

# Friends of the Herbarium

**Biological Sciences Herbarium**

**California State University, Chico**

## Newsletter

Vol. 4 No. 1

June 1998

**!! MARK YOUR CALENDARS !!**  
**Friends of the Biological Sciences Herbarium**  
**Annual Meeting**

**24 October 1998**

Look for details in the next *Newsletter*

.....  
**The Biological Sciences Herbarium**  
**will soon have a new Director!**

– see page 3 for details –

.....  
**A new species of clover has been named**  
**for the late Jim Jokerst**

– see page 4 for the story –

.....  
**more**  
**Friends of the Herbarium**  
**Workshops**

– see insert –

Remember, at least half of your registration fees help support  
the Friends activities on behalf of the Herbarium.

.....  
**Learn about research by 1998**  
**Jim Jokerst Field Botany Award winners**

– see pages 5 and 6–

### MESSAGE FROM THE BOARD

We are very pleased to announce that Dr. Kristina Schierenbeck has been selected for the Plant Systematist position. She is quite enthusiastic, and we are looking forward to working with her. Please see our special article for more information about Dr. Schierenbeck.

Jennifer Rotnem is another new person which some of you may be interested to know of. Ms. Rotnem was hired by the College of Natural Sciences as the Coordinator for the new Environmental Analysis Program. She is coming from the Chico office of The Nature Conservancy, and will begin work in her new position at the University on July 1, 1998. Her office will be in Holt 267. You can call her at 530-898-5205 if you have any grant opportunities

*Continued on page 2*





## Friends of the Herbarium

The **Friends of the Biological Sciences Herbarium**, California State University, Chico, was formed to help maintain the high quality of work that has been known to be associated with the herbarium. The primary purpose of the group is to provide community support for the herbarium. This includes raising funds for items that are not covered under the University budget. Scientific and academic pursuits are the focus of the group. The Friends also offers low cost workshops and classes on various botanical topics.

The Friends of the Biological Sciences Herbarium operates under auspices of the California State University, Chico, and enjoys non-profit status and has access to the use of University classrooms and equipment.

Memberships are renewed on May 1 of each year.

### BOARD OF DIRECTORS

Robin Fallscheer  
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Jim Jokerst award  
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### FACULTY LIAISON

Kingsley Stern

### Newsletter

#### Volume 4 Number 1

The Newsletter is published three times a year by the **Friends of the Biological Sciences Herbarium**, California State University, Chico. Subscription is free with membership. Submissions on herbarium related topics are welcome.

### Continued from page 1 Message from the Board

which can utilize the unique skills of the Natural Sciences faculty and students.

You may want to note that Dr. Robert Schlising's office is now Holt 114, and his phone number is 530-898-5381 (yep, same line as the herbarium). These changes are related to the various remodeling plans slated for Holt Hall. At this point in time, the herbarium remodel is purported to be summer 1999.

We apologize for any lack of or belated or confusing correspondence related to your gracious donations and membership renewals. The University is in the process of making changes to their accounting system that have wreaked a bit of temporary havoc on the gift records. The backlog of acknowledgments should be caught up soon; thank you for your patience and understanding in the meantime.

Lastly, we would like to welcome the newest member of the Board of Directors, John Dittes. He is a botanical consultant with Jones & Stokes Associates in Sacramento. In September, John will again be teaching our Intro to Keying the Sunflowers workshop. Also, we thank Kingsley Stern for his valuable input while serving on the Friends of the Biological Sciences Board of Directors for 1995 through 1997. This isn't really goodbye, though, as Dr. Stern continues to assist us as Faculty Liaison.

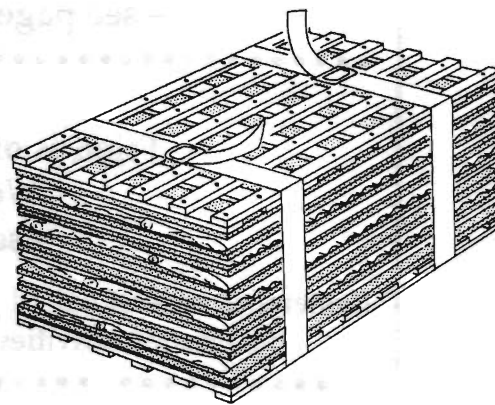
Hey all you field botanists out there—take another swig from your water bottle, get another bottle of Technu for the poison oak, keep your eyes on the ground—the field season isn't over, yet! Our hearts are with you!

RF

### — 1998 WINNERS — Jim Jokerst Field Botany Award

Congratulations to the *Jim Jokerst Field Botany Award* winners. This year's winners are Laura Bogni and Ann Willyard. Each of the award-winning researchers will give a short presentation of their research to the General Meeting of the Friends of the Herbarium to be held October 28. Laura Bogni's study will attempt to determine, through DNA analysis, if *Fritillaria eastwoodiae* is a hybrid derivative of *F. recurva* and *F. micrantha* or if *F. eastwoodiae* is the ancestral species. Ann Willyard's project will attempt to clarify the taxonomic relationship between *Rupertia hallii* and *R. physodes* to establish appropriate conservation goals by both public and private sources. Summaries of these two projects are presented in this issue of the Newsletter (see pages 5 and 6).

Winners of the *Jim Jokerst Field Botany Award* receive a cash award contributed entirely by an anonymous donor. JM



**NEW DIRECTOR  
AT THE BIOLOGICAL SCIENCES HERBARIUM,  
CALIFORNIA STATE UNIVERSITY, CHICO**

The Biological Sciences Herbarium at California State University, Chico (CHSC\*) is happy to announce that starting 20 August 1998, **Dr. Kristina A. Schierenbeck** will become the new Director (and Principal Correspondent) of the Herbarium. On that date Dr. Schierenbeck will join the faculty of the Department of Biological Sciences at CSU, Chico. She will be an Assistant Professor in plant systematics/evolution. Her primary duties will include teaching courses in plant ecology, taxonomy, genetics, evolution, and systematics, and she will also be involved in directing undergraduate and graduate research in her areas of specialization.

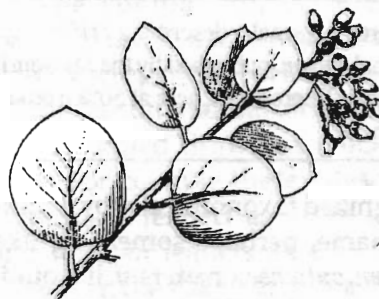
Dr. Schierenbeck comes to us from four years at CSU, Fresno teaching courses in ecology, evolution, and conservation, and where she maintained an active research program involving numerous graduate students. She received her Ph.D. in Botany from Washington State University in 1992, with the dissertation "Comparative ecological and genetic studies between a native (*Lonicera sempervirens* L.) and an introduced congener (*L. japonica* Thunb.)," her M.A. in Ecology and Systematics from San Francisco State University in 1988, with the thesis "Evolutionary relationships among *Arctostaphylos mewukka* and associated species," and her B.S. in Biology (Botany) from San Francisco State University in 1985 (adding coursework at CSU, Chico—including General Botany!—and at Humboldt State University).

Dr. Schierenbeck is currently involved in two major research projects: 1) an examination of

invasive species and their genetic and ecological interaction with native plants and communities by determining the effects of *Carpobrotus edulis* (an aggressive introduced weed) on populations of its congener, *C. chilensis* (a putative native) through hybridization, and 2) research into the evolutionary origins of *Clarkia lingulata* from *C. biloba* ssp. *australis*, using gene linkage mapping techniques (RAPDs and AFLPs) to identify those traits that have resulted in the genetic and ecological isolation of these species. She will also become the editor of *Madroño* (published quarterly by the California Botanical Society) beginning with the 1998 volume.

Dr. Schierenbeck replaces Dr. Kingsley R. Stern as Director of the herbarium. Dr. Stern retired from teaching at CSU, Chico in 1994, after 37 years of teaching (33 years at CSU, Chico) and 30 years as Director of the Herbarium. Dr. Stern has continued in the interim, on a voluntary basis, as Director of the Herbarium. During Dr. Stern's years as Director, the Herbarium collection has grown from 2800 specimens to its present holdings of more than 71,000 specimens.

LJ



**Message From The New Director**

I look forward to working closely with the curator and the Friends in continuing to make the herbarium an important resource to the academic, professional and lay communities. We need to get input from a number of sources to determine priority projects for the herbarium, but one of the things I would like to do fairly soon is computerize the collection and find out the specific requirements for a connection to the Jepson Herbarium.

We look forward to our move to Chico in early July. I expect to get settled in to Holt Hall around the third week in July. I look forward to seeing everyone in the herbarium!

Best regards,  
Kristina



\*CHSC is the acronym for the Biological Sciences Herbarium, California State University, Chico, presented in "Index Herbariorum. Part I: The Herbaria of the World" (Eighth edition. Patricia K. Holmgren, Noel H. Holmgren, and Lisa C. Barnett, editors. 1990. New York Botanical Garden). This publication lists acronyms for all of the herbaria throughout the world, except for some of the smallest or more recently established herbaria. These acronyms are thereby standardized and do not change over time. They are used in all publications that refer to specific herbaria. Sometimes this source is referenced, but more often it is assumed that the reader understands the source and the convention. LJ



## TRIFOLIUM JOKERSTII, A NEW CLOVER FROM BUTTE COUNTY by Vernon Oswald

It's official! An article by Michael A. Vincent and Randall Morgan describing the Butte County golden clover, *Trifolium jokerstii*, appeared recently in the first issue of the journal *Novon* for 1998. The clover is named for the late James D. Jokerst, who discovered it on March 9, 1985, during a botanical survey for an EIR at the PG&E Substation on Cottonwood Road west of Oroville.

Jim first called my attention to the clover in early 1988. The land along Cottonwood Road is all privately owned grassland used as winter range for cattle. I drove along the road on March 30, 1988, but was unable to spot the clover. On April 7, 1989, Lowell Ahart, who was working with me on Vascular Plants of Butte County and is not quite as intimidated by fences as I am, did find the clover near the substation and collected a number of voucher specimens (Ahart 6202), which he distributed to several herbaria in addition to the Chico State Herbarium. He also sent some specimens and seeds to Randall Morgan, who had expressed an interest in clovers from Northern California.

I was unable to identify the clover from the specimens that Lowell collected and thought that it might be some new, weedy introduction to the California flora. However, Jim informed

me that he had sent his specimens to Dr. Duane Isely, a clover specialist at Iowa State University, who concluded that it was a gold-flowered variant of *T. barbigerum* var. *andrewsii*. I wrote Jim on May 12, 1989 and, among other things, said, "It would seem to me that the clover should be

of course, become a CNPS List 1B plant and, when our urban sprawl reaches that area, would cause some unsuspecting land owner all kinds of grief!"

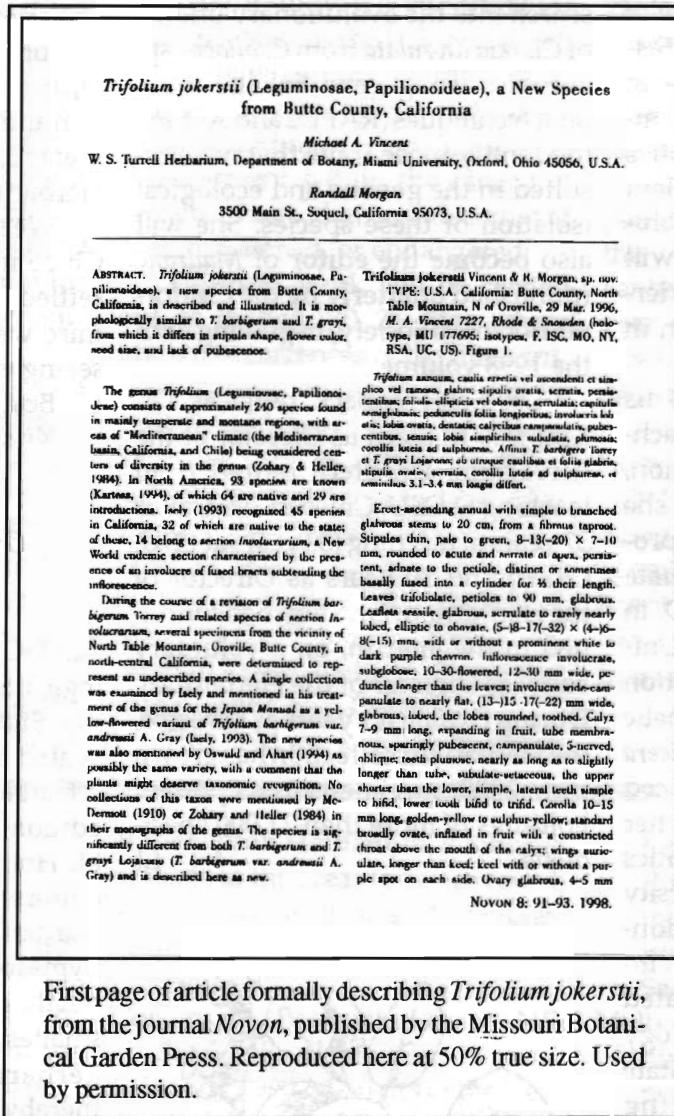
The Jepson Manual was published in 1993, and the Manual of the Vascular Plants of Butte County, California, was published in 1994. In both books, Jim's clover can be found under *Trifolium barbigerum* var. *andrewsii*.

In late March, 1995, I got a phone call from Ruth Cunningham. She was very excited—she and Sherri Snowden had just returned from a trip to the new California Department of Fish and Game acquisition on North Table Mountain to scout a Mt. Lassen CNPS trip scheduled for April 2. They had found a large population of Butte County golden clover! Lowell went on the April 2 trip and collected the first vouchers of Jim's clover from North Table Mountain (Ahart & Cunningham 7569).

Dr. Michael A. Vincent, a clover specialist from Miami University at Oxford, Ohio, first became interested in Jim's clover when he spotted Lowell's collection from Cottonwood Road (Ahart 6202) in a folder of unidentified clovers at the Missouri Botanical Garden. He tells me that he said

aloud, "That's an undescribed clover!" much to the annoyance of other

*Continued on page 7*



recognized taxonomically by a variety name, perhaps something like *aureum*, *buttense*, or *jokerstii*. It would,

For more information about *Novon* and other botanical titles carried by the Missouri Botanical Garden Press, check out the MBG Web site at [www.mobot.org](http://www.mobot.org)

## Distribution and habitat characteristics of *Rupertia hallii* (Fabaceae) and comparison of *R. hallii* with *R. physodes*

A project by Jim Jokerst Field Botany Award winner Ann Willyard

### Introduction

The genus *Rupertia* (Rupert's scurf-pea) was created by James W. Grimes in 1990 by moving *Psoralea physodes* and *P. rigida* to the genus *Rupertia*. In addition, he described the populations of *R. physodes* in Butte and Tehama Counties as a new species, *R. hallii*. After removing the Butte and Tehama populations, *R. physodes* was left with a geographic distribution of the Klamath Ranges, the North Coast Ranges, central western California, South Coast, and to British Columbia and Idaho (Hickman 1996).

There are very few recorded populations of *R. hallii*: four in the California Department of Fish and Game Natural Diversity Database (CNDDDB) and six additional populations known by the Lassen National Forest (LNF) (Corbin 1998, pers. comm.). Two populations were recently discovered during plant surveys conducted for the Bureau of Land Management (BLM) (KEA Environmental 1997, Taylor 1997). All known populations occur in an area approximately 10 miles in size near the Butte and Tehama county line. This restricted range has resulted in a CNPS 1B designation and *R. hallii* is listed as occurring in one or a few highly restricted populations, endangered in a portion of its range, and endemic to California.

Currently, little is known about the biology of *R. hallii*. The plants have generally been found in open forests or canopy gaps, although some have been found under closed canopies. It was noted by KEA Environmental (1997) that "plants were much more abundant in the skid roads than in adjacent thick litter

cover under an open canopy." Several populations in the CNDDDB are described as growing on disturbed soils of roadsides.

Because of the very limited range and its occurrence in forested areas, the habitat needs of this plant are an important issue for land management planning. The species has been found on BLM parcels being considered for exchange with private land. In one case, mitigation was suggested that would allow "no ground disturbing activities within the site occupied by Hall's rupertia" (Molter 1997, pers. comm.). More knowledge about the biology of this plant would be valuable to both public and private planners.

The entire issue of rarity is dependent on the general acceptance of *R. hallii* as a valid species. The characteristics Grimes used to differentiate the Butte and Tehama populations of *R. hallii* from *R. physodes* have apparently not been studied by any local botanists. According to the *Rupertia* treatment written for The Jepson Manual by Grimes (Hickman 1996), *R. hallii* is a larger plant than *R. physodes*, has longer leaf stipules, longer inflorescence bracts, larger fruits, and no hairs (as opposed to sparse hairs) on the leaflets.

The comparison between *R. physodes* and *R. hallii* is confused by some discrepancies between the text of The Jepson Manual and the companion scaled drawings (Hickman 1996). For example, the text describes *R. physodes* leaflets as 3.5 to 7 mm and *R. hallii* leaflets as 4 to 9 cm. However, the scaled drawing shows them comparable in size. Leaflets of *R. hallii* in herbarium specimens at

Chico State Herbarium are in the size range of 2.3 to 6.5 cm. As another example, The Jepson Manual describes the calyx of *R. hallii* as 14 to 15 mm in the text, but it appears to be 8 to 9 mm in the drawing. The calyx length in herbarium specimens at Chico State Herbarium is 8 to 10 mm.

Additional information that would help clarify the taxonomic relationship between *R. hallii* and *R. physodes* would be valuable when establishing appropriate conservation goals by both public agencies and private industry.

### Planned Methods

A study of the taxonomic treatment of *Rupertia* (Grimes 1990) will be undertaken. Since no specimens of *R. physodes* are available in the Chico State Herbarium, *R. hallii* and *R. physodes* specimens at the Jepson Herbarium will be examined and compared.

Field surveys will be conducted in the Campbellville, Lomo, and Butte Meadows areas. There is a high incidence of private land ownership in the area surrounding the recorded populations of *R. hallii*. Permission has been obtained from Sierra Pacific Industries to survey lands under its ownership, which encompass much of the surrounding area. The area burned by the recent Campbellville fire will be surveyed on the premise that the fire may have provided openings needed by *R. hallii*. Soil maps will be used to identify other areas with soil types similar to the known occurrences. Habitat characteristics and soil type will be recorded for each population located. Field work will be done during the blooming period in May, June and July.

*Continued on page 6*

**Determination of Origin and Taxonomic Status of *Fritillaria eastwoodiae* (Liliaceae)  
using RAPD analysis**

A project by Jim Jokerst Field Botany Award winner **Laura Bogni**

This research project will allow me to determine whether *Fritillaria eastwoodiae* is a hybrid derivative of *F. recurva* and *F. micrantha*, or if *F. eastwoodiae* is the ancestral species. I intend to do this by collecting leaves of the three species in the field, and then I will: (i) isolate DNA from the leaf tissue; (ii) amplify the DNA via polymerase chain reaction (PCR); (iii) conduct gel electrophoresis of the PCR products; and (iv) analyze DNA banding patterns. The title of my project is "Determination of Origin and Taxonomic Status of *Fritillaria eastwoodiae* (Liliaceae) using RAPD analysis" (RAPD is an acronym for Randomly Amplified Polymorphic DNA).

I chose to undertake this as a Master's thesis project because it incorporates two aspects of biology which are most interesting to me: ecology and molecular biology. I am able to do some field work in the springtime when I collect leaves from individuals found in various sites throughout Butte, Tehama and Shasta counties. I'll then work in the lab extracting DNA from the leaves

I collected and obtain results using molecular techniques. Thus, this project permits me to spend time in the field as well as in the lab. This was a feature I had in mind when I was looking for a potential thesis project.

Also, I believe in the relevance of this type of study. It is important for agencies, such as the U.S. Forest Service, to have as much information as possible in making the right decisions regarding any proposed land development within the ranges of certain plants that are designated rare, threatened, or endangered.

The field work will be carried out at (hopefully) 25 sites where known occurrences of the three fritillary species are located. I will be collecting leaves of *F. eastwoodiae* in locations such as Honeyrun Road, Centerville Road, Truex Road, Skyway in Magalia, and Feather Falls. Most of the *F. micrantha* sites are located in Plumas National Forest. Many of the *F. recurva* sites are located in Lassen National Forest and along Little Chico Creek.

This field work will be intensive

since there are so many sites to visit and so little time. There is only a brief window for collecting due to the relatively short blooming period which is only a few weeks at the most. Lower elevation plants will bloom first, i.e. Centerville Road, Honeyrun Road, etc., and I will begin looking for occurrences of *Fritillaria* in these locations in late March. I will most likely have until early May to collect from such sites as Feather Falls.

If all goes well, I will be completed with the field work by May of this year – if not, by May of next year. I anticipate having to spend another year in the lab manipulating the DNA, then analyzing the banding patterns statistically.

In regards to the Master's thesis, I can only speculate at this date if I will be able to present a seminar based on this research project and complete a thesis by May 1999. If this is not feasible, I will have to delay these two requirements for graduation until Fall semester 1999.



*Continued from page 5*

**Ann Willyard**

#### Planned Results

A report summarizing the findings will be written in August. Copies of the report will be provided to the BLM, LNF and Sierra Pacific Industries. Populations identified outside the known range will be submitted to the CNDDDB.

#### Use of Funds

The award funds will be applied toward the expenses of a trip to Berkeley to work on *Rupertia* specimens

at the Jepson Herbarium, a number of visits to the areas to be surveyed, and the cost of Grimes' 1990 monograph.

#### References

- Corbin, B., Botanist, Lassen NF, Susanville, California.  
Grimes, J. 1990. *Memoirs of the New York Botanical Garden* 61:1-114.  
Hickman, J. 1996 (editor). *The Jepson Manual*. Third printing with corrections. Berkeley: University of California Press.  
KEA Environmental. 1997. A bio-

logical resources inventory of Butte, Shasta, Tehama and Trinity County parcels for the proposed SPI-BLM land exchange. Sacramento, California.

Molter, J., Special Status Plant Coordinator, BLM, Redding, California.

Taylor, D. 1997. *Endangered plant survey for Tehama County land exchange parcels*, Redding Resource Area, BLM. BioDiversity Consulting, Aptos, California.





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### *Trifolium jokerstii*

people working near him. He eventually got hooked up with Randall Morgan, who supplied him with information and seeds from the material that Lowell had sent Randall.

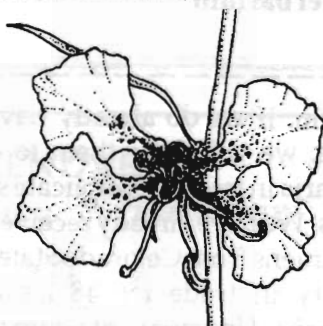
Lowell and I sent some duplicate clover collections, including specimens of golden clover from Table Mountain, to Dr. Vincent in 1995. He was by now nearly convinced that he was dealing with a new species, but he decided to make a special visit to California in 1996 to collect fresh material for allozyme studies. The results of these studies convinced him that the Butte County golden clover was indeed a new species.

So far, *T. jokerstii* is only known from Cottonwood Road and North Table Mountain. It grows in moist swales and depressions in open grassland. Along Cottonwood Road, it begins to appear 2 miles east of Hwy. 99 near the PG&E Substation and then in scattered locations eastward for another 1.5 miles. On North Table Mountain, it is found mostly on the north side of Beatson Hollow near the west end of the plateau, with a few small populations on the south side of the hollow. Once its distinctive color is recognized, it can be seen with binoculars some distance from roads. Both Jim Snowden and I have searched along other roads in the grazing land west of Oroville without spotting other populations of Jim's clover. However, there is a lot of private grassland between Cottonwood Road and North Table Mountain that should have suitable habitat for *T. jokerstii*. To my knowledge, no one has surveyed the plateau of South Table Mountain, which might also harbor the clover.

Field botanists might read this narrative and spot some interesting events leading to the naming of *T.*

### A NEW SUBSPECIES OF *CLARKIA MILDREDIAE*

A new subspecies of *Clarkia mildrediae* (Heller) Lewis & Lewis was recently described! *Clarkia mildrediae* ssp. *lutescens* Gottlieb & Janeway occurs mostly in Butte and Plumas Counties, plus a little in Yuba and Sierra Counties. Read about this new subspecies in *Madroño*, Vol. 44, No. 3, pp. 245-252, 1997. Look for more information about this showy plant in the next issue of the Friends of the Herbarium Newsletter. LJ

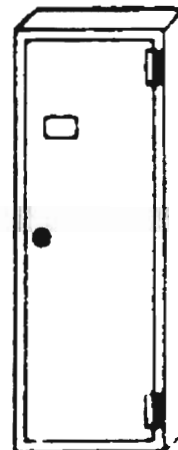


*jokerstii*. Jim did the right thing—he sent his unknown clover to a specialist. The story could end here with a note in The Jepson Manual about a gold-flowered variant of *T. barbigerum* var. *andrewsii* from Butte County. However, Jim told me about the clover, I told Lowell, Lowell collected the plant and sent duplicate material to Randall Morgan and to the Missouri Botanical Garden Herbarium where Michael Vincent spotted it. Too many field botanists do not collect herbarium specimens—their collections consist of snippets of plants stuck in a plastic bag and then discarded after identifications are made. Properly prepared specimens are all too often stuck away in newspaper folders and forgotten. Some wise person said, “A record without a voucher is a rumor.” Please collect some vouchers and get them into a herbarium where your records are no longer rumors! 🐾

### HELP NEEDED IN THE HERBARIUM

Volunteers are always needed to help with a number of curatorial activities in the herbarium. To express your interest, please leave a message on the herbarium phone (530/898-5381) or contact Lawrence Janeway (Curator) at ljaneway@compuserve.com or 530/899-7434. At this time the herbarium needs help with:

- Curation of bryophytes (mosses and liverworts): fold bryophyte packets, glue herbarium labels to the packets, accession and file the specimens.
- Curation of myxomycetes (slime molds): glue annotation labels to slime mold specimen boxes.
- Sort plant taxonomy class collections and determine which collections are needed for the herbarium and which to use for exchange with other herbaria.
- Expand the main herbarium collection fill a new herbarium cabinet and make more room in the existing cabinets.
- Make new folders for vascular plant specimens in the main herbarium cabinets, to reduce the size of folders and thereby better protect the specimens (this is for the particularly meticulous minded). LJ



## Yes! I would like to join!

\_\_\_\_ Student .....\$5.00  
\_\_\_\_ Individual .....\$10.00  
\_\_\_\_ Contributing .....\$25.00  
\_\_\_\_ Sustaining .....\$100.00  
\_\_\_\_ Lifetime .....\$1,000.00  
\_\_\_\_ Donation .....\$ \_\_\_\_\_

This is a renewal for 1998 .....

Please make your check payable to:

**"Friends of the Biological Sciences Herbarium"**

Name \_\_\_\_\_

Organization \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Zip Code \_\_\_\_\_

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E-mail \_\_\_\_\_

### EXTRA OR UNWANTED JOURNALS?

Do you have any taxonomic journals or floras that you no longer want? Donate them to the herbarium! If the herbarium library doesn't already have what you donate, we will keep them for use in the her-

barium. If we do already have the items, we will offer them to other herbaria in trade for duplicate specimens. We have already received 150 specimens from Colorado State University in trade for 48 issues of *Madroño*, University of South Carolina will be sending us 1000 specimens over the next few years in ex-

change for 8 volumes of *Taxon*, and we are still hoping to receive the 120 specimens that Universiti Kebangsaan Malaysia offered in trade for 12 issues of *Systematic Botany*.

Put those unwanted journals and floras to use by donating them to the Biological Sciences Herbarium! LJ

### Friends of the Biological Sciences Herbarium

California State University, Chico

Chico, CA 95929-0515

530/898-5381

ADDRESS CORRECTION REQUESTED



**WORKSHOPS  
SPONSORED BY THE  
FRIENDS OF THE BIOLOGICAL SCIENCES HERBARIUM  
CALIFORNIA STATE UNIVERSITY, CHICO**

**BOTANICAL ILLUSTRATION.** 19 September 1998, Saturday.

**INTRO TO KEYING THE SUNFLOWERS (ASTERACEAE).** 26 September 1998, Saturday.

**THE NATURE OF FIRE IN THE WILDLANDS.** 3 October 1998, Saturday.

**INTRODUCTION TO KEYING CAREX.** 14 November 1998, Saturday.

**MORE KEYING CAREX.** 21 November 1998, Saturday.

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**TO REGISTER FOR WORKSHOPS:**

Please make checks payable to:  
"Friends of the Biological Sciences Herbarium"

Include your name, address, and phone number,  
and mail to:

Friends of the Biological Sciences Herbarium  
California State University, Chico  
Chico, CA 95929-0515

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**BOTANICAL ILLUSTRATION.** 19 September 1998, Saturday.

Local illustrator, Judy McCrary, will lead this one day workshop on botanical illustration. The workshop will concentrate on pencil and ink, although other media may be explored depending on the interest of the participants. Please bring an HB pencil and ink pens, nibs, and black ink. If you prefer, these and other basic materials, including paper, will be available for purchase at the class. Class will meet from 10:00 am to 4:00 pm in Holt Hall Room 129 at CSU, Chico. Class size is limited to 15 participants; older children are welcome to register. Registration for the class is \$25.00 for members of Friends of the Herbarium and \$35.00 for non-members. Please register in advance. For more information about course content, please contact Judy McCrary at 530/589-1418. For information about registration or directions, please call the Herbarium at 530/898-5381.

**INTRO TO KEYING THE SUNFLOWERS (ASTERACEAE).** 26 September 1998, Saturday.

With over 1,300 genera and 21,000 species recorded, the sunflower family (Asteraceae) is the largest plant family in the world, and with over 207 genera represented, it is also the largest family in California. Come and learn the taxonomy of this remarkably diverse group with John Dittes, local botanist and consultant with Jones and Stokes Associates. John will lead this one-day workshop during which participants will key as a group and individually, using *The Jepson Manual*. John will provide fresh specimens from Butte, Tehama, Plumas, Lassen, and Sierra Counties. Beginners, as well as those wishing to brush up on their skills, are invited. Please bring forceps (tweezers), dissecting needle, and a 6" millimeter ruler. You are also invited to bring any plants you may have been wondering about. If possible, also bring a copy of *The Jepson Manual* (we have several copies to loan to those who need them); we can direct you to sources for *The Jepson Manual* if you contact us ahead of time. The workshop will meet on Saturday from 9:00 am to 5:00 pm in Holt Hall, Room 129, at CSU, Chico. The class is limited to 20 participants; the fee is \$25.00 for members of Friends of the Herbarium and \$35.00 for non-members. Please register in ad-

vance. For more information about workshop content, please contact John Dittes at 530/895-0349 or at 105544.467@compuserve.com. For information about registration or directions, please call the Herbarium at 530/898-5381.

**THE NATURE OF FIRE IN THE WILDLANDS. 3 October 1998, Saturday.**

A workshop for those interested in the behavior and role of fire in natural landscapes, including ecologists and botanists. Fire behavior determines the ecological effects of fire, and its understanding is the basis for competent use of managed fire. We will examine the key environmental factors that dominate the spread-rate and intensity of fires in vegetation. Many of the same microsite and microclimate characteristics that affect fire are also important influences on plant ecology. On a field trip we will observe and measure some of those characteristics. The guidelines for fire behavior will be applied to realistic examples. We'll end with a review of the ecological effects of fire, and a look at the questions that surround the establishment of a healthy fire influence in the landscape. Please bring a lunch so we can picnic on the field trip, and wear shoes and clothes adequate for light hiking. Workshop begins at 9:00 AM, ends about 5:00 PM, and is limited to 16 participants. The workshop will be taught by Jim Bishop of CDF Fire, an instructor of state and national fire behavior courses. For more information about the workshop, please contact Jim Bishop at 530/538-6761. For information about registration or directions, please call the Herbarium at 530/898-5381.

**INTRODUCTION TO KEYING CAREX. 15 November, Saturday.**

An introduction to keying *Carex* and the associated terminology, this workshop is led by Lawrence Janeway. Material of several species of *Carex* will be available for keying by all members of the class working together, each person with their own specimen; herbarium labels will be provided for those participants who would like to take home their sample material for later reference. Please bring forceps, dissecting needle, 6" millimeter ruler, and a copy of *The Jepson Manual*. The workshop will meet from 9:00am to 5:00pm in Holt Hall, Room 129, at CSU, Chico. The class is limited to 16 participants; the fee is \$25 for members of Friends of the Herbarium and \$35 for non-members. Please register in advance. For more information about the workshop, please contact Lawrence Janeway by e-mail at lpjaneway@compuserve.com or by phone-mail at 530/899-7434. For information about registration or directions, please call the Herbarium at 530/898-5381.

**MORE KEYING CAREX. 21 November 1998, Saturday.**

A continuation ("Part 2") of the popular workshop "Introduction to Keying *Carex*," this workshop is also led by Lawrence Janeway. This class will start where "Introduction to Keying *Carex*" ended. It will involve keying only the first 2 or 3 samples together, as a refresher, and the rest of the day with participants keying other bulk collections of *Carex* at their own pace. Bulk collections of a number of species of *Carex*, not seen in the "Introduction to Keying *Carex*" workshops, will be available for keying by all members of the class, with each participant working on material of their own choice and at their own pace. Again, herbarium labels will be provided for those participants who would like to take home their sample material for later reference. Please bring forceps, dissecting needle, 6" millimeter ruler, and a copy of *The Jepson Manual*. If you have the *Intermountain Flora* and/or the *Flora of the Vascular Plants of the Pacific Northwest*, please bring the volume(s) that contain treatments of *Carex* (I have two of each available for class use). The workshop will meet from 9:00 am to 5:00 pm in Holt Hall, Room 129, at CSU, Chico. The class is limited to 16 participants; the fee is \$25 for members of Friends of the Herbarium and \$35 for non-members. Please register in advance. For more information about the workshop, please contact Lawrence Janeway by e-mail at lpjaneway@compuserve.com or by phone-mail at 530/899-7434. For information about registration or directions, please call the Herbarium at 530/898-5381.