297-315.

For more information on Polemoniaceae, see the following papers in *Aliso*:

Porter, J. M. 1997. Phylogeny of Polemoniaceae based on nuclear ribosomal internal transcribed DNA sequences. *Aliso* 15: 57-77.

Porter, J.M., and Johnson, L. A. 1998. Phylogenetic relationships of Polemoniaceae: Inferences from mitochondrial nad1b intron sequences. *Aliso* 17: 157-188.

For changes in monocot families, please see the introductory paper in *Fremontia* by UC/JEPS post doc

Kelch, Dean. 2002. Consider the Lilies. *Fremontia* 30(2):23 - 29 

## THE JEPSON HERBARIUM PROJECTS & RESOURCES

### The Jepson Flora Project

Second Edition of *The Jepson Manual*  
Online Interchange for Advances in  
California Floristics

*Jepson Desert Manual*

Online Horticultural Database

Electronic Publication of Jepson's  
*A 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 Re-  
source for Phyloinformatics and Computa-  
tional Phylogenetics

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

Beyond "Deep Green": Towards an Integra-  
tion of Plant Phylogenetics and Plant  
Genomics

Demography and Germination Ecology of  
the Endangered Santa Cruz Tarplant  
Sierra Nevada Plants Project

### Educational Services & Resources

Botanical Workshops & Courses

Plant Identification

1,920,000+ 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. & Webmaster: Richard Moe  
Scientific Editor: Tom Rosatti

Managing Editor: Margriet Wetherwax  
Collection Research Sp.: Jeff Greenhouse  
Research Associate: Bridget Wessa

**Administrative Curator:** Barbara Ertter  
Senior Museum Scientist: Fosiee Tahbaz  
Senior Museum Preparator: Ana Penny  
Assistant Museum Scientist: Kim Kersh

### Public Programs & Development:

Staci Markos

Cynthia Perrine

## Jepson Manual Fundraising / Consulting Firms

Do you use *The Jepson Manual* at work? Do you work for a biological consulting firm? Would the Principal of the firm like to raise its visibility? If so, we have the perfect opportunity.

The Herbarium is currently engaged in a campaign to raise funds for the Second Edition of *The Jepson Manual*. Individuals, corporations, organizations, and foundations that join the sponsorship program and give \$1,000 or more will be acknowledged in the front pages of the new *Manual*. Since over 24,000 copies of the 1993 Edition have been sold, acknowledgment in the Second Edition will be a great opportunity to gain recognition for your organization or company. See details on the opposing page or contact Staci Markos (smarkos@socrates.berkeley.edu / (510) 643-7008) with ideas of firms and Principals to contact.

### VOLUNTEER OPPORTUNITIES IN THE UNIVERSITY AND JEPSON HERBARIA

#### Curatorial Volunteers Needed at the University and Jepson Herbaria!

Are you interested in learning more about the California flora, gaining first-hand experience with herbarium techniques, and socializing with fellow native plant enthusiasts? Then have we got a deal for you! Selected **Saturdays** of each month are **Group Volunteer Days** in the Herbaria. What better way to spend those rainy winter weekends!

Group Volunteer Saturday begins at 10 am and finishes up by 5 pm (participants need not stay the full time). 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 and abilities.

For more information, please call or write to Ana Penny (510) 642-2465, apenny@uclink4.berkeley.edu.

**Upcoming Group Volunteer Saturdays**  
**April 23<sup>rd</sup> & May 7<sup>th</sup>**

# 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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Exp. Date \_\_\_\_\_

Signature \_\_\_\_\_

**MAIL TO:**

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

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**  
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## **Jepson Herbarium Public Programs**

### **April 2005**

*Painting Coastal Wildflowers*

April 28 - May 1

### **May 2005**

*Boraginaceae*

May 6 - 8

*Poaceae I \*wait list only*

May 7 - 8

*Poaceae II*

May 14 - 15

*Eureka Dunes & Inyo Mountains*

May 12 - 15

### **June 2005**

*Spring Mountains II*

June 2 - 5

*Wetland Restoration Techniques*

June 17 - 19

### **June 2005 cont.**

*Thistles*

June 25 - 26

*Seaweeds*

June 24 - 26

### **July 2005**

*Bear Basin Butte*

July 7 - 10

*Salix I*

July 15 - 17

*Salix II*

July 19 - 21

*Convict Lake Flora \*wait list only*

July 21 - 24

*Sierran Wildflowers*

July 28 - 31

### **August 2005**

*Aquatics*

August 20 - 21

*Compositae*

August 27 - 28

For more information, please contact Cynthia Perrine at the Jepson Herbarium; phone: (510) 643-7008,  
email: cperrine@uclink.berkeley.edu. Between May 15 and August 15, please contact Anna Larsen (alarsen@berkeley.edu).  
Please visit our Web site at: <http://ucjeps.berkeley.edu/jepwkshp.html>