NOTE DATE CHANGE!

We have changed the date of our annual meeting during which we have our spring talk and board elections. It was scheduled for Thursday, May 9, and we have changed it to Wednesday, May 8. Elections start at 6:45 pm and the talk, by Marcel Rejmanek on tropical forests, will start at 7 pm. The location remains the same at the Blanchard Room of the Davis Public Library.

UPCOMING EVENTS

Arboretum/Conservatory Plant Sales: Sunday, April 28, and Saturday, May 18. Both sales 9 am to 1 pm.

Las Posadas State Forest hike with Ellen Dean, Saturday, April 27. Registration information at herbarium.ucdavis.edu

LASTHENIA

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

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DAVIS BOTANICAL SOCIETY

LASTHENIA

NEWSLETTER OF THE DAVIS BOTANICAL SOCIETY

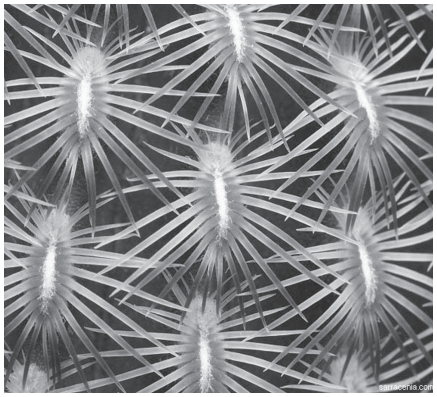
FILLING A NEW GLASS (WITH SUCCULENTS)

The noted martial artist Bruce Lee once famously said, "Empty your cup so that it may be filled; become devoid to gain totality." The kernel of this aphorism is that when you feel you are filled with knowledge or skills, letting go of your preconceptions is a way to begin anew—to learn new ways.

I have been putting this advice to use recently. By any metric, I am an expert on carnivorous plants—I have been growing them for nearly thirty years (gads!), written two books (with a third on the way), and have produced or contributed to countless scientific and popular interest articles. This glass is quite full—in this case with boggy, peaty water!

Oh, don't get me wrong. The unknowns regarding carnivorous plants stretch to the horizon. But even so, the uncertainties are all somewhat familiar. The water in the glass was perhaps a little stagnant.

My impetus for growth began when I agreed to help manage the desert gardens at Sierra College. Somewhat neglected, the gardens were in need of more plants to fill the gaps where others had perished. I installed new plants, either kindly donated by Ernesto Sandoval at the UC Davis Botanical Conservatory or bought on college-funded buying expeditions. During those latter trips, I was struck by just how lovely cacti were. Oh, I was familiar with the



The spines of rainbow hedgehog cactus (Echinocereus rigidissimus) create complex patterns. Photo: Barry Rice

cactus family (Cactaceae), of course, but seeing these plants again I realized just how nice they could look in cultivation, with only a reasonable amount of effort.

Should I try to grow some myself? Why not? After all, with a bit of protection from the summer's harsh sunlight, and the winter's rainy, frosty nights, I could grow a variety of cacti in my sunny back yard. Certainly, my Woodland, California conditions were far more hospitable for cacti than they were for carnivorous plants—dry heat is cruel

continued on page 2

HUNDREDS SHOW UP FOR SECOND ANNUAL BIODIVERSITY MUSEUM DAY

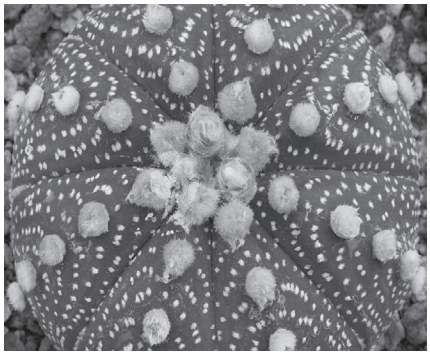
Over 800 people came to UC Davis for the second annual Biodiversity Museum Day, an event co-hosted by the Bohart Museum of Entomology, the Museum of Fish and Wildlife, the Center for Plant Diversity, the Botanical Conservatory, the Anthropology Collection, and the Geology Collection. Nearly 300 visitors found their way to the Center for Plant Diversity and the Botanical Conservatory, where children were provided with a Museum Passport that could be stamped at each location they visited.

At the Center for Plant Diversity, Ellen Dean and alumna Allyson Ayalon rotated giving presentations on plant collecting and the collections area, while Roxanne Fauré and Melanie Kreiss provided instruction on plant mounting and our different types of collections (algae, bryophytes, cones) in the mounting station. Volunteers from Alpha Phi Omega, a campus service fraternity, staffed the Museum Passport station and a microscope demo, where children could smell sage and look at floral details. Several fraternity students also worked at other museums and guided visitors between museums (Thank you, Alpha Phi Omega!).

We received a lot of positive feedback on the day, with the only negative being the walking distance between the museums. Stay tuned for next year!

IN THIS ISSUE

FILLING A NEW GLASS (CONT. FROM PAGE 1)



Star cactus (Astrophytum asterius)
Photo: Barry Rice

to the leaves of carnivorous *Sarracenia*!

As I started growing the dozen or so species that my wife Beth and I selected, I simultaneously embarked on immersing myself in cactus-growing literature. I started to learn some of the truly bizarre tricks of the trade used by cactus growers. For example, did you know that when experienced "cactoholics" buy a plant from big box stores like Home Depot, they remove all the soil and further clean the root system with dish soap, and then hydrogen peroxide? Crazy!!! These maneuvers would melt a carnivorous plant!

Despite my immersion in cactus lore, I managed to make every rookie mistake you can imagine. I used the wrong soil, watered the plants incorrectly, put them in pots too large, failed to fertilize as needed, sunburned them, exposed them to frost, and failed to notice some basic pests. Nothing teaches like failure! And frankly, few lessons are as inexpensive as the cost of a $4 cactus from the Botanical Conservatory plant sales. (Easy for me to say, I suppose, as I am not the one that rotted in the pot.)

A few years into this new hobby, my tastes in cacti are unsophisticated. I am not particularly interested in cultivating difficult or challenging plants that grow at a glacial pace. Instead, I like easy plants that produce absurdly large, gaudy flowers that look like the undergarments of a dance-hall saloon floozy in a cheap western movie. Furthermore, my collection is strictly a glochid-free zone. If you know what glochids are, you understand. If you don't know, consider yourself lucky.

My immature enthusiasm aside, as a botanist I am astonished by the confused state of cactus taxonomy. I keep a list on my smartphone of the 130+ species and cultivars in my collection, but I have had to add to this another set of lists for synonymous names used by cactus nurseries entrenched in older terminology. Do you think that *Lobivia leucomalla* is pretty? Maybe it is already lurking in your collection as *Echinopsis aurea*. Does that *Rebutia menesesii* look like that *Sulcorebutia menesesii*? Of course, they are the same plant—more recently known as *Sulcorebutia arenacea*. No, wait, I mean *Rebutia arenacea*. Or do I have that backwards?

Unfortunately, there are a few stories from cactus-land that could have been lifted directly from the carnivorous plant milieu. Tales abound regarding habitat destruction, poaching by nurseries or greedy hobbyists gone amok, and general degradation of plant populations in the wild.

On the other hand, there were some

Matucana madisoniorum, a globular cactus with a spectacular bloom. Photo: Barry Rice

situations completely new to me. You may know that cacti in the genus *Lophophora* are hallucinogenic if consumed (e.g., peyote). But did you know that some commonly-grown columnar cacti are also psychoactive? Reportedly, you must eat the equivalent of about four bananas worth of cactus, and be ready to get extremely, violently sick afterwards. I even learned (while poking around a very unseemly and disreputable web site discussion forum) that there is a subculture of people who patrol the garden centers of big box stores, and who snatch up the psychoactive species sold there, often on the very day they arrive. It boggles, what people do if they cannot find more productive ways to spend their evenings.

Perhaps one thing I have not mentioned is that my forays into xerophytic horticulture are not limited to cacti in pots. Beth and I have been experimenting with relatively cold-hardy landscaping at our new house in Woodland. When we signed the ownership papers, we knew that the house's drearily unoriginal landscaping had to go. We wanted to completely change the way the front yard looked. We even wanted to…yes…*remove the entire lawn*! (In the U.S.A., removing your lawn is typically viewed as being morally equivalent to slashing tires.) We needed permission from the City of Woodland to do this, and they were certainly suspicious. However, after Beth produced detailed landscaping blueprints, the city cautiously gave us the go-ahead. We ripped out the lawn and sprinkler system, replacing it with drip irrigation. At first, some branches of the Woodland government still resisted, issuing us citation after warning after citation, but these quieted in time. Our front yard is now filled with *Agave*, *Aloe*, *Hesperaloe*, *Manfreda*, and other xerophytic genera that flower all summer long, attracting so many hummingbirds they are almost not worth even remarking upon anymore. Ironically, last summer Woodland selected our home as a showcase for water-conservation landscaping! (Nearly all the plants in our yard are sold by the Botanical Conservatory at the periodic plant sales, by the way.)

Mountain aloe (Aloe marlothii)
Photo: Barry Rice

My carnivorous plant buddies are still somewhat alarmed and concerned by my new interests in horticulture. But my glass has not remained empty. Peaty bog water gone, my glass is refilling with pumice.

Barry Rice

RECENT GIFTS

Herbarium Endowment
Elizabeth Bernhardt
& Ted Swiecki
Beth & Raymond Corbin
Ellen Dean & Thomas Starbuck
Lewis Feldman
Gordon & Delia Harrington
Javier Jaregui Lazo
Julie Knorr
Jack & Ellie Maze
Sue Nichol
MUSCI Natural Resources
Assessment (Stephen & Jill Rae)
Robert & Thomas Rhode
Mandy Tu & Philip Rogers
Frederick Ryan
Craig Thomsen
Jim & Katherine West
(in memory of June McCaskill)
Alan Whittemore
Gary Zamzow & Elizabeth Frawley

Herbarium Operations
Corie Bowie

Herbarium Gifts in Kind
Estate of Barbara and John Hopper
Donald and Nancy Crosby
Katherine Mawdsley
Ellen Dean & Thomas Starbuck
Gerald Dickinson
Daniel Potter

Conservatory Operations
Hoefer Family Foundation
Jean Gifford
Carole Ludlum

Davis Botanical Society Student Grants Fund
Marie Jasieniuk & Frank Roe

Jack Major Student Grant Fund
Tena Farr
J. & M. Foundation

Larry and Charlotte Mitich Student Grant Fund
Mandy Tu and Philip Rogers

Thank you for your support!

THE HERBARIUM ENDOWMENT REACHES $100,000 AND THE CRAMPTON HERBARIUM TURNS 100!

February of 2013 was a hectic month and also a very good month at the Center for Plant Diversity! When we checked the Herbarium Endowment value in late February, it was hovering so close to $100,000 that two final donations took it over the top.

Thank you to all the generous donors who contributed to the endowment this membership year to bring our endowment to $100,000. The endowment was started by a $10,000 contribution from the Davis Botanical Society in the year 2000, and it has slowly grown with donations from all of you. It has been a real group effort!

Daniel Park, current DBS student representative, Daniel Short, Student Assistant at the Tomato Genetics Resource Center, and Jennifer Petersen, past DBS board member and recently graduated Ph.D. of the Potter lab, helped us celebrate.

Current Potter lab graduate students (left to right) Daniel Park, Jorge Pérez Zabala, and Javier Jaregui Lazo spend time with Ernesto Sandoval, Director of the Botanical Conservatory (on the left)

Also noteworthy in February, the Beecher Crampton Herbarium (previously the Agronomy Herbarium) observed the centennial of its establishment. On February 27, over 60 people (including many students, both undergrads and graduate students) came to the Center for Plant Diversity for a very nice party from 4-6 pm.

Ellen Dean, Kate Mawdsley, and Nancy Crosby had combed the archives for interesting photos and other memorabilia that contributed to a historical exhibit on the Crampton Herbarium, including information on its directors/curators: Patrick B. Kennedy, Ben Madson, Alan Beetle, Robert Tofsrud, Beecher Crampton, Grady Webster and June McCaskill. Currently, the Crampton Herbarium is directed by Dan Potter and curated by Ellen Dean, Jean Shepard, Thomas Starbuck, Kate Mawdsley, and many other volunteers who help us on a weekly or monthly basis. Preparing the exhibit made Ellen realize how important it was to document who came to the party, and here are some of Ellen's photos that will be added to the archives!

E. Dean

DBS member Gary Zamzow (left) and Professor of Evolution and Ecology Don Strong (right) spend some time looking at the Crampton Herbarium History exhibit.

HERBARIUM SPECIMENS AS SEEN BY A DATABASER

Agna Mung and Joanna Huang

This article, part of a writing assignment for a class, was written by Joanna Huang who worked in the herbarium databasing specimens for two years, along with Agna Mung and Joyce Ong, They were a wonderful databasing team. All three young women graduated from UC Davis last summer, and they all have jobs in marketing (Joanna), veterinary medicine (Agna), and mortgage products (Joyce). We now have three new student assistant databasers.

"I work at the herbarium." "Oh cool! That's like lizards and stuff right?" "Uhh… no…it's plants. Dried plants mostly." "Oh…interesting…so what do you do there?" "I database plant information." This was the conversation I had with a friend at a student-alumni event for Economics and Managerial Economics majors. (I explained databasing further for my friend, a UC Davis alumnus, but his eyes started glazing over, so I switched the subject.)

Often times, I have found that my friends and classmates have no idea what I do when I say that I database at the herbarium, so I simplify it and say I work at the herbarium. Most of the time, they still have no idea what I do until I mention plants. I have tried using the official name of the herbarium, the UC Davis Center for Plant Diversity, in place of saying "herbarium," but I have found that other than sounding quite impressive, my friends and peers still have no idea what I do. So what do I do? Or, perhaps, a better question to answer before that is "Who am I?" My name is Joanna Huang. I am a fourth-year student at UC Davis. I am double-majoring in Managerial Economics and Japanese and minoring in Writing. Most likely, by the time you see this, I will have already graduated. So back to the question of what I do; well, I database plant information at the herbarium. To be more specific, I enter data from the labels mounted on sheets of dried plant specimens (locality, ecology, coordinates, etc.) in the herbarium database for UC Davis. This information is later transmitted to the Consortium of California Herbaria. Simply stated, I type words into a form that is saved for later reference.

While databasing does not sound particularly glamorous, it is interesting. My fellow databaser Joyce Ong can attest to the fact that sometimes, "It's friggin' scary." As it happens, Joyce had to database the poison oak collection. On the other hand, databaser Agna Mung says "It's cool…" I am sure Agna is not just referring to the cold, temperature-controlled collections room, but trust me, that room is literally "cool." Dangerous plants and cold rooms aside, in one way or another, each of the specimens hold its own unique history. Of course, having seen so many of these specimens, I sometimes categorize them into generational segments, probably because I liked my marketing classes so much that I started incorporating market segmentation into many things… but I digress. Anyway, each generation of mounted specimens shares common characteristics.

Joyce Ong

1) Yellow-brown mounting paper, yellow-brown specimens, and yellow-brown hand-written (usually in cursive) labels characterize mounted specimens from the pre-WWII generations. Generally, there is more personality in their labels due to the handwriting of the collector than in the actual plant specimen. For these older specimens, some parts often have fallen off over time or are in the process of dismounting themselves from the mounting paper. These specimens are more brittle and prone to breakage. Their labels lack specific information and often include only a very general collection location ("Yolo County") and perhaps one or two details about the plant. These labels are sometimes hard to read but once deciphered make for a quick database entry.

2) Off-white to yellowing paper, off-white to yellowing labels, and grey typewritten labels or partially typewritten labels characterize mounted specimens from the Baby Boom Generation. These specimens are generally greener, though some are yellow and in the process of dismounting themselves. Some of these plants were stressed at time of collection, so they look less than stellar. On face value, their labels lack the personality found in earlier specimens due to the printed typeface. Occasionally, however, overlapping typeface will add some depth. Moreover, the organization of information on these labels gives mounted specimens a flavor of their own as the labels follow the collector's thinking process. These labels are much more detailed and are easier to read than those from earlier generations.

Arti Lal (left), one of our new databasers, explains her job to visitors in October

3) Crisp white paper, crisp off-white labels, and entirely printed labels characterize Generation X and Generation Y/Millennial specimens. These specimens are mostly green and glued on tightly (unless collected near the end of the plant's life cycle, when it was shedding petals or seeds). Their labels are formulaically detailed as they follow a specific order of locality and ecology data. Personality for Generation Y specimens comes from the placement of the plant, though they generally do not scream for attention. They are generally subtle and orderly. On the other hand, Generation X specimens, though similar to Generation Y specimens, sometimes scream for attention with their arrangement into heart shapes or other visually appealing shapes. Occasionally, a Generation Y specimen will come with a photograph that shows it in its natural habitat basking under the glow of the warm sun.

In essence, databasing involves looking at many plant specimens and many labels, but it can be fun if you overanalyze each specimen in terms used by a different field. (Psychology majors might have even more fun.) Listening to music helps set a rhythm and can add to the ambiance of databasing. The occasional digression into conversation on other topics with co-workers adds to the fun – everyone loves stories. Speaking of stories, I think I just told you one about my databasing experiences.

DAVIS MISTLETOES

Winter is the best time to see how many deciduous trees in Davis are parasitized by the native bigleaf mistletoe *Phoradendron serotinum* subsp. *macrophyllum* (synonym.: *P. macrophyllum*). Every winter we see this subspecies on many trees that are listed as its hosts in the monumental *Phoradendron* monograph written by Job Kuijt (2003, *Systematic Botany Monographs* 66: 1- 643). Walnuts, ashes and cottonwoods are often on the edge of survival under loads of this parasite. Occasionally we may see it also on willows, sycamores, box elder, and black locust. Oaks are usually infested by a different subspecies (*tomentosum*; synonym: *P. villosum*) and only very rarely by subsp. *macrophyllum*. Interestingly, both subspecies overlap substantially in their distribution from Texas through northern Mexico to California, but there are no conclusive reports of their hybridization.

Over the last few years I have also noticed subsp. *macrophyllum* on some exotic tree species that have never been reported as hosts for this taxon before: silver birch (*Betula pendula*), honey locust (*Gleditsia triacanthos*), callery pear (*Pyrus calleryana*), English elm (*Ulmus procera*), and Chinese tallowtree (*Triadica sebifera*). Obviously, this parasite is not too picky, and birds do a good job spreading it around Davis. We may expect to see this mistletoe on many more tree species in the future.

M. Rejmanek

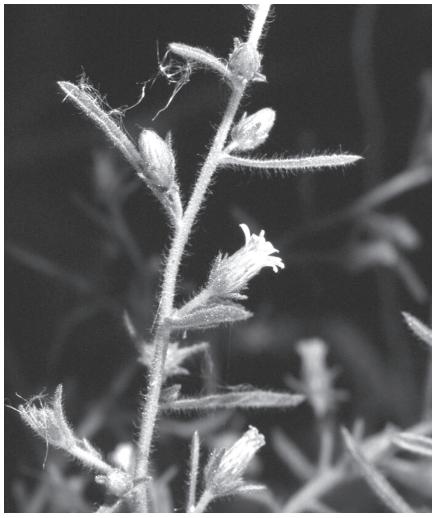
Bigleaf mistletoe on Chinese tallow tree in Davis. Photo: Marcel Rejmanek

INVASIVE STINKWORT QUICKLY SPREADING IN CALIFORNIA

Dittrichia graveolens, commonly known as stinkwort, is a member of the Asteraceae (sunflower family). It is native to the Mediterranean region of Europe and occurs as far east as Turkey, Afghanistan, and Pakistan. Stinkwort is similar in many respects to such familiar California tarweeds as *Centromadia, Hemizonia* and *Holocarpha*, though it is more closely related to *Conyza* and *Heterotheca*. From a distance, however, it can resemble Russian-thistle (*Salsola tragus*), also called tumbleweed.

Like the tarweeds, it is an erect winter annual to about 2.5 feet tall, with sticky glandular-hairy and strongly aromatic foliage. The flower heads consist of short yellow ray flowers and yellow to reddish disk flowers. Stinkwort is an unusual winter annual because it does not begin to grow rapidly until about July. Unlike most late season winter annuals, or even summer annuals, stinkwort flowers do not produce seed until September; the plants continue to flower until December. At this time, most annuals have already completed their life cycle.

Outside its native range, stinkwort has also been reported as an invasive species in Australia and South Africa. It was first reported in California in 1984 near Alviso in Santa Clara County. Over the past 15 years it has been spreading at an exponential rate and has now been reported in 36 of the 58 California counties. The pattern of spread is probably through long distance wind dispersal of seed, animal dispersal when the pappus of the seed clings to the hair or feathers of animals, and movement along transportation corridors when seeds attach to vehicles and equipment.



The sticky, glandular flowers of stinkwort Photo: Joe DiTomaso

While stinkwort is known to occur in riparian woodlands, margins of tidal marshes, vernal pools, and alluvial floodplains in its native range, in California it is primarily found along roadsides. It biology, however, suggests that it could also invade open riparian areas and overgrazed rangelands. Since stinkwort is not palatable to animals, it would not be a welcome component of grazed systems. In addition, it has been reported to cause allergic contact dermatitis in humans.

From greenhouse studies, we have shown that stinkwort is dramatically suppressed when grown under shaded conditions. Thus, like yellow starthistle, stinkwort is not expected to be competitive in understory communities of woodland and forest ecosystems. In addition, its roots grow much slower compared to native tarweeds and yellow starthistle, suggesting that it may not be very competitive in most grassland systems, except in years where there is significant late season rainfall or when competitive winter annual species are removed by overgrazing.

Thus, for now, it seems that the ideal location for its growth is along highways and in open disturbed areas, which is where it is most often found. However, there is some concern that stinkwort can invade and establish in open riparian or wetland systems, where water is not a limiting factor and a slow-growing, shallow root system will not limit its competitive ability. Only time will tell, but in the meantime, it is prudent to remove any new infestations before they test the theory.

Joe DiTomaso & Rachel Brownsey

MUSEOLOGY DAY PROVIDES STUDENT TRAINING

Center for Plant Diversity Director Dan Potter was one of several P.I.s to receive funding from a College of Agriculture and Environmental Sciences Programmatic Initiatives grant for a project entitled "Museology: Synergistic Educational Opportunities," or the "Museology Grant" for short. The proposal effort was led by Tabatha Yang, outreach coordinator for the Bohart Museum of Entomology and the Museum of Fish and Wildlife. The P.I.s were Dan, Lynn Kimsey (of the Bohart) and Andy Engilis (of the Wildlife Museum).

As part of this grant, a training day was held on Saturday, October 6, 2012, at which staff and students from the three different museums cross-trained each other in field collection and curation techniques. At the herbarium we had"stations" focused on particular aspects of herbarium curation. Jean Shepard and Kate Mawdsley gave a presentation on our collections area; Dan Potter and high school student Margaret Starbuck gave a presentation on plant collecting; herbarium student assistants Roxanne Fauré and Jia Huang demonstrated and explained plant mounting; and Tom Starbuck and student assistant Arti Lal gave a presentation on databasing. Staff and students from the other museums rotated through the four stations.

Irene Engilis enjoys our specimen displays in the collections area. Photo: E. Dean

Arti Lal and Roxanne Fauré at the Bohart Museum. Photo: E. Dean

At the other museums, our group was given a tour of the Bohart Museum by Steve Heydon and a presentation on insect collecting by Lynn Kimsey; she set up nets and other traps in the landscaping outside Academic Surge, home of the Bohart. At the Museum of Fish and Wildlife, Andy Engilis demonstrated animal preparation techniques and conducted a tour of their museum, while Irene Engilis gave a presentation on databasing and barcoding.

We learned quite a bit about the different collecting and curation challenges the various museums face. Our students Margaret, Roxanne, Jia, and Arti gained valuable experience both from presenting their knowledge to others (they practiced with Ellen ahead of time) and seeing how things are done in the other museums. In addition, we had a wonderful, informative introductory talk by Heather Moffit, Santa Barbara Natural History Museum's Education and Outreach Services Director.

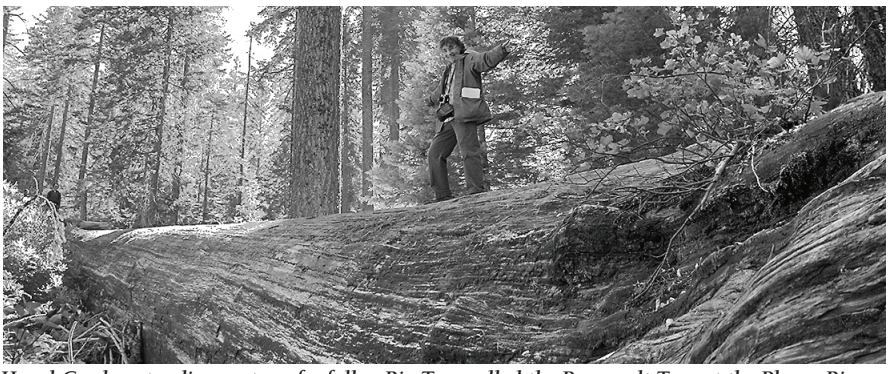
Margaret Starbuck demonstrating plant collecting techniques. Photo: E. Dean

E. Dean & D. Potter

PLACER BIG TREES TRIP IS ANOTHER WONDERFUL DAY

On the DBS fall field trip, held on October 13, 2012, Marcel Rejmanek and Ellen Dean led 16 people to the Placer Big Trees Park, the northernmost grove of giant sequoias (*Sequoiadendron gigantea*). The grove is located on Forest Service land north of the town of Foresthill in Placer County.

Traveling to the grove requires driving a very long, curving road called Mosquito Ridge Road, which passes through a number of points of interest as it dips into and out of tributaries of the American River. Along Mosquito Ridge Road, Marcel showed us a lovely grove of knobcone pine (*Pinus attenuata*), a seep with large evening primrose plants (*Oenothera elata*), a serpentine chaparral area, and a grove of California nutmeg trees (*Torreya californica*). At the knobcone pine grove, three sandhill cranes circled overhead.



Hazel Gordon standing on top of a fallen Big Tree called the Roosevelt Tree at the Placer Big Trees Park. Photo: Deborah Canington

The trip provided participants the chance to compare numerous trees and shrubs, including several genera of conifers, oaks and oak relatives, California snowdrop (*Styrax redivivus*), dogwoods (*Cornus*), and several species of California lilac (*Ceanothus*). Marcel gave a mini-lecture at the Placer Big Trees Park on the effects of fire (or lack thereof), as participants ate their lunch. We all had an excellent day examining late-season herbs, shrubs and trees, comparing notes on how to identify plants, and getting to know each other better.

E. Dean

LYCIANTHES RESEARCH LEAPS FORWARD IN HERBARIUM

Calyx teeth typical of Lycianthes.
Photo: E. Dean

Some of you may remember an article I wrote in 2007 describing some herbarium hopping I did in Mexico. That trip to Mexico was related to my research on the mostly tropical genus *Lycianthes* in the tomato family. *Lycianthes* is distinguished by having a calyx with ten linear appendages, sometimes called calyx teeth, and anthers that open by pores, rather than slits. Calyx appendages can also be found in the green pepper genus (*Capsicum*), which is a very close relative of *Lycianthes*. *Lycianthes* includes the beautiful horticultural shrub *Lycianthes rantonnetii*, sometimes called potato bush, which is planted in Davis and elsewhere. It is covered with purple flowers for much of the year – a very striking plant.

In 2007 I received a small grant to visit herbaria in Mexico to gather data for my contribution to the *Flora del Bajio*, a floristic work that covers several states in the central part of Mexico. I finished my keys and species descriptions of *Lycianthes* for *Flora del Bajio* in 2011; I also finished my contribution of *Lycianthes* for *Flora North America* in 2010.

Lycianthes has some very interesting floral characteristics that I studied as a graduate student. Most species have flowers that open and close each day for several days in a row, like a tulip or a crocus. The cells expand on the inside of the corolla to open the flower, and then the cells expand on the outside of the corolla to close it. As a result, the corolla grows in size from one day to the next, and the size of a first-day flower is quite a bit smaller than a flower that has opened for five days in a row. The stamens also change in length over the life of the flower. This change in floral size has caused quite a bit of confusion in *Lycianthes* taxonomy, because some taxonomists have tried to classify *Lycianthes* species based on floral morphology, and they sometimes have called one species two different names based on floral size or stamen length.

Another problem with *Lycianthes* is that most species open their flowers very, very early in the morning, and herbarium specimens often have closed flowers which have to be dissected open. In order to press specimens with open flowers, I saw dawn (not sunrise, but dawn) every morning during my field work in Mexico. I actually became fond of dawn, when the first pale light of day frames the mountains. Since I couldn't be everywhere I needed to be at dawn, I learned to collect the plants in plastic bags and stick them in a closet or other dark place in the van overnight. At dawn the next morning, I opened the bag, and the plants had opened their flowers ready for my camera.

Unequal stamens in Lycianthes.
Photo: E. Dean

This past September I welcomed the opportunity to host a graduate student, Miriam Reyes, who is working on *Lycianthes* for her Master's thesis at UNAM in Mexico City. Miriam was here for five weeks, working on an interesting group of *Lycianthes* that grow in Mexico and Central America. The species of the group she is studying lack the distinctive linear calyx appendages and have flowers with equal stamens. We looked at all the species of her species group together, but we also branched out and looked at numerous other species that she is including in her phylogenetic analysis. It was wonderful to share my knowledge of the genus, including floral morphology, with a graduate student, and Miriam was a delight. I really lucked out, since she lived with my family for five weeks. She could even sing the "soft kitty" song from my favorite television show, "The Big Bang Theory."

Miriam Reyes in the herbarium.
Photo: E. Dean

Miriam and I started working on a second group of species, called the Tricolor Group, characterized by corollas with green nectary dots near the insertion of their stamens on the corolla. The species that the Tricolor Group is named for, *Lycianthes tricolor,* was first described in the late 1700s based on a painting that is now housed at the Hunt Institute for Botanical Documentation in Philadelphia. Our National Science Foundation REU student, Roxanne Fauré, is helping me finish up the data collection for that work. Numerous volunteers and students have helped me measure specimens over the past five years, including DBS members Deborah Canington and Gene Thomas, and I am very grateful for their support.

Some floral characters of *Lycianthes* are not well preserved on herbarium specimens. Field work is really important to examine the floral characters, but it is becoming increasingly difficult to go to some of the places where *Lycianthes* grows. In January I was included in a National Science Foundation prepro-posal for taxonomic work on *Lycianthes*. I will keep you posted on the success of that application. Perhaps I will fulfill my dreams of getting back into the field to observe and collect *Lycianthes* in Central and South America. Keep your fingers crossed!

E. Dean