Kids, Creeks, and Ponds

Garden docents have long been aware of the strong attraction which exists between visiting school children and our aquatic features. During the past several years, the education program at the Garden has developed activities for docent-led tours which capitalize on this natural interest. Currently we offer 90 minute tours on creeks and ponds to Grades 3-6. Let's look at a few of the ways we interpret the Garden's diverse aquatic habitats for this age group.

Creeks

The Garden is one of the few places where people can still see Strawberry Creek flowing naturally. Docents developed a creek walk four years ago which introduces students to the plant species found along creeks in California and to physical aspects of a creek such as water temperature and pH. In the Californian Section of the Garden we use color photocopies of native Californian riparian species as the basis of a treasure hunt. Each student receives a color copy of a plant (or plant part) found along either Strawberry or Winter Creek. After locating the plant, the student shares something interesting about it with the rest of the group. For example, they conclude that to distinguish between blackberry and poison oak leaves one need only look carefully at the leaf margins, even though three leaflets form the leaves of both plants. Students also deduce that the strong fragrance produced by the volatile oils in the California bay tree is a property that makes the tree valuable to cooks today. We discuss Native American uses of bay leaves as insect repellents and headache remedies.

Students investigate plant adaptations to life along a creek. As they tug on the incredibly tough roots of the common rush (Juncus patens), they realize this adaptation enables the rush and the parts of the stream bank where it grows to remain in place when the creek rages past after a downpour. In order to answer the question of how some aquatic plant roots obtain oxygen, students roughly dissect the plant and observe the hollow stems of watercress and water parsley (Oenanthe sarmentosa), which act as conduits for oxygen to plant parts which are submerged in water or sodden soil. Students begin to appreciate the

Hillcrest School students investigate native Californian riparian plants.

Students use color photocopies in a plant treasure hunt along Strawberry Creek. (photos by Carol Foster)
value of plants in the watershed of Strawberry Creek as they learn to recognize some riparian and aquatic species and investigate plant adaptations to this habitat.

In the Garden, Strawberry Creek is a healthy stream. Using a sampling kit, students measure water temperature and pH and discuss the value of the tree canopy near the stream in maintaining cool water temperatures. Other topics for discussion include possibilities for pollution and the effects of pollution on the ecology of the watershed.

Some of the most beautiful sections of the Garden are found along Strawberry Creek as it flows through the Asian Section. As students follow the trail upslope through the dawn redwood grove and marvel at the flaring buttress roots which help stabilize the plant, they appreciate the aesthetic value of creeks in the landscape. Liverworts, mosses and ferns—water-lovers all—line the path and the group pauses to examine the flora of hundreds of millions of years ago, when the world was a much wetter place.

**Japanese Pool**

The Japanese Pool, although not a natural feature, is one of the most popular sites in the Garden. Here we dissect iris seeds, collected from *Iris laevigata* which grow at the perimeter of the pool. Seeds with an intact seed coat float downstream; when the seed coat is removed, seeds sink to the bottom, ready to establish the species in another location. We compare the ultra-thin leaves of the submerged *Elodea*, a plant with a greatly reduced root system and easily seen from the stepping stones, to leaves of non-aquatic plants.

Students determine that the thin leaves, instead of roots, take up the water and salts necessary for plant growth from the nutrient rich pool.

Aquatic fauna often is the star attraction. The California Newt is in evidence from January to April. Students often have very interesting answers to the following questions: “Where do newts go when mating is complete?” “How did it find its way back after 5 to 7 years to breed in the same pool where it was born?”

*Gambusia* (Mosquito fish) are always in evidence. A discussion of the introduction of this exotic fish for mosquito control, the situations where they are appropriate for mosquito control, and the problems which the introduction of exotic species can create helps students understand aquatic ecosystems.

**Ponds**

With the completion of the new school pond, located at the entrance to Mather Grove and completed less than two years ago, docents were able to add new dimensions to the exploration of aquatic ecology. As we walk toward the school pond, we discuss some of the differences between ponds and streams. Ponds contain or produce everything needed by the plants and animals which live in or near it. On the other hand, streams obtain most of their nutrients from the leaves which fall into them and nutrients spiral from an upstream to a downstream area.

Students use nets and two-way viewers to sample aquatic insects which are easily found in the pond. After observation, students identify them using a series of color pictures. Gills are found in the most amazing places: along the sides of the mayfly nymph, on three feathery structures which look like tails on the damselfly...
nymph, and protruding from the rectum (and capable of being a form of jet propulsion) on the dragonfly nymph. Students are fascinated by the adaptations to an aquatic habitat by the larval stages of such creatures and are surprised to learn that the larval stage is much longer lived than the adult stage. All the creatures are returned to the pond after observation.

The interactions between plants and aquatic fauna are often obvious; during warm months it is common to see the translucent exoskeletons of aquatic insects on cattails, having been deposited there when the larval stage emerged from the water and crawled onto the cattail to molt and enter the adult phase.

The Aquatic Plants Exhibit is a perfect place to examine other plant adaptations to an aquatic environment. You may wish to visit this as well as the Herb Garden pool, the Vernal Pool and Fresh Water Marsh in the Californian Section and the pool in the lowest section of Mather Grove to make your own observations regarding plant and animal adaptations to aquatic habitats.

—Kathy Welch

FROM THE DIRECTOR

The new fiscal year brought significant administrative changes to the Botanical Garden.

A recurring theme throughout the history of the Garden has been the question of how can the Garden best support teaching and research at the University. For nearly a century the Garden's tie to the campus was through the Department of Botany. When the department was dissolved in the reorganization of the biological sciences in 1989, administration of the Garden transferred to the College of Natural Resources. During the past year the issue of administrative housing was revisited by the Garden's faculty advisory committee. Events on campus suggested that perhaps a change for the Garden was in order. In particular, the Botanical Garden is one of five museums comprising the consortium of the Berkeley Natural History Museums. Most of the other members were recently placed under the administrative umbrella of the Vice Chancellor for Research. On the recommendation of the advisory committee, the Botanical Garden has been transferred to the Vice Chancellor's office. The change recognizes the Garden as a valuable resource serving the entire Berkeley campus rather than a single department or a single college. It also emphasizes the fact that support for the Garden is the responsibility of the campus as a whole.

In another, unrelated, change, my faculty appointment moved to the Division of Forest Science. This change formalizes a long standing informal association that I have had with forest geneticists and brings new teaching responsibilities and new opportunities for research. I take this change as marking the time for me to focus my energies on the challenges associated with my new affiliation. Consequently, I relinquished my duties as acting director of the Garden on August 15.

Change is a natural component in the evolution of both organisms and organizations. The Greek philosopher Heraclitus went so far as to assert that "Nothing endures but change." In evolutionary biology major changes are frequently associated with speciation events. That is, they mark significant new beginnings. I predict that such will be the case for the changes that have occurred in the Botanical Garden. Morale is high. The staff, volunteers, and Friends are filled with enthusiasm and energy. I look forward to seeing the Garden continue to enhance its magnificence.

—Philip T. Spieth

(34Note: Meet our new Acting director on page 4)
New Acting Director Named

We are pleased to announce that Professor Ian Carmichael, professor of geology, has been appointed Acting Director of the Garden.

A native of London, England, Dr. Carmichael received his early education at Westminster School in London and at the Choate School in Wallingford, Connecticut, followed by a spell in His Majesty's Parachute Engineers. He earned his B.A. and M.A. in geology at the University of Cambridge and his Ph.D at the University of London, Imperial College of Science.

A recipient of the 1995 Murchison medal from the Geological Society of London, the oldest geological society, Dr. Carmichael has been a member of the UC faculty since 1965. Prior to this he was a lecturer in geology at the Imperial College of Science and Technology at the University of London and served as a geologist on DEW line in Arctic Canada. Dr. Carmichael has also served as visiting professor at numerous universities both in the United States and Europe and as chair of review committees at Harvard, Northwestern, Purdue, the University of Arizona, the University of Oregon, and UC Santa Barbara.

Along with his professorship, Dr. Carmichael has served in a variety of administrative roles at the university, including chair of the Department of Geology and Geophysics, Associate Dean of the Graduate Division, and currently is Acting Director of the Lawrence Hall of Science and Associate Dean for Academic Affairs and Research.

An expert on igneous petrology, thermodynamic properties of silicate liquids, volcanology, and the geology of western Mexico, Dr. Carmichael has received numerous honors during his career including the Schlumberger Medal from the Mineralogy Society of Great Britain, the Arthur L. Day Medal from the Geological Society of America, and the Bowen Award of the Volcanology, Geochemistry, and Petrology section of the American Geophysical Union. Dr. Carmichael is also a Fellow of the John Simon Guggenheim Memorial Foundation, the American Geophysical Union the Geochemical Society, the Geological Society of America, the Mineral Society of America, and the Mineral Society of Great Britain.

In addition he has served as an Ernst Cloos Memorial Lecturer at Johns Hopkins University and a Miller Research Professor at the University of California.

New Transition Team

Dr. Jennifer Meux White has been appointed Acting Associate Director for Education of the Garden.

Dr. White is currently Director of the Exhibits Department of the Lawrence Hall of Science and will be working in the Garden part-time after September 4th.

Vice Chancellor for Research Joseph Cerny has also assigned special assistant Nancy Caputo and administrator Jean Hayes to oversee the transition of the Garden from the College of Natural Resources to the Vice Chancellor's administrative umbrella.

Please join us in extending a warm welcome to these new faces!
THE DOCTOR SAYS

This year, we are being confronted with a new problem—dripping oak trees. It may be only partially a new problem, for a disease known as “drippy nut” disease was reported about 30 years ago and was found not to be widespread, but was found sporadically in the warmer areas of the coastal ranges. It resulted from a bacterium being introduced into developing acorns by several different insects laying their eggs in the nuts, and, in the process, the causal bacterium in the nut produced a sticky material which exuded from the nuts and made a mess on objects beneath the trees.

This year, the sticky material is far more abundant and found far more extensively than in previous years. One reason is that there are at least two problems. One is that the sticky material, a honeydew, is being formed from a gall on the upper leaf surfaces. This gall, one of many galls on oaks in California, according to Dr. Nick Mills, is one of two that produces a gall on the upper leaf surfaces and one of two that produces honeydew. The other problem has to do with the acorns and though they are dripping, the problem is starting much earlier in the development of the acorns than the old drippy nut disease. A search in some of the dripping nuts has revealed a single larva of an as yet unidentified insect but the problem is that in many young acorns that are dripping, no larvae can be found. A bacterium has been isolated from such nuts but as yet, has not been identified. There may be another way for the bacteria to get into the nuts such as dripping in the very young fruits from sources above them, or possibly pollen-borne. My tree had many male catkins completely covered with the honeydew and bacteria were isolated from them but it is difficult to say whether it was pollen-borne or not. The jury is still out and when the verdict is known, it will be passed on to you. Interestingly, so far, the exudates seem to be honeydew for they are easily removed with water.

Fleuroselect medalists for 1997 include ‘Daybreak Bright Orange’ a selection of Gazania splendens. It’s an offspring of a previous gold medal winner but is earlier, flowers more profusely and is more uniform than any other gazania grown from seed. Another winner in ‘Centurion Sky Blue’, a hybrid delphinium which is clear light blue with a white eye. Interestingly, it is the first delphinium to win this award. ‘Bombay Purple’ is a selection of Celosia argentea cristata. It is a purplish red color with long stems and can be used as a cut flower or as dried flower for it retains its color upon drying. A selection of Myosotis sylvatica ‘Rosylva’ is a profuse flowering clear pink forget-me-not with full tight flower heads and a long flowering period.

The All America Winners for 1997 include Celosia argentea cristata ‘Prestige Scarlet’. It is a heavy flowering, branched form that looks more like a plumosa type than a cristata. Gypsophila muralis ‘Gypsy’, is a dwarf (10-14”) annual with 1/4” pink blossoms which may be single or double. A species zinnia, Zinnia angustifolia ‘Crystal White’ is an early bloomer covered with white single flowers with yellow centers. Vegetables include ‘Dynamo’, a blue green cabbage, ‘Siam Queen’, a basil with larger leaves, thicker stems and later flowers than the available forms and ‘Cajun Delight’, an okra selected for earliness and improved yields.

Finally someone has admitted to having a snail and slug problem. Helen Cabell wrote that in her Pinole garden, Echeveria marmora and Cestrum newellii are great favorites. In my garden, a new plant of Nemophila maculata ‘Blue Tips’ was completely stripped the first night after planting and this was in a bed where snails were under control or at least the thought was that they were.

Dais cotinifolia has just finished blooming. A close relative of daphne, it is a large shrub or can be trained as a small tree. Flower clusters are pink and fragrant, especially at night. Can someone explain why this nice plant which can be grown easily from seed or from cuttings is not readily available? One nurseryman said that it was because the seed pods and attending stalks remain attached into the winter. That doesn’t seem like enough of a reason, but it remains hard to get. Oh yes, it should be mentioned that the plant is resistant to the Verticillium wilt fungus and to the oak root fungus. What a wonderful set of attributes!

If you desire more wisterias and none are coming up from seed even though many seeds are being produced, help the seeds along by taking sharp cutting shears and remove a tiny bit of the seed coat down to the cotyledon. Don’t take too much but that part has to be exposed. Many woody legumes need help for their seeds to germinate and this is an easy way unless you want a few thousand seedlings.

---Bob Raabe
BOOK REVIEWS

For nearly twenty years our docents have been taking school children on 'Pollination' tours in the Garden. During this time, and not by accident, many home gardeners have become more and more interested in planting gardens which will attract and sustain the bees, birds and butterflies in their neighborhoods.

In support of these gardening interests, and our docent program, the Visitor Center has tried to provide guides and reference materials for our Garden visitors. The two titles reviewed here were published this spring.

The Forgotten Pollinators, Stephen L. Buchmann and Gary Paul Nabhan; illus. by Paul Mirocha; foreword by Edward O. Wilson; Island Press, Covelo, CA, 1996. Extensive bibliography; glossary; 6 appendices: 1) a call for a national policy on pollination 2) pollinators of the major crop plants 3) conservation and research organizations 4) sources of pollinators, nesting materials, artificial nectar, larval host plants, etc. 5) pollinator classes for the world's wild flowering plants 6) common agricultural pesticides; 292 pp. cloth $25.00.

The Forgotten Pollinators is the perfect book to take to a sunny, grassy meadow filled with flowers on a lazy summer day.

Once we are settled in a comfortable spot and are reading, it is nearly impossible to put this book down—unless we take the authors' advice to heart and begin noticing the busy pollinators all around us. When we do this we are in a small way doing what Stephen L. Buchmann, entomologist and bee expert at the University of Arizona, and Gary Paul Nabhan, author and director of science at the Arizona-Sonora Desert Museum in Tucson, have been doing for many years.

Their adventures and studies have taken them to the forests, fields, hills and deserts of the world where they have observed plant pollinators at work. Edward O. Wilson in his foreword reminds us of the dominance on land of flowering plants and insects. A majority of these flowering plants must have insects to help them reproduce, and the insects which have coevolved with them must have flowering plants for food and their own reproduction. Many of the relationships between particular plants and their special pollinators are so finely tuned that one can be extinguished upon the disappearance of the other partner.

The intricate, fragile network of dependencies ultimately affects all of us through the precarious maintainance of our forage and food crops and our wild floras. Until recently plant/pollinator interactions were ignored in most discussions of biodiversity and agricultural stability. Five years ago the authors took part in a one-day symposium they called "The Conservation of Mutualisms." The delegates came together to discuss the broken relationships between rare desert succulent plants and their pollinators. The beginning of the "Forgotten Pollinators Campaign," of which this book is a part, began at that meeting with the enthusiastic endorsement of the symposium participants.

As part of their campaign to publicize the serious worldwide disappearance of plant pollinators, Stephen Buchmann and Gary Nabhan recently visited the San Francisco Bay Area. In local interviews they described the "pollination crisis" in which 103 kinds of birds, 82 mammals and countless butterflies, moths and bees are threatened with extinction. Bad weather, mite invasions, pesticides and habitat loss are some of the causes.

Today, both authors remind us, we should thank a pollinator for "one out of every three mouthfuls of the food we eat and the beverages we drink." In a later interview, and with the help of Alice Waters of Chez Panisse, they created a breakfast of "tea pollinated by flies and bees, figs pollinated by wasps, kiwis by bumblebees, mangoes by fruit bats and chocolate by flies and midges." After reading this book, we will all stop and remember our plant pollinators with every bite we take.

The Natural History of Pollination. Michael Proctor, Peter Yeo and Andrew Lack; Timber Press, Portland, OR, 1996. Black and white, color photos; drawings; extensive bibliography; index; 479 pp. Paper $24.95; cloth available on request.

Written for biologists and interested amateurs The Natural History of Pollination describes in detail, with excellent pictures, drawings, graphs and charts, all the ways plant pollination takes place through wind, birds, mammals, bees, flies, beetles, moths, butterflies. This new book, a completely rewritten The Pollination of Flowers, published in 1973, is bound to become a basic
reference for a new generation of teachers, students, naturalists and wildlife gardeners wanting to learn more about plants and their pollinators (especially as a follow-up to first reading The Forgotten Pollinators).

Members of the UC Botanical Garden community will be interested to know that the bibliographies in both the books reviewed here cite the writings of Herbert and Irene Baker of UC Berkeley. Dr. Baker, a former director of the Botanical Garden, and his wife Irene were modern pioneers in the study of pollination biology, and they and many of their students have used the resources of the Garden in their research.

Halfway around the world in England, where they live and work, the authors of The Natural History of Pollination decry the loss of wild pollinators worldwide. Their message is the same as that of Stephen Buchmann and Gary Nabhan in Arizona: without our pollinators we are all at risk.

OTHER BOOKS RECENTLY RECEIVED

Amber, Window to the Past. David A. Grimaldi; Abrams, in assoc. with the American Museum of Natural History; New York, N.Y., 1996; black and white, color photos; 216 pp; cloth, $49.50. (David Grimaldi is chairman and associate curator of the American Museum of Natural History’s Department of Entomology.)

Gardens of the French Riviera. Louisa Jones; photography by Vincent Motte; Flammarion, Paris, France; 1994; 212 pp; cloth, $50.00. (Louisa Jones is the author of Gardens in Provence and The Art of French Vegetable Gardening.)

NOTE: The review of The Collector’s Garden in the last Newsletter omitted mention of the pictures and descriptions of Roger Raiche’s garden in Berkeley.

—Elly Bade
Welcome aboard to “new” career staff member Eric Schulz, horticulturist of the Mesoamerican Section collection. Eric had been on temporary status since November 1994, waiting until we could get approval to fill the position with an employee in “career” (permanent) status. Eric was raised in Los Angeles and moved to the Bay Area six years ago. He received his B.A. in physical geography from UC Berkeley in 1993 with a minor in conservation resource studies. Eric has travelled throughout southern Mexico and hopes to do more of the same, improving his Spanish language skills and further familiarizing himself with the plants in their natural habitats. While a student at Cal, Eric became a volunteer at the Garden, assisting Martin Grantham with the Mesoamerican Area. Martin has since been assigned to the South African collection and must devote most of his time to that area. Eric loves big challenges and is very excited about future developments in the Mesoamerican Section. Congratulations Eric!

Curator Robert Ornduff helped organize and also chaired a session in the Conference on Vernal Pool Ecosystems held in Sacramento in June. The conference was sponsored by four conservation societies including the California Native Plant Society.

Garden Management Services Officer Sarah Wenning was laid off at the end of June for budgetary reasons. We will miss Sarah and wish her the best of success in her job search.

Dr. I. Keith Ferguson of the herbarium (head of the palynology unit) at the Royal Botanic Gardens, Kew visited the Garden in mid-July. Also visiting was Dr. Charlene Harwood, director of greenhouse sales and licensing for Jackson & Perkins Roses in Medford, Oregon. Dr. Harwood is looking for new herbaceous plants to introduce into horticulture through J & P’s nursery productions.

Roy Taylor, director of Rancho Santa Ana Botanic Garden, and his wife visited the Garden in mid-July to see the Robert Ornduff Room. While visiting, the Taylors requested additional cuttings of Begonia boliviensis. Mrs. Taylor was most keen to start the plant from cuttings.

Dr. Peter Fritsch from the California Academy of Sciences visited on Friday, July the 12th. Dr. Fritsch is interested in the Garden’s collection of the genus Styrax and was shown the Asian, Californian and Mesoamerican species. Dr. Fritsch was most recently employed at Rancho Santa Ana Botanic Garden and is now occupying the Academy position vacated by the retirement of Dr. Dennis Breedlove.

Professor Sun Han Dong of the Kunming Institute of Botany, Academia Sinica from Yunnan Province, China, visited the Garden on July 22nd. He toured the Chinese Medicinal Herb Garden with horticulturist Elaine Sedlack. He visited several American destinations to research medicinal plants.

Horticulturist Martin Grantham has planted the new Xeric Fern Display along the length of the Desert-Rainforest House. We encourage you to take a look on your next visit to the Garden—it’s spectacular!

Martin was also a speaker at the first regional International Plant Propagator’s Society meeting for South America, held in Buenos Aires in May. His topic was “Fern Propagation at the UC Botanical Garden.” The meeting emphasized the indigenous flora of Argentina. Martin also spoke for the California Horticultural Society on June 17th, “Development of the new Mesoamerican Section at the UC Botanical Garden.” Additional speaking engagements included the Marshall Olbrich Plant Club in August on the flora of Chile, and the Western Horticultural Society in September on the flora of Ecuador. Martin is leading the Plant Propagation Club at Merritt College in Oakland. The club meets each Wednesday from 7-9 PM.

Garden Manager Daniel Campbell and horticulturists John Domzalski, Martin Grantham, and Jerry Parsons attended a meeting of the Association of Education and Research Greenhouses held at UC Davis in early August. The topic was “Greenhouse Management.”

Assistant Curator Holly Forbes attended the annual meeting of the Center for Plant Conservation, this year held at the Denver Botanic Gardens in early October. Included in the meeting was a tour of the USDA’s National Seed Storage Laboratory in Fort Collins, where seed of many of the country’s rare plants are preserved in cold storage.
Garden Manager, Daniel Campbell

Daniel Campbell, who has been manager of the Botanical Garden since 1980, is a person of many and varied interests. He was born in Fort Bragg, California, and graduated from Sonoma State University. He began his studies there with a major in Marine Algology, but quickly discovered that the demands of working for a living and the time required for science classes took more hours than are in a day. He changed to literature, and took an extra year’s worth of courses in art history. He had worked in the University bookstore as a student, which led him to a career in the book business in La Jolla. He thought about pursuing a Master’s degree in library science here at Berkeley, and came to the Bay Area to be nearby while his application was pending. Meanwhile, he found a job in a nursery. Library School never came through, but he discovered the Botanical Garden and completed a summer internship with Wayne Roderick. At that point, he was accepted for a three-year program in Horticulture Management at the Royal Botanic Gardens, Kew, in England. Miraculously there was a job opening at the Garden when he returned from Kew. Daniel was hired, and six months later was promoted to Manager. Along the line, he has also owned an antiques business and traveled widely in Europe and Australia. Part of his vacation every year is devoted to working the big antiques show at Fort Mason!

Naturally, many things have happened at the Garden during the last 16 years. Daniel points with considerable pride to his many accomplishments. One of the first things he was able to do, working with local landscape architect Renee Bradshaw, was to help pull together a Master Plan for the Garden. The Master Plan has served as a starting point for many Garden and Friends’ projects that have been completed. It was Daniel’s idea to move the Visitor Center to the front of the Garden, where it is much more visible and useful for Garden visitors, and much more profitable for the Friends. He managed to annex additional territory in the canyon for the Asian Section, Mesoamerican Area, and another area on the south boundary that will be perfect someday for a collection of Australian or other plants.

Over the years, Daniel has been able to change the profile of the horticultural staff. As older staff members, who had no particular horticultural expertise, retired, he replaced them with individuals who had certification or training in horticulture, and who were eager to learn. He has also encouraged the horticultural staff to become involved with educational programs and activities in the Garden.

Outside the Garden, Daniel has been instrumental in attracting funds from donors and from various campus sources for projects such as 1,000 square feet of additional greenhouse space, remodeling the Tropical House, much needed improvements to the 60-year old irrigation system, and major equipment, like the chipper and the first go-cart.

Daniel has strong feelings about the direction the Garden should take in the future. He believes that while we have been a rather passive organization, relating over the years to research and academic concerns, we need now to actively promote our service to University classes and to enhance our service to the public at large. We are in an era of diminished federal, state and even private support for institutions such as ours, and so we must find new ways to support ourselves and our programs. We should be looking towards bridging, cooperating and collaborating with other institutions in order to eliminate needless duplications and to maximize staff effectiveness. Our Garden is unique, and we have a unique opportunity to contribute to the positive image of the University through public service, especially with our messages of conservation and ecological responsibility.

—Nancy Swearengen
New Members
The Friends of the Botanical Garden welcome the following new members.

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The Friends offer appreciation and thanks for gifts from these donors to support the special projects noted.

21st Century Endowment Fund
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Xeriphytic Fern Display
The xeriphytic fern display has been completed and can be seen along the south side of the Desert and Rainforest House. We give our thanks to the following individuals and organizations for their generous support of this project:

Ed Dankworth
Iris Gaddis
David and Evelyn Lennette
Richard and Mary Schroter
John D. Weeden
American Rock Garden Society, Western Chapter
California Horticultural Society

Come see our completely remodeled Visitor Center!
Our volunteers have found new gifts and cards, T-shirts, tote bags, and children's toys and games.

Members of the Friends of UC Botanical Garden receive a 10% discount on purchases at the Visitor Center...and our earnings benefit the Garden.

Join Friends of the Botanical Garden or Give a Gift Membership

Yes, I would like to support the U.C. Botanical Garden at Berkeley as a member:

- Student* $10
- Basic $35
- Family/Dual $50
- Supporting $100
- Sponsor $250
- Patron $500
- Benefactor $1000
- New
- Renewal

Name __________________________________________________________
Address _______________________________________________________
City/State/Zip __________________________________________________
Telephone ______________________________________________________

☐ This is a gift from ___________________________________________
☐ 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 Botanical Garden and mail to:
Friends of the Botanical Garden, 200 Centennial Drive, Berkeley, CA 94720-5250

*Full-time only.
Calendar of Events

SEPTEMBER

VOLUNTEER OPEN HOUSE
Monday, SEPT 9, 2-4pm, and Sunday, SEPT 15, 10am-noon
Come and learn about all the exciting ways you can participate at the Botanical Garden. Conference Center. Free.

"TODAY ON THE TERRACE" Sun, SEPT 15
An interactive exhibit on the foods, medicine, and culture of the Mesoamerican area. Free. Conference Center Terrace, noon - 4pm.

DRAWING AND PAINTING FROM PLANTS AND FLOWERS WITH KAREN LEGAULT
SEPT 18 - NOV 6
Eight Wednesdays, 9:30am-noon. Members $80, Nonmembers $100.

FRIENDS ANNUAL MEETING
Sun, SEPT 22
Free. 4-6pm.

SEEDS & SEED TREATMENTS Fri, SEPT 27
Martin Grantham provides an overview of seed propagation. Members $20, Nonmembers $30. 1-4pm. Conference Center.

FALL PLANT SALE Sun, SEPT 29
10am-2pm. First hour for members only. Memberships will be available at the gate.

NEW DOCENT TRAINING BEGINS Mon, SEPT 30
Pre-registration and fee required by Sept 16. For information and application, call (510) 642-3352.

OCTOBER

UC BOTANICAL GARDEN DISPLAYS AND INFORMATION AT EMBARCADERO CENTER IN SAN FRANCISCO
Throughout October.

CACTI & SUCCULENTS WITH FRED DORTORT Sat, OCT 5
An overview of the major groups, and their most interesting members, of cacti and succulents from all over the world, their natural history and how to grow them. Includes information on where to get the plants and the soil they need, and some of the more important literature. Members $30, Nonmembers $40. Limited to 25. Conference Center. 10am-4pm (Bring lunch).

DRAWING AND PAINTING WITH KAREN LEGAULT
Sun, OCT 13 and Sat, OCT 19
A pair of intensive days immersed in the creative process. Members $50, Nonmembers $60. 10am-4pm (Bring lunch).

A TASTE OF SPAIN WITH KATHERINE GREENBERG
Sun, OCT 6
Slides and a walking tour of Spanish and other Mediterranean plants in the Garden, followed by entertainment, food, and beverages of Spain. Members $50, non-members $25. Conference Center. 1-4pm.

BOTANY BASICS WITH GLENN KEATOR
Eight Tues evenings, OCT 8 - NOV 26
A chance to expand your knowledge of the basic functioning and development of plants. The course will survey the vast diversity of the plant world from the humble algae and fungi on up through the development of the flowering plants. The evenings will feature illustrated lectures with hands-on materials and microscopic examination. Members $80, Nonmembers $105. Limited to 20. Conference Center. 7-9pm

NATIVE PERENNIALS FOR YOUR GARDEN WITH GLENN KEATOR
Two Thursday evening lectures, OCT 10 and 17, 7-9 pm, and two Sunday field trips to private gardens and botanical gardens OCT 13 and 20, 10 am-3pm (Bring lunch)
California’s vast array of perennials provides beautiful flowers for many different kinds of gardens, from water gardens to meadows and from dry woodlands to rock gardens. The course will cover specifics of growing, propagating and choosing from many categories of perennials, including bulbs, ferns, ground covers and more ordinary perennials. Members $65, Nonmembers $80. Field trips limited to 20. Lectures only: Members $45, Nonmembers $55. Conference Center.

NOVEMBER

PROPAGATION FROM CUTTINGS WITH MARTIN GRANTHAM
Sat, NOV 9

DECEMBER

HOLIDAY PLANT SALE Sat, DEC 7
10am-2pm. Our traditional, splendid offering of holiday plants. Conference Center.

HOLIDAY WREATH MAKING Sun, DEC 8
With Jerry Parsons and Nancy Swearengen. Members $25, Nonmembers $35. 10am-noon. Conference Center.

For further information on classes and events, call the Visitor Center, 510-642-3343. To register for classes, send checks to UC Botanical Garden. Two weeks advance notice is necessary to accommodate individuals with special needs. No refunds the week before the class date unless class is cancelled. 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.

Friends of the Botanical Garden
University of California
200 Centennial Drive, #5250
Berkeley, California 94720-5250

Address Correction Requested

Plants are for sale at the Visitor Center all year 510-642-3343