Aquatic Plants Display

The University of California Botanical Garden has long been known for its dry-land plants, but now it is time to turn over a new leaf. We’re going to try water plants, not on a large scale, but housed in a series of containers at one of multiple sites under consideration (keep your eyes open). In the same connection, also in the works is renovation of the “school pond” at the entrance to the Mather Grove. Aquatic plants and associated creatures are perfect for education, as well as pleasing to the eye; they will allow us to open new windows on plant diversity, to show off remarkable adaptations, to discuss ecological principles and to showcase plants that have important roles in human affairs. The idea goes back to former Garden Director Dr. Robert Ornduff, who now has offered to work with Education Director Dr. Carol Baird on planning an exhibit that will make a splash!

We cannot build the exhibit without financial backing. So, for that, all those who enjoy the display will be indebted to Eleanor and William Bade, Gladys Eaton, Elizabeth Hammond, Eleanor and Jack Higson, Drs. Evelyne and David Lennette, Mountain View Cemetery, Robert Ornduff, Mary and John Ricksen, Bob Riddell, John Thomas, and Myrtle Wolf.

We take pride in the diversity of our plant collections. The best way to extend our diversity is to find new habitats, and aquatic habitats are especially rich. Several plant
families live entirely or predominantly under wet circumstances. And, perhaps of more interest to casual Garden visitors, many everyday plant groups have astounding aquatic relatives. For instance, lots of folks readily recognize “aroids,” members of the Araceae family: philodendrons, calla-lilies, anthuriums and jack-in-the-pulpit. Related to these are the tiny “duckweeds,” which float on the water surface. Duckweeds are the smallest flowering plants. Superficially similar to these are small floating ferns, one of which, Salvinia, has leaves in groups of three, two looking like floating leaves, the third looking like a root dangling into the water. Some plant groups are amphibious, such as the genus Sagittaria, to which the arrowheads belong. To differing degrees, Sagittaria species tend to tolerate conditions ranging from moist soil to living completely submerged. Even within a single Sagittaria species, the form of the plant can depend on the water level, with those on dry land scarcely recognizable as belonging to the same species as others grown under water. Even on an individual plant, the submerged seaweed-like leaves can be radically different from those out of the water. This phenomenon has the practical consequence of making classification and identification of sagittarias a headache. To this day, their classification is confused.

**Unusual Adaptations**

Life in the water presents plants with peculiar adaptive challenges. Some water plants have balloonlike floats on their leaves; the best known is water-hyacinth (Eichhornia crassipes). Others have floating flowers, fruits or seeds. Plants on terra firma exchange gases readily with the air. Gas exchange through water is far slower, requiring a high surface area, thus the thin and/or highly dissected foliage on water plants. Many species of wet habitats have puffy spongy tissue called aerenchyma (air-en'-ka-ma), which facilitates ventilation from parts exposed to the air to parts under water, or under mud.

Obtaining adequate nitrogen can be a problem in wet habitats, and many wet plants supplement their nitrogen intake via carnivory. Bladderworts (Utricularia) have tiny sacs on their leaves—the sacs are traps equipped with a trap door and trigger hairs. Creature-to-hair contact pops open the trap door, and the trap slurps in the passerby for digestion by the plant. Extremely tiny free-floating ferns known as Azolla have a different adaptation to obtain supplemental nitrogen: they possess microbes known as blue-green algae, trapped in folds in their leaves. The blue-green algae capture nitrogen in forms not useful to most other plants and convert it to useful forms recoverable by the Azolla. Azolla is common in many rice paddies, supplementing the nitrogen there. Here is one aquatic plant helping another feed the world.

Water-lily flowers (of the genus Nymphaea) murder the bugs that pollinate them. The flowers are roughly bowl-shaped, with a pool of liquid at the center of the bowl. At the bottom of the pool is the stigma, the pollen-receptive surface. Surrounding the pool is a palisade of anthers, the pollen-making organs. On the day the flower opens, the pool is exposed, and insects fall in and drown. If they have pollen on their bodies, it washes off in the pool, and settles onto the stigma, pollinating the flower. Then some of the stamens bend inward and block the pool, so that now visiting bugs are dusted with pollen and escape...only to fall with their pollen into the pool of another water-lily flower, pollinating it.

Eelgrass (Vallisneria) has separate male and female flowers. The male flowers are released underwater from the parent plant, bob unattached to the surface, and drift away. The female flowers remain attached to the plant by coiled stalk. The male drifters occasionally eddy into the female flowers, whose pollen-receptive stigmas rest on the water surface in a little sunken dimple. The male flower slides downward into the dimple and capsizes onto the female, pollinating it. Then the springy stalk pulls the female underwater for protected fruit development. A few other aquatics release pollen directly into the water, and, although underwater pollination is rare, it is known. In fact, in a different aquatic also called eel grass (Zostera), the pollen “grains” are threadlike, making them easier for the stigmas to snag as they drift by.

The grain-of-rice-sized fruitlets of the plant called “Texas mud babies” (Echinodorus cordifolius) bear glistening spots. These are generally interpreted as helping the fruitlets stick to waterfowl, who inadvertently disperse the species from pond to pond. Similarly, the
seeds of the pondside arrow-arum (*Peltandra*) have a gummy sticky covering, also evidently adapted to sticking creatures with dispersal duties.

**Plants of Special Interest in Human Affairs**

The ancient sacred lotus enjoyed by Cleopatra while bathing in the Nile was a water-lily of the genus *Nymphaea*, closely akin to those seen at the Garden. Egyptians used lotus as decorative images, as a source of flour, and as narcotics. The Mayans in Mesoamerica, presumably independently, discovered the very same uses for New World *Nymphaea* species. And, speaking of the Nile, papyrus is an aquatic sedge that is pretty and readily cultivated. Before long, we hope that UCBG docents may demonstrate how parchment was made from papyrus.

Water plants, which don’t need watering, and which tend to live in ample sunlight, can grow like gangbusters, with significant consequences. They can become pests, choking waterways, displacing desired vegetation, and even polluting the water. There is a good side to such ability—maybe someday such productive growers can be used to make foods, fuels, or industrial products. There are precedents: for example, the ancient Aztecs used an algal pond scum as a significant source of protein, and the harvest continues up to this day. Anything that grows rapidly in the water takes up nutrients in large quantities, and that can be beneficial, say in overly nutrient-rich sewage effluent. Finding uses for the plants transforms harmful nutrients in the effluent into benefits.

**Plants of Conservation Interest**

Some water plants create conservation issues by overwhelming otherwise stable ecosystems. The exotic flower *Lythrum* is a prime example, having overrun no doubt millions of acres of marshes and wetlands. Other wetland species have become rare, or extinct, with destruction of aquatic habitats through development, pollution, diversion, agriculture or filling. Wetlands are home to beautiful, unique and fragile life forms. That is why they receive special legislative protection, and why showing rare wetland plants will be attempted in our aquatic plant display. Some of my favorites are members of the showy Hibiscus Family (Malvaceae), such as the exquisite Kankakee Mallow (*Hymenocallis*), which is known from just one island in one river.

So, you see, an aquatic plant display will allow a peek at an amazing and often overlooked corner of the plant world. It’s a corner where there is something to absorb anyone interested in plants from whatever standpoint: beauty, ecology, gardening, significance to humans, novelty and conservation. When visiting the Garden, watch for this new addition.

—George Rogers

**Planning the Planning**

The UC Botanical Garden faces an exciting array of decisions about its future, ranging in nature from the abstract (what is the best role for a university botanical garden?) to bricks and mortar (which potential major projects should we plan to tackle?) to the personal (who should be doing what?) to the seemingly trivial (where should a new bike rack be placed?). Some of the decisions reach into untested waters (should the Garden conduct research, or initiate new publications?). This is no easy matter: every question prompts a dozen more questions, and each is linked to every other question: where do we place that bike rack? That depends on plans for the Garden entrance area, and that is tied to aspirations for a new building. Should an undeveloped portion of the Garden be developed horticulturally, and if so, how? That depends on staffing levels and job duties, which would be influenced by the matter of major projects. It further depends on educational intentions, these tied to the Garden’s role in the University. And so forth.

The only way to move forward efficiently is to plan on as many fronts as possible at once, and to coordinate the plans. And it is critical for the planning process to be inclusive—to draw upon all the knowhow and talent, and all the standpoints connected with the Garden (and some not already connected). The idea is to make certain that, for instance, educational plans and resources dovetail with horticultural intentions, that our development activities tie in as they should, and that our ambitions are feasible. Toward this end, the entire Garden staff has begun assembling and debating issues weekly. The Friends of the UC Botanical Garden have a unique and valuable perspective, and are beginning to work with me on joining in.

Outside consultants are being sought, including a Museum Assessment specialist provided by the Institute of Museum Services. Participants will divide into task forces to look into questions in depth. An educational task force is already forming, and not far behind are others devoted to horticultural planning, building and grounds, and additional aspects of UCBG life. Our UC Faculty Advisory Committee will coordinate and advise the task forces.

Botanical gardens are tough planning challenges—even when the overall mission is well-defined, the diversity of activities, participants and often funding sources tends to make forward motion sluggish or even fragmented. Our aim is to enjoy our diversity, interconnect the different fronts by means of good communication and common purpose, and enter the next millennium as the nation’s foremost university garden.

—George Rogers
GARDEN NOTES

Events: In September the Dean of the College of Natural Resources, Dr. Wilford Gardner, brought students in his freshman seminar, Dean's Night Out, up to the Garden for an evening tour, followed by a picnic, and concluding with conversation and stories in the Meeting Room. What a great initiation into the University!

On September 10 the Senior Scientific Officer in Horticultural Training at the Royal Botanic Garden, Edinburgh, Scotland, David A.H. Rae, visited the Garden and met the staff. Mr. Rae had earlier circulated a questionnaire to all the known botanical gardens of the world, requesting input on the role of botanical gardens in conservation, and had received a remarkably high level of response; his visits to selected U.S. gardens were meant to follow up on the responses in more detail.

Meetings: Sean Hogan (New World Desert, African Hill) presented two papers at the International Cactus and Succulent Society meetings held in San Francisco in July. Mesoamerican area horticulturist Martin Grantham and Propagator John Domzalski participated in the annual International Plant Propagator's Conference, held in Seattle, Washington in September. And both Martin and Education Director Dr. Carol Baird spoke at the Pacific Regional Meeting of the American Association of Botanical Gardens and Arboreta (AABGA) held this October at Strybing Arboretum. Assistant Curator Holly Forbes and the Director, Dr. George Rogers, attended the national Center for Plant Conservation meetings in Asheville, North Carolina during October.

Extra Hands: During the summer Garden Manager Daniel Campbell engaged additional helpers for garden maintenance. He was especially excited about the high school group YES, whose representatives were industrious, enthusiastic and willing to deal with unpleasant tasks (removing blackberry brakes and shoveling dusty mulch).

Docent Training Set To Begin In January

Although the Docent force at the Botanical Garden now numbers 82 people, most of them active in leading tours for school children, adults and University students, this is still not enough to deliver our growing number of programs to our ever-expanding audience. Last spring saw many docents leading as many as six groups each month, a lot to ask of volunteers, particularly when you consider that, as "garden people" or "outdoor people," they have a great many other things to do and places to be at that time of year, and that other life activities continue and sometimes accelerate.

The next Docent training program is set to begin on January 3, 1994, and will continue until May 23, Monday afternoons from 1-4 p.m. at the Garden. The training program includes 18 sessions devoted to basic botany, ecology, ethnobotany and nature interpretation. Participants will have the opportunity to learn from distinguished experts, and to become intimately acquainted with the Botanical Garden. There will be plenty of time to practice giving tours and to pick up helpful hints from experienced docents.

If this sounds like fun, or if you know someone who might enjoy the challenge of learning more about the plant world, ecology and conservation, and sharing it, please call (510) 642-3352 for more information or an application.

—Nancy Swearengen

Over 200 members of the Cactus and Succulent Society took a break from their July meeting in San Francisco to visit the New World Desert section.

Project YES kids helped enormously with Garden maintenance this past summer.

—Carol Baird
PROGRAM HIGHLIGHTS

Unexpected Bonus

There's been a sudden bustle of activity in the Education department and Program Committee in the last several weeks, as staff and volunteers scurried about to fill a newly vacant Fall program calendar. No plans had been made for indoor programs in the Garden this autumn, since a complete renovation of the Meeting Room was in the ofing for September through December, but last-minute delays in the construction schedule (the project will now take place next summer) opened up three months of Saturdays, Sundays and weekday evenings. Normally we plan our calendar six to twelve months ahead of the event, so the pressure was really on.

But serendipity is a wonderful thing. Out of the blue we received a note saying that the Associate Director of our sister garden in Costa Rica (Gail Hewson de Gomez) was planning a visit to the Bay Area, and would we like a speaker? And volunteer Krishen Laetsch quickly contacted his acquaintance, Bill Fujimoto, of the Monterey Market, who subsequently put together a mangificent program on unusual foods and how to use them, with the help of an energetic organic farmer from Brentwood, Alfred Courchesne. Mark Plotkin, the renowned ethnobotanist, phoned to say he'd love to present a short program on his latest work, at the Garden. And two of our own staff (Peter Klement and Martin Grantham) volunteered to give one of their famous Mutt and Jeff travel talks.

Upcoming Programs

Continuing the Latin America theme kicked off by the Gail Hewson program, Mark Plotkin, and Klement and Grantham, the UCBG Director (George Rogers) will deliver a program on plant explorations and adventures in Guyana, Venezuela, Brazil and Colombia in early November. Dr. Rogers has a huge collection of tropical slides, and entertaining stories to share.

We're also focusing in on trees this fall, with Mai Arbegast's tour of campus trees later this month and Dr. Glenn Keator's tree course in the Garden. Glenn plans to be back with us in mid-winter for a joyous romp through the world of plants, in a Saturday morning talk on biogeography. Also in January, the ever-popular Rose Pruning workshop will take place, with Peter Klement. And our own Daniel Campbell (Garden Manager), having led two tours to France for the Garden, will give the armchair version in January, embellished by magnificent slides of the gardens of northern France, and Daniel's mouth-watering accounts of French cuisine.

---Carol Baird
Europe, with pine forests, and vast tracts of “chaparra” dominated by scattered deciduous oaks, the Strawberry Tree (Arbutus unedo, a relative of our madrone), the heathers Erica arborea and Calluna vulgaris, brooms, several striking species of Cistus, lavenders, the palm Chamaerops humilis, and numerous other shrubs and small trees that are now important components of California horticulture. There are also extensive forests of the Atlas Cedar (Cedrus atlantica), with an admixture of firs, alders, birches, and maples. The Rif range lies mostly in old Spanish Morocco; a very large grassy meadow at the town of Ketama is still called the Llano Amarillo. These mountains receive the highest precipitation of any place in Morocco.

South of the Rif mountains are the three Atlas ranges: the Middle, High, and Anti-Atlas. All are easily accessible by good paved roads. The Middle Atlas supports fewer tree species than does the Rif, but in the wooded region around the ski resort of Ifrane, one can find showy herbaceous plants such as Scilla peruviana, peonies, bee orchids, and Cerinthe. Cedar forests abound here, too, and if you are lucky, you may spot Barbary Apes in these forests, as I did on one of my visits. One of King Hassan’s residences is here, too—this one modeled after a Rhenish castle and looking very much out of place.

Next are the magnificent High Atlas mountains, the highest of all the Moroccan mountains, with many peaks above 10,000 feet in elevation and a few above 12,000 feet. In less than two hours from the ancient walled city of Marrakech, which lies on a sloping plain that stretches to the Atlantic, one passes through oak forests and eventually reaches timberline and the snow-clad peaks above it. Here one can find enormous drifts of hoop-petticoat daffodils, gentians, romuleas, Ornithogalum, and ground orchids; in rocky areas there are many colorful cushion plants and the familiar daisy, Anacyclus depressus. In late spring local villagers collect hundreds of pounds of morels from the moist forests on the slopes of this range, but the fate of these fungi is mysterious since never have I seen them listed on the menus of local restaurants.
The Anti Atlas range is the southernmost of the three Atlas ranges; its southwestern tip lies not far from the Atlantic coast. Slopes on both sides of this fairly dry range support extensive scattered woodlands dominated by the argan tree—*Argania spinosa*, a member of the mostly tropical sapote family. The trees superficially resemble olive trees (of which thousands are cultivated in Morocco), but the two are unrelated. The argan tree has many uses: its fruits are eaten by cattle, sheep, and goats. Its seeds provide a cooking oil when pressed. The wood is used in building and for fuel. Even the local goats have learned to climb these trees and munch the foliage; a stop for a closer look will usually bring a shepherd out of nowhere with a suggestion that for a small gratuity he would allow you to photograph his charges. The local populace apparently realizes the enormous importance of the argan tree to their lives, since the trees are rarely cut down—merely "pruned."

Touristic literature claims that the Atlantic coast city of Agadir is the closest locality to Europe where the ocean temperatures allow swimming during the middle of winter. Perhaps associated with these mild winters is the distinctive coastal vegetation, that begins at Cape Chir north of Agadir. The scrub-dominated vegetation here is fairly dense, apparently mostly inedible for goats, and dominated in places by very large shrubs of succulent composite *Kleinia antieuphoria* and of *Euphorbia echinus*, giving the landscape an appearance very similar to that of the Cape region at the southern end of Africa. The antiquity of some of the euphorbias is evidenced by the rich growth of lichens on the older trunks. During one visit to this region I was fascinated by a striking plant that parasitizes the roots of the euphorbias. This proved to be a member of the witchweed genus *Striga*; the flowers and nearly leafless stems of this parasite are a rich amethyst color. Since witchweeds belonging to other species are noxious agricultural weeds, I gave up on the notion of collecting seeds of this species and trying to get them to "taste" our many succulent euphorbias on African Hill.

My first visit to Morocco was in the late 1960s; in 1993, 60 percent of the Moroccan populace was 20 years old or less. Thus, since I first saw the country, its populations had more than doubled. Since my previous visit to Morocco had been in 1972, I wondered what devastation this increased population might have wreaked on the forests, scrublands and plains. Amazingly, things looked pretty much the same. There are still many secret corners of Morocco that are probably much as they were a few hundred years ago. One sunny day my traveling companions and I turned off a main road along the foothills of the Anti-Atlas and took a narrow, unpaved road that ascended a granite-walled canyon. Soon, the canyon was so narrow that it could accommodate only the roadway and a beautifully clear stream that flowed alongside. The stream soon became lined with native oleanders in full flower, their pink petals in striking contrast to the gray granite canyon walls and the bright blue sky above. During our morning in this beautiful canyon, we encountered only two vehicles, and only two very small farms where the owners had managed to plant tiny fields and orchards on the narrow bluffs above the stream. This corner of the kingdom has survived the human pressures that are building in Morocco and, hopefully, it will remain an Eden for many decades to come.

—Robert Ornduff
A Kid’s-eye View of Greenstuff Daycamp

Yuck, Greenstuff! I’ve always hated greenstuff, anything that even slightly resembled spinach, brussel sprouts, or zucchini was immediately given to Buffy underneath the table. But after attending a week of Camp Greenstuff, I began to love those horrible vegetables. I’ll never say “Yuck” again, well, maybe to brussel sprouts. I must admit when my mom told me that I was going to the UC Botanical Garden summer camp for a whole week, I thought that she was trying to torture me. I wanted to have fun at camp, not learn stupid stuff about boring trees and flowers. Moms are pretty smart, because I actually had a super duper time at this camp.

The first day was really scary because I didn’t know anyone. The counselors, Tegan and Greg, seemed goofy. I wonder if they are married? We began by making name tags out of wood chips. I chose a cork wood chip. There were twelve other girls and only two boys in camp. Yea! Boys can be so annoying, except I like Gregarina Ballerina, that was our nickname for Greg, and of course my Dad.

My favorite activity on Monday was playing Plant Sleuth. It’s really cool because almost everyone is the same age. I’m in fifth grade, so I got to help the younger kids who couldn’t read. Anyway, we got to investigate and examine fungi, cactus skeleton, ferns, mosses, slime molds and even plastic flowers, to decide whether or not the item was a real plant. I still can’t believe the fifth item on the Plant Sleuth table was a fossil of a bird feather and not a leaf!

After this activity we began our initial exploration of the actual gardens. We finally got to see this beautiful place! We did a scavenger hunt, walking around the Garden looking for neat stuff, like a camouflaged insect, three different types of leaves, and a lizard. Brian even found some fairly new deer bones! As we walked around the herb garden, along the creek and up through the California garden, Greg and Tegan were telling us to use all five senses in order to feel, smell, taste, look and listen to everything around us.

One of the best things about camp was all of the arts and crafts we got to do. I love art! We made beads, clay pinch pots, paintings, god’s eyes, wax candles, and I even got to tie-dye two t-shirts—one is for my little sister! We made collages out of pressed flowers and colorful seeds, nature prints, and even did some fern rubbings. The spores can make neato designs.
Tuesday we did some gardening. First we planted alfalfa seeds, then went to the section of the Garden that’s like a farm and chose any seed we wanted to grow in our pots to bring home. I chose a cotton seed while my friend Susie picked cantaloupe. During snack time, Greg and Tegan cut up some vegetables for us to eat besides the usual cookies and juice. I never knew that broccoli was a flower or that carrots are roots! After eating tons of grapes, carrots, celery and broccoli, we all needed to do some running around on the lawn. Later on, some adults came to the classroom to take us on their new Creek Walk tour. I got to check what the pH was in the creek (riparian—that’s what a creek’s area is called), and the other kids checked the temperature or looked to see what pollution was in the water. We learned about the plants and the food chains around the creek and played lots of games.

Wednesday was otherwise known as flower day. I learned about parts of the flower and looked at sunflowers under the dissecting scopes. There were ants on my flower! Tegan and Greg told us about pollination and which flowers attract which insects and animals because of their different smells and colors. Did you know that hummingbirds see red better than blue? Then I got to pick my favorite smells from around the rose and herb garden. We were allowed to collect a few petals of our favorite smells and made perfume with them later. Afterwards, we made pinecone birdfeeders and put them outside so the birds could enjoy lunch with us. In the afternoon I became a florist and designed a beautiful bouquet for my mom. She loved it; the perfume she told me she would save for later!

The desert, chaparral, serpentine, and forest were the four California sections that we explored on Thursday. Did you know that serpentine is California’s state rock, and that a red dot on a label means this plant is rare or endangered? A highlight of the day was the blindfolded walk into the redwood grove. Greg and Tegan told us to touch, smell and listen while they led us around the paths. Yuck! Tegan made us touch a cold, slimy banana slug! Later on, we decided to blindfold Greg and Tegan, and we led them on a blindfolded tour. We had to stop when they almost ended up over the bridge!

Friday was one of the best days. First, some docents came and taught us about the Native Americans. We learned about the plants that they used everyday to make rope, baskets, fishing line, and tons of other stuff. I tasted some chia seeds, and believe me, I was still able to eat snack and lunch. I don’t believe that Native Americans would eat a spoonful and nothing else for the rest of the day. Later on in the day, we wound up in the tropical house trying to find the dwarf pineapple, cocoa, vanilla, and coffee trees. We sang and danced to the “Rainforest Rap” video at least three times while looking at some of the products made from the rainforest. My favorite is Ben and Jerry’s Rainforest Crunch! Before I knew it, it was time to go, and the whole week had flown by. I organized all of my stuff to take home. I could barely carry everything, and almost dropped my Venus Fly Trap. I said “Bye” and hugged Greg and Tegan, exchanged phone numbers with some of my new friends. Hopefully, my mom will take me up to the Garden again really soon! Now, I love Greenstuff!

—Tegan Churcher
Words of Appreciation

The Friends are immensely grateful to many who made our April Napa Estate Garden Tour such a success. The generous hospitality and gardens of Mr. and Mrs. Eugene Trefethen, Mr. and Mrs. Francis Ford Coppola, and Mr. Gil Nickel, proprietor of Far Niente Winery, set the stage for a perfect day. Our tour leaders, landscape architect Jonathan Plant, who was showing two of his beautiful gardens, and Victor Yool, Dr. Bob Raabe, and Daniel Campbell, charmed the participants with their knowledge and enthusiasm. And Mr. Calvin Rainey, general manager of Golden Gate Fields, made it possible for the travelers to park in Berkeley and leave the driving to us. To all who joined the tour and contributed to this fundraising venture, your support is truly appreciated. It was a splendid day.

—June Smith

Holiday Gifts

If you are looking for a Holiday gift that will be meaningful and useful the year around, call the Friends membership office at 643-7265. Many Garden memberships are given as thoughtful gifts and the membership office often hears how much they are appreciated. And, you may charge a gift membership on your VISA card.
New Members
The Friends of the Botanical Garden welcome the following new members:

In Honor
The Friends offer appreciation and thanks for gifts from these donors in honor of:
Mr. & Mrs. Robert Riddell and Mrs. Marianne Meyer, from Mr. & Mrs. Jack Dreiman
Libby Hammond, from Elly Bade

Gift in Kind
The Friends offer appreciation and thanks for gifts in kind.
Jack Dolhinow Dr. Stephanie Kaza Jim Jones Phyllis Lewis John D. Kaufman

Friends of the Botanical Garden Membership Application
Yes, I would like to support the UC Botanical Garden at Berkeley as a member:

☐ Student* ........................................ $10  ☐ Sponsor .................................... $250
☐ Individual .................................. $25  ☐ Patron .................................. $500
☐ Family ...................................... $35  ☐ Benefactor ................................. $1000
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Name
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☐ My employer has a matching gifts program. I have enclosed the appropriate forms.

Contributions are tax deductible. Please make checks payable to Friends of the UC Botanical Garden and mail to:
Friends of the Botanical Garden, UC Botanical Garden, Berkeley, CA 94720

*Full-time only.

Special Thanks
The Friends wish to thank these donors who have made a substantial gift over and above membership.
Wanda C. Branson The Estate of Addie Collins Mr. & Mrs. Theodore H. Geballe Kathleen A. Graeves Mr. & Mrs. Robert H. Heidlauf Adele H. Himberg Mr. & Mrs. Richard A. Hotaling Kathleen J. Karol Peggy Klenz Drs. David & Evelyne Lennette, for Educational Program Interns
MT. DIABLO IRIS SOCIETY

In Memory
The Friends offer appreciation and thanks for gifts from these donors in memory of:
Jerry Beatty, from Nancy Swearengen
Suzanne Claudson, from Elaine & Arnold Grossberg
Peggy Klenz Selma F. Monsky
Addie Collins, from Elly Bade
Dr. Carol Baird Estar Baur John S. Burton Deborah Darnell Dr. & Mrs. Bernard Dietz Laura Festinger Evelyn Givant Ethel B. Hardy & family Kate Heckman Jo Larson Lizzie Lee Myrtle Wolf

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Yvonne & Edgar Baker Jess & Crawford Cooley Robin Quist-Gates

Jackson Laslett, from Kate & Harry Heckman
Isabel McKay, from Nancy Swearengen
Richard Vlach, from Kate & Harry Heckman

MEMBERSHIP
The Friends of the Botanical Garden offers public education programs and provides independent funding to support the many needs of the Garden. You can enjoy and support the Botanical Garden year-round by becoming a member of the Friends of the Botanical Garden.

Membership benefits include:
• Newsletter
• Workshops, lectures, and tours
• Discount on Visitor Center purchases
• Discount on educational classes
• Early admission to Spring Plant Sale
• Volunteer opportunities
### October

**Latin America Program:** Mark Plotkin, Ethnobotanist  
**Fri, Oct 1**  
Mark J. Plotkin, internationally known ethnobotanist and author of *Tales of A Shaman's Apprentice: An Ethnobotanist Searches for New Medicines in the Amazon Rainforest*, will present a short talk on his work in the Amazon, and will sign books. Meeting Room. 4:30-6:30 pm. $5 members, $8 non-members.

**Plant Clinic:**  
**Sat, Oct 2**  
Bring your ill plants to see Dr. Robert Raabe, UC Plant Pathologist. First Saturday of the month, 9am-12, Meeting Room.

**Tour of the Month: Plant Travelers**  
**Sats, Oct 9, 16, 23, 30**  
Free Docent-led tour of the of the Garden, specializing in the fruits, seeds, pods and other means of dispersal of many of our plants. Meet at 1:30pm at the Tour Orientation Center.

**Friends Annual Meeting**  
**Sun, Oct 10**  
Family picnic on the lawn at noon, followed by Annual Meeting (1:00 pm), with tribute to Elizabeth Hammond. Members are invited to come and meet the Director, Dr. George Rogers.

**Latin America Program:** From Beaches to Beeches  
**Wed, Oct 13**  
The second in the series features UCBCG Horticultural Staff members Peter Klement and Martin Grantham who will present a slide talk on their adventures chasing plants in the wilds of Chile. Meeting Room. 7-8:30 pm. Members $5, non-members $8.

**Trees of the UC Campus**  
**Sat, Oct 23**  
Mai Arbegast, noted landscape designer, along with docents of the UC Botanical Garden, will lead you about the campus to see and learn about its spectacular gingkoes, dawn redwoods, wine palms, and others. Fee includes a copy of *Trees of the Berkeley Campus*, prepared by the Forestry Department. Members $10, non-members $15.

### November

**Plant Clinic:**  
**Sat, Nov 6**  
Bring your ill plants to see Dr. Robert Raabe, UC Plant Pathologist. First Saturday of the month, 9am-12, Meeting Room.

**Holiday Decoration**  
**Sat, Sun, Nov 6 & 7**  
with Janet Farina, proprietor of Berkeley's *Freshly Cut*. Meeting Room. Members $30, non-members $40, materials included.

**Tour of the Month: Docent’s Choice**  
**Sats, Nov 13, 20, 27**  
Free Docent-led tour of the of the Garden. Meet at 1:30pm at the Tour Orientation Center.

**Latin America Program:** Travels North of the Amazon  
**Wed, Nov 10**  
Our Garden Manager, Daniel Campbell, who helped lead the Friends tour to France last spring, presents a delightful and informative slide talk on the group's adventures, both horticultural and culinary.

**Rainforest Rap**  
**Jan-Mar**  
Program on tropical forest ecology and conservation, for school and other groups. By reservation only. Meeting Room. Mornings. Modest group rate.

**Docent Training**  
**Mon afts, Jan-May**  
Our 1994 docent training program includes 18 sessions devoted to basic botany, ecology, ethnobotany and nature interpretation. Participants will have the opportunity to learn from distinguished experts, and to become intimately acquainted with the Botanical Garden. There will be plenty of time to practice giving tours as well. Phone (510) 642-3352 for information.

### December

**Plant Clinic:**  
**Sat, Dec 4**  
Bring your ill plants to see Dr. Robert Raabe, UC Plant Pathologist. First Saturday of the month, 9am-12, Meeting Room.

**Holiday Plant Sale**  
**Sat, Dec 4**  
Bromeliads, cacti, ferns, orchids, succulents, and bulbs are featured at this colorful plant sale, held in the Meeting Room and Visitor Center, 10 am-3 pm.

**Tour of the Month: The Glass Houses**  
**Sats, Dec 11, 18**  
Free Docent-led tour of the Desert/Rainforest House, Carnivorous Plant/Fern House, Tropical House. Meet at 1:30pm at the Tour Orientation Center.

### January

**Plant Clinic**  
**Sat, Jan 1**  
Bring your ill plants to see Dr. Robert Raabe, UC Plant Pathologist. First Saturday of the month, 9am-12, Meeting Room.

**Rose Pruning Workshop**  
**Sat, Jan 8**  
January is the month to get the most out of your roses! Get a good start in our workshop; you'll learn effective rose pruning techniques, as well as proper pegging for shrub roses, from our resident rose expert, Peter Klement, of the horticultural staff. Reservations recommended.

**Tour of the Month: To Be Announced**  
**Sats, Jan 8,15,22,29**  
Free Docent-led tour of the Garden. Meet at 1:30pm at the Tour Orientation Center.

**A Slide Tour of Northern France**  
**Sat, Jan 22**  
Our Garden Manager, Daniel Campbell, who helped lead the Friends tour to France last spring, presents a delightful and informative slide talk on the group's adventures, both horticultural and culinary.

### COMING ATTRACTIONS

**Biogeography, Glenn Keator**  
**Sat, Feb 19**  
Rumphius, the Blind Botanist from Ambon, George Rogers

**How To Use the Jepson Manual**  
**Sat, Apr 16**  
Botanical Illustration, Linda Vorobik

**Wildflower Identification**  
**Thurs eves, beg. Apr 21**  
Rose Budding

**For further information on classes and events, call the Visitor Center, 642-3343. To register for classes, send checks to UC Botanical Garden. Two weeks advanced notice is necessary to accommodate individuals with special needs. No refunds the week before the class date unless class is canceled. Pre-registration is suggested, as classes fill early. The Garden is open every day of the year except Christmas from 9:00am to 4:45pm. Free public tours led by docents are given on Saturdays and Sundays at 1:30pm. Admission to the Garden is free.**