

LISTSERVE A REALITY!

With the help of DBS Secretary Jennifer Petersen and Herbarium Director Dan Potter, your email addresses were transformed into a Davis Botanical Society listserv in January. Those of you who provided your email addresses for creation of the listserv benefitted by being informed of the winter quarter herbarium teas ahead of those who still only receive snail mail. Jennifer sent out another request for your email address in late January with our winter mailing. If you would like to be added to the listserv, please send back the form to her.

LASTHENIA

LASTHENIA, the Newsletter of the Davis Botanical Society, is published by the Society in collaboration with the staff of the UC Davis Botanical Conservatory and Center for Plant Diversity.

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LAST HENIA

NEWSLETTER OF THE DAVIS BOTANICAL SOCIETY

A NEW BRODIAEA SPECIES

As a graduate student, I remember being told that the pioneer phase of plant taxonomy in California was over. There are few places in California that have not been explored botanically, and the rate of discovery of new species has slowed to a trickle. Nevertheless, several new species are described from California every year, and there have been about 60 new species described from California since the Jepson Manual was published in 1993. In the July, 2006 issue of *Novon*, I described a new species, tentatively called sierra foothill brodiaea (*Brodiaea sierrae*), which is endemic to the Mother Lode region of the northern Sierra Nevada. Discovering a new species can be serendipitous, such as the

discovery of the Shasta snow-wreath (*Neviusia cliftonii*) in 1992. In the case of *B. sierrae*, it took some sleuthing, some hard work, and a little bit of luck.

How do you recognize when something is a new species? Considering that there are over 8,000 plant taxa (species, subspecies, and varieties) occurring in the California flora, just identifying the “known” species you run across can be difficult. Most botanists in California are really only familiar with a few hundred species, or at best, a couple thousand species, so that we frequently encounter “new” species when traveling outside of our usual haunts. Moreover, even if we did encounter an undescribed species, most of us would assume that our



Sierra foothill brodiaea (*Brodiaea sierrae*). Photo: R. Preston

inability to key it out was simply due to our own inexperience. To recognize an undescribed species, then, takes both experience and persistence.

In 1996, while conducting a rare plant survey at Beale Air Force Base, I collected specimens of a *Brodiaea* that I was unable to identify. All species of *Brodiaea* (common name brodiaea) share the same life history pattern and the same general floral plan, which can make keying them out a challenge. There are about 18 described species of *Brodiaea*, a showy, late-spring blooming genus that has traditionally been

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A MAGICAL EVENT IN THE CONSERVATORY

The warm lushness of the Conservatory is alluring after sundown, though only late-working staff experience it. Ernesto Sandoval suggested we share the ambiance with those who through the years have contributed in many ways to the Conservatory and Center for Plant Diversity programs, and December 8's Evening in the Conservatory was the result. In addition to the usual striking plant shapes, colors, and fragrances, there were fireflies in the philodendrons, zither notes drifting from the orchids, wine and sparkling juices by the sansevierias, and sumptuous hot and cold food by the pipers and gesneriads. Over seventy Conservatory and Center for Plant Diversity supporters, including current Davis Botanical Society members,

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Left to right: Valerie Whitworth, Michael Barbour, and Roswita Norris at the December 8, 2007 Evening at the Conservatory. Photo: E. Sandoval.

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Conservatory



Alan Yip playing the xither at the Evening at the Conservatory on December 8. Photo: E. Sandoval

clustered throughout the greenhouse and enjoyed a delightful event. Several have suggested we make it annual, but we will need to discuss that idea with Pamela Riley, the research greenhouse operation manager, who personally cooked most of the food. Special thanks to Alan Yen, who provided music for the evening, Bogle Vineyards for wine, and Eva Bayon, for logistical support.

The extensive curriculum revision for the introductory Biological Sciences series is being implemented this year with Bio Sci 2B, the second class of the three-part series, being offered for the first time this spring. Ernesto designed and planted outdoor beds featuring California natives and African bulbs and perennials to furnish a controlled compact arena in which students can explore methods of quantifying biodiversity. To gain the most effect with the least upkeep, the soil was radically modified, and customized irrigations system installed. Beds were hand-shaped, and thousands of plants were planted. If you have a chance, visit them as the weather warms. They are east of the Center for Plant Diversity in the Sciences Laboratory Building. If you have a more time and energy, journey upstairs to the greenhouse where we have six movable beds displaying carnivorous plants, ferns and mosses, and South African succulents for the lab sections taught when it is dark or stormy. Besides meeting the objectives of the laboratory exercises, we want

the freshmen taking the course to be irreversibly awed by the beauty and wonder of plants.

Ernesto, along with Darrell Brandon, the Conservatory interpretative and graphic specialist, will be in South Africa the first two months of the new year. Ernesto's time will be split between teaching the plant component of a South African Biodiversity Education Abroad Program class and work at the Kirstenbosch Botanical Garden, a garden of native South African plants with a special emphasis on succulents. Ernesto and Darrell will travel throughout South Africa to visit other areas of exceptional biodiversity to see and photograph plants in habitat. Ernesto's experiences in South Africa will help him to grow the numerous specimens



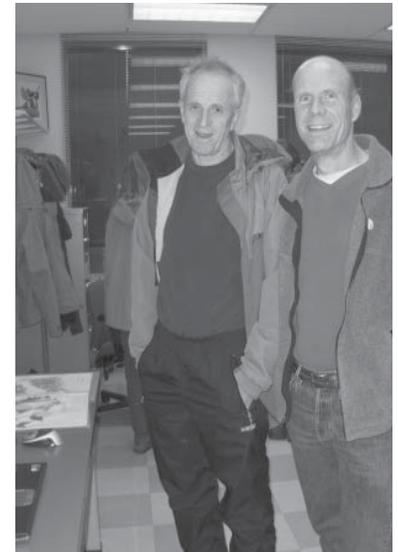
Beds of insectivorous plants prepared for the new Bio Sci 2B series can be viewed in the Sciences Laboratory Building Greenhouse. Photo: E. Dean

in the Conservatory collection, which is particularly rich in South African plants. His time there will also furnish him compelling material for lectures and seminars.

T. Metcalf

Center for Plant Diversity

The herbarium has been a busy place over the last few months, thanks to the efforts and activities of our dedicated staff, many volunteers, and numerous visitors, including tours, classes, and several botanists working on treatments for the forthcoming second edition of *The Jepson Manual* (see the article in this issue by one



Kevin Rice and John Gerlach at the Herbarium Tea on Jan. 23. Photo: E. Dean

of those individuals, Rob Preston). International visitors included Dr. Carlos Villamil (Universidad Nacional del Sur, Argentina), a specialist in Apocynaceae and Poaceae, and Dr. Elizabeth Widjaja (Herbarium Bogoriense, Indonesia), a bamboo specialist who is also collaborating with me and several others on systematic studies of Southeast Asian species of *Prunus*.

Ellen Dean, Center for Plant Diversity Curator, has obtained funding for and led several exciting collecting projects which have involved volunteers and students over the spring and summer; see the featured article in this issue about one of those, the Washoe Meadows State Park inventory. She's also started another season of volunteer Sundays in the herbarium with excellent turnout. Jean Shepard, Center for Plant Diversity Collections Manager, has hired and trained a new crew of undergraduate assistants who are making great progress on mounting and databasing specimens.

In January, we initiated what we hope will become an annual winter quarter series: herbarium teas, every other Wednesday afternoon beginning January 9. These events are open to everyone and will provide a chance for plant enthusiasts to gather for light refreshments. For each session, we'll feature a plant group of local and/or seasonal interest, for which we'll display some specimens and have a brief informal presentation. We hope to see you there.

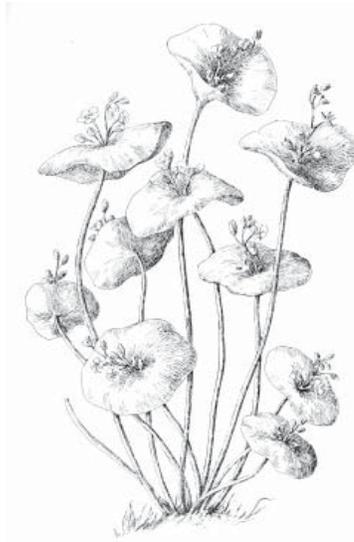
D. Potter

STUDENT RESEARCH GRANTS AWARDED FOR 2007

Again this past year a highly qualified group of graduate students competed for the DBS Student Research Grants. In contrast to previous years when some grantees were working in such exotic locations as Africa and Madagascar, this year's projects are all based in Northern California, although they have wider implications.

Patrick J. McGuire received the Jack Major Award for his extremely timely project studying the ecological consequences of polyploidy (genetic doubling) in the context of rapid environmental change. For his study Pat will use three species of *Claytonia*, including the familiar Miner's lettuce. The project includes reciprocal transplantation of the native *C. parviflora* and artificially created polyploids in the American River watershed. Patrick works with Sharon Strauss in the Population Biology Graduate Group.

The increasingly widespread exotic Brass buttons (*Cotula coronopifolia*) is



Miner's lettuce (*Claytonia perfoliata*)

the subject of Robert C. McKee's study of "exotic species with amphibious life histories." Working at Jepson Prairie and two other California sites, Rob will

do a controlled seedling removal study, comparing species richness, per cent cover and reproductive output of natives in plots with and without Brass buttons. Rob's Master's project with Marcel Rejmanek in the Ecology Graduate Group was given the Larry W. and Charlotte Mitich Award.

Matt Brown, who works with Susan Harrison in the Ecology Graduate Group, will use the E. Eric Grissell Award to study the effects of fire and fire suppression in the understory of coniferous forest on clustered lady slipper, *Cypripedium fasciculatum*. Matt has worked as a botanist on the Plumas National Forest, and his project's plots to study the effects of burns under varying conditions there will assist the Forest Service in developing protocols to return burning to the forest without harming sensitive species.

Congratulations to this outstanding group of students!

K. Mawdsley

SOCIETY PROFILES

Donald G. Crosby, Professor Emeritus in the Dept. of Environmental Toxicology, became this year's DBS president "cold turkey," without having served as Vice President or President-elect. Don is trading roles with Jim Doyle, last year's President-elect, who is on sabbatical leave in New Zealand until Spring Quarter. And he is definitely not without experience in leading campus support groups with a botanical bent: he was president of the Friends of the UC Davis Arboretum for four years and received the Distinguished Service Award in 1999 from the Arboretum.

Don's willingness to assume a leadership role in support groups is strong evidence of his long interest in plants. Another testimony is *The Poisoned Weed: Plants Toxic to Skin*, his most recent book, which Oxford University Press published in 2005; he is also the author of several articles on toxic plants in recent issues of *Lasthenia*.

Although Don's college major was chemistry, he minored in plant biology. In graduate school at Cal Tech he continued to combine chemistry and plants in a study of allelopathy, the

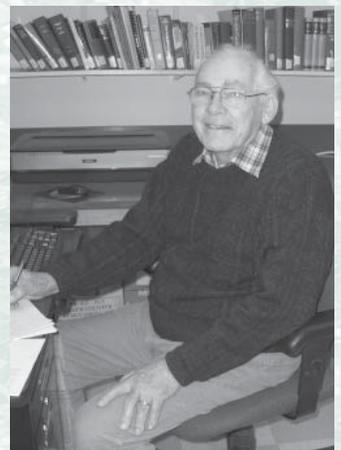
chemical property that prevents plants from growing too close together.

His professional career began in industry with Union Carbide, working on plant growth hormones. The insecticide Sevin was developed by his research group there. Emil Mrak, legendary UCD chancellor, invited Don to come to UC Davis as founding chair of Environmental Toxicology in 1961. His research here focused on the fate of chemicals in the environment.

Nancy Crosby, Don's wife, directed her interest in plants to the initiation of the Friends of the UC Davis Arboretum and its annual Plant Faire during the budget crisis of the early 1970s. She was a co-founder of the Propagators Group of Friends volunteers which continues to grow thousands of plants well adapted to Central Valley conditions for the Plant Faire. In the last several years she has also become a herbarium volunteer, sorting and arranging our collection of local floras and taxonomic reprints. Nancy's decades of contribution to the Arboretum will be recognized in January 2008 with the City of Davis Brinley Award for outstanding service.

Don has also become a weekly volunteer in the herbarium, first labeling

Don Crosby



Don volunteering in the herbarium

specimen folders in preparation for the move to SLB in 2003, then curating the algae collection. He is now listing and organizing the map collection and plans to move on to organizing our extensive collection of literature on poisonous plants and putting warning information on folders containing plants poisonous to the touch.

We are grateful for all his (and Nancy's) contributions to DBS and the Center for Plant Diversity.

K. Mawdsley

included in the lily family (Liliaceae) but is now placed in the brodiaea family (Themidaceae). All are herbaceous perennials that have an underground corm, basal leaves, and flowers in an umbel-like cluster at the end of a long, naked peduncle. All have six, usually blue-violet, petals, three stamens, a single pistil, and all but one species have three staminodes (antherless, petal-like stamens). *Brodiaea* species are traditionally distinguished by discrete morphological differences in the floral parts -- not just differences in size, but differences in shape and orientation with respect to other floral parts. This typically includes differences in the floral tube, the stamens and the staminodes.



California brodiaea (*Brodiaea californica* var. *californica*). Photo: R. Preston

I never was able to determine what that unidentified species was, but I never gave up trying to figure it out, and over the years I began making careful observations of brodiaeas whenever I encountered them, taking notes, dissecting flowers and measuring floral parts, and I read all of the taxonomic literature on brodiaeas. In this way, I became intimately familiar with many brodiaea species. In 2002, I encountered populations of a large-flowered brodiaea occurring on serpentine and gabbro in the northern Sierra Nevada foothills. The flowers are quite showy, and several dozen specimens of it have been collected over the last hundred years. In previous treatments of *Brodiaea*, these had been determined to be *B. californica*. However, because I was making careful observations, I immediately noticed morphological differences between plants from these foothill populations and typical *B. californica*. Moreover, *B. californica* occurs in the northern Sacra-

mento Valley in grasslands and generally blooms in May, whereas these foothill populations occurred in chaparral or forest openings and were in bloom from mid-June through July. I began to suspect that the valley and foothill populations might be different species.

Characterizing and describing the new species turned out to be a much more laborious process than if I had discovered something entirely new and distinctive. I spent several years studying the plants in the field, taking floral measurements, and performing statistical analyses. There were several conceptual questions to address before I felt comfortable proposing the new species: Why had others not previously discerned the differences between the valley and foothill plants? What constitutes a "species" in the genus *Brodiaea*? Would the rank of subspecies be more appropriate for the foothill plants? What are the relationships with other *Brodiaea* species?

During my research, I found that these foothill populations had scarcely been studied, and although some differences between these populations and typical *Brodiaea californica* had been noted as early as the 1930's, these observations had never been followed up on. Based on the results of my morphological and field studies, I concluded that recognizing the foothill populations as a new species would be appropriate. I chose the name *Brodiaea sierrae*, in recognition of its distribution within a narrow elevation band between 320 and 945 meters in the Sierra Nevada foothills of Butte, Yuba, and Nevada Counties. Although *B. sierrae* and *B. californica* are morphologically similar and are undoubtedly related, *B. sierrae* has larger flowers, and the staminodes are uniformly wide, have entire margins, and are reflexed near the tip. In contrast, *B. californica* staminodes are narrowed towards the tip, have wavy margins, and are reflexed from near the middle. The two species occur in different habitats, are geographically disjunct, and their flowering periods do not overlap, at least where the ranges are adjacent.

I am currently collaborating with Chris Pires at the University of Missouri, Columbia, to use DNA markers to help us understand the relationships between and among brodiaea species and perhaps



Scan of the type specimen of *Brodiaea sierrae*, which is part of the Center for Plant Diversity type collection.

to gain some insights about the origin of morphological differences between species. Did I make the right choice in deciding to treat *Brodiaea sierrae* as a new species, rather than as a subspecies of *B. californica*? Hopefully we'll be able to confirm this, one way or the other. I'm also hoping that the DNA data will help us to determine how several other undescribed brodiaeas should be treated, and it may even help me figure out that undetermined brodiaea from Beale Air Force Base.

Not all new species are discovered in the field by intrepid botanists scouring remote areas on unusual soil types. Sometimes the new species have been discovered on herbarium shelves during study for a taxonomic revision or in conjunction with preparing treatments for The Jepson Manual. In the case of *Brodiaea sierrae*, it was somewhere in-between: I used the location information from herbarium specimens to find the populations I wanted to study, but it was the field work that led to my recognizing it as a new species. This case is also another example of how our herbaria remain an important tool for documenting the diversity of our flora.

R Preston

WASHOE MEADOWS MEANDERINGS



Mark Bibbo and Erin McDermott in Angora Meadows at Washoe Meadows State Park last July. Photo: Jill Poloski

This past summer, eleven intrepid souls participated in our three Washoe Meadows State Park inventory trips (scheduled in June, July, and August). Each trip was a two day collecting foray, with a Friday night stay at a nearby (and sometimes noisy) state park campground. Some participants came for both days, others for just one day. A few came on multiple trips. All participants were a tremendous help finding, collecting, and pressing specimens, with some helping key the specimens in the herbarium after the trips were over. My daughter Margaret was the trip photographer on two trips.



Newberry's gentian (*Gentiana newberryi*) a common wildflower at Washoe Meadows State Park in August. Photo: Ellen Dean

We are still organizing and making labels for the specimens, and so the exact number of specimens collected is not known, but it is close to six hundred, with an incredible diversity of native species, especially sedges and grasses, and a very low percentage of nonnative species. Habitats sampled included dry forest, wet forest, wet meadows, dry meadows, fens with

carnivorous plants, and even a vernal pool. We found several rare species and documented their locations.

Thank you to all the wonderful plant collectors that accompanied me on these trips. An outgrowth of their enthusiastic work was a contract with the California Department of Parks and Recreation for monitoring work in the park and nearby Lake Valley Recreation Area. I completed that work with Tamara Sasaki, one of the botanists for State Parks, and the report was finalized in January. This contract will bring much needed dollars to the herbarium this coming spring that we will use to



Richardson's geranium (*Geranium richardsonii*) a plant of moist forest at Washoe Meadows State Park. Photo: Margaret Starbuck

hire and train undergraduate students. Some of them will mount our 2007 Washoe specimens to clear the decks for our 2008 Washoe Meadows inventory trips. A flier announcing those trip dates will be mailed to members in April.

E. Dean



Kirk Ehmsen, Kate Mawdsley, and Ellen Dean collect plants at Washoe Meadows State Park last June. Photo: Margaret Starbuck

GRADY WEBSTER'S NOTEBOOKS DONATED TO CENTER LIBRARY

In November, 2007, Barbara Webster donated Grady's Webster's collection notebooks to the Center for Plant Diversity library with the understanding that they will revert to Special Collections in Shields Library in the event we no longer wish to house them. We are very grateful to Barbara for this donation.

Grady's notebooks are very important to the Center, because they are the key to his collections. Grady collected over 34,000 plant specimens worldwide, and the majority of them are represented in the Center for Plant Diversity herbarium, some of them still in the newspaper they were pressed in and still requiring labels. By matching the collection number Grady wrote on the specimen newspaper to his entry for that collection number in one of his notebooks, we can make specimen labels when needed and finish Grady's work.

Another important way the notebooks can be used is to find specimens that Grady collected on a particular date in a particular place. If a visitor wants to see specimens that Grady collected in Texas in 2004, we can look up that date and place in his notebooks (which are conveniently labeled as to date and place on their spines) and see what species he collected under what collection numbers and find them in the herbarium.

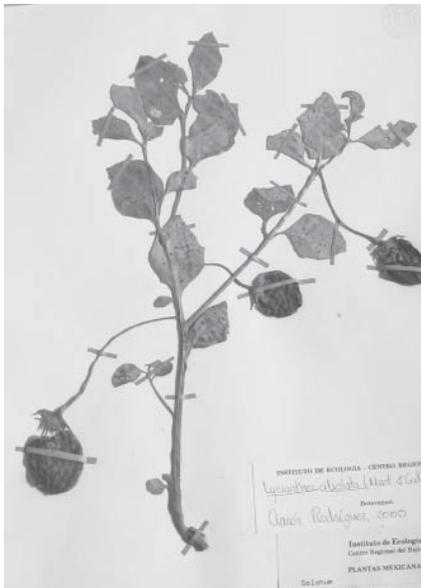
In the future, we hope to have some of Grady's label data available in our database which is accessed on-line. Grady began using the database program Dbase III+ to make his labels in the early 1990s, switched to a FoxPro database in the mid-1990s, and was using our Access database by the time he passed away. We are hoping to transfer all of his electronic label data into our current database over the course of this year with the help of computer programmer Tom Starbuck.

E. Dean

HERBARIUM HOPPING IN MEXICO

Identification keys provide a means for local botanists to identify plant species in their area, and being able to identify what species grow on specific lands can help us preserve those lands. In California, we are fortunate to have an up-to-date flora of California that allows us to identify most plants that grow naturally in the state. However, there is no complete flora of Mexico.

In August, I spent two and a half weeks in Mexico visiting three herbaria in order to collect data for a floristic treatment of the genus *Lycianthes* (Solanaceae) for the *Flora del Bajío y de Regiones Adyacentes*. A “treatment” is a listing of species in a genus or family that includes a key to the species and a small description of how each species looks and where it is found. A floristic treatment includes all the species of a genus or family found in a particular geographic area.



Herbarium specimen of a new variety of the genus Lycianthes at the herbarium in Patzcuaro. Photo: Ellen Dean

The *Flora del Bajío* documents and provides identification keys for the vascular plants that occur naturally in the Mexican states of Guanajuato, Querétaro, and northern Michoacán. The project is coordinated by the Instituto de Ecología, A.C., located in Patzcuaro, Michoacán. The editors of the *Flora del Bajío* project, Dr. Jerzy Rzedowski Rotter and Graciela Calderón de Rzedowski, are very well known Mexican botanists whose contributions to plant systematics,



Victoria Sosa Ortega and Ellen Dean in the town of Xico in the state of Veracruz, Mexico. Photo: Margaret Starbuck

plant geography, and the vegetation classification of Mexico cannot be overestimated.

The genus *Lycianthes*, includes ca. 200 species of shrubs, herbs, vines, and epiphytes distributed in both the Old and New Worlds, with most of the species occurring in the neotropics. I am the current authority on Mexican *Lycianthes* and have made several field visits to Mexico to collect species in the genus. In the past, I worked with the Instituto de Ecología, A.C., Xalapa, the Herbario Nacional in Mexico City, and the Universidad Antonio Narro, Saltillo. Based on past field work, I described four new species and two new varieties within the genus, two of which are named for my husband and daughter.

Completion of a floristic treatment requires examination of herbarium specimens in local herbaria to ensure that all species that have been collected in a geographic area are accounted for in the floristic treatment. This includes undescribed species (see Rob Preston’s article in the issue about how to decide when a species is new and undescribed).

Visits to herbaria allow botanists to examine unidentified specimens, including those still in back rooms that have not been accessioned into the main collections. I was able to look through all *Lycianthes* specimens to find those from the project area, identify them to species, and include them in my treatment. At the same time, I helped the herbaria I visited by identifying their specimens.

I visited the new National Herbarium in Mexico City, the much enlarged herbarium at Patzcuaro, and the herbarium in Xalapa. I discovered

in these herbaria a new undescribed variety and selected specimens to take back to Davis on loan.

I also was able to reestablish friendships and ties that have languished for 10 years. In Patzcuaro, I was fortunate to stay with Dr. Victor Steinmann, who is a researcher at the institute there. Victor has visited our herbarium many times during the course of his research on the genus *Croton* (Euphorbiaceae), and he is branching out doing general collecting and writing treatments for the *Flora del Bajío*.

In Xalapa, Dr. Victoria Sosa Ortega opened her house to us. Victoria is an expert on the taxonomy of Mexican orchids and numerous other monocot genera, as well as the biogeography of Mexican endemics. The botanical garden at the Institute in Xalapa is very beautiful with excellent collections of bamboos, cycads, and plants in the family Nolinaceae. We especially enjoyed the trees in the genus *Beucarnea* (Nolinaceae) which looked like something Dr. Seuss would have drawn.

In all, the trip was an excellent opportunity to focus on my specialty, and I am grateful both for the hospitality that was offered to me and for the support of the UC MEXUS small grants program which made the trip possible.

E. Dean



Beucarnea recurvata (Nolinaceae) at the botanical garden in Xalapa. Photo: Margaret Starbuck

REMEMBERING BILL

On October 18, 2007, our Davis Botanical Society Membership Vice-President, Bill McCoy, died peacefully at his home. He held the Membership Vice-President board position for six years, beginning his term just two years after the position was created, also filling in as treasurer for 6 months during the spring of 2002.

In addition, Bill was volunteer cataloguer for the Center for Plant Diversity library, holding that position for 12 years (ever since we began putting call numbers on our library books in 1995). I remember when there was no way to locate a book in our library unless you asked Grady Webster where it was. To remedy that problem, Bill and his wife Kate Mawdsley took it upon themselves to catalogue and place call numbers on the spines of every book in our library. They worked on weekends for months to finish the job. Now, our library is databased and we



Bill McCoy, looking very mischievous, at his retirement party in 1985.

Photo: Courtesy of K. Mawdsley

can find the books we need to use (well, most of the time).

Bill came to us in retirement after a distinguished career at UC Davis. He was born in New Haven, Conn., and moved to Southern California in 1934. He earned Bachelors and Masters Degrees in history from UC Berkeley, as well as a Masters degree in library science. He arrived at UC Davis in 1962 and became Associate University Librarian in 1964. For the next twenty years he was responsible for personnel, budget and facilities operations, including two major expansions of Shields Library, in 1963 and 1967, as well as construction of the Physical Sciences Library. Despite such accomplishments, Bill remained very down to earth. Those of us who knew him personally will, above all, remember his sense of humor (especially when playing Shanghai rummy with my mother). We miss him.

E. Dean

RECENT GIFTS

Herbarium Endowment

Anonymous
Gerald Dickinson
John Hunter
Jack & Eleanor Maze
Rob & Laurie Preston
Liz Bernhardt & Ted Swiecki
Genevieve Walden
Rebecca Wenk

In memory of Grady Webster
J. Giles Waines

In memory of Bill McCoy
Barbara K. Anderson
Abel & Kathy Barrientes
Allison & Stephen Chilcott
Donald et al. Christiansen
Don & Nancy Crosby
Carmia Feldman
Judy Jernstedt
Jane A. Kimball & Nancy Kushigian
Linda & Peter Lindert
Marjorie March
Amy McGuire
Nancy J. McLaughlin
Dennis R. & Eileen R. Ojakangas
James & Mary Patterson

Kathleen Socolofsky & Robert Gregoire
Warren Roberts
Maxine Schmalenberger
Jean V. Shepard
Ellen Dean & Thomas Starbuck
Mandy Tu
John Tucker
Sue Williams
Friends of the Davis Arboretum

In memory of Jack Major
Marcel Rejmanek

In memory of June McCaskill
Julie Knorr
Beth Lowe Corbin

Conservatory Endowment
Anonymous
Ivan & Evelyn Buddenhagen
Don & Nancy Crosby
Judy Jernstedt
Martin Melicharek & Rosalind Pierce

DBS Student Grant Program
Eric Conn
E. Eric Grissell

Jack Major Memorial Student Grant Fund

Mary Major
Louise Jackson & Pat McGuire

Larry & Charlotte Mitich Memorial Student Grant Fund
Lisa Zanetto

Herbarium Operations
Kate Mawdsley & Bill McCoy

Conservatory Operations
Anonymous
Sonia Cook
Jean Gifford
Carol Ludlum
Reed Maxson
Walter Turner

In Kind Gifts
John Brittnacher
George Helmkamp
Johanna Kwan/Hewlett-Packard Corporation
Barbara Webster

Thank you for your support!