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Exploring Tennessee's Limestone Barrens and Cedar Glades

Last winter, during California's rainy season, I began reading about natural forest openings, including scientific articles on grassy balds, limestone barrens, and cedar glades. When I heard about the World Botanic Gardens Congress in Asheville, North Carolina in June, I knew I could plan a complementary itinerary that would take me through many of the cedar glades that survive through the efforts of The Nature Conservancy, the state of Tennessee, and private landowners. Like California's serpentine barrens, cedar glades are a unique habitat existing only in isolated spots where the soil conditions are perfect.

I flew into Georgia, and after escaping Atlanta's sprawl, more than just the humidity reminded me I was east of the Mississippi. The lush hardwoods lining the highway were, when not masked by kudzu, the familiar sassafras, sourwood, maples, oaks, locusts and hickories from my Pennsylvania days. The following morning in Nashville, I met with Bill Ades, Director of Science and Stewardship for The Nature Conservancy of Tennessee. Although new to his position there, he had worked with The Nature Conservancy for many years, and was generous with his knowledge. With his directions, I was off to two cedar glades 30 miles southeast of Nashville.

Mount View Road Cedar Glade Preserve is 9 acres in an increasingly urbanized area. The entrance is fenced off, and a cement pillar four feet high is the only marker visible from the road, giving no indication of the treasures within. Once I had climbed over the six-foot chain-link fence, I wandered through a woodland of American and Blue Ash (*Fraxinus*



Photo by Daria Curtis

Echinacea tennesseensis with its vivid magenta flower was once believed extinct; now it is now protected in five Tennessee populations.

CHANGE IN GARDEN HOURS

Beginning February 1, 2001

Regular Garden hours will be 9:00 am – 5:00 pm.

To conduct maintenance projects, the Garden will be closed the first Tuesday of each month.

americana and *Fraxinus quadrangulata*), Hackberry (*Celtis laevigata* var. *laevigata*), Chinquapin Oak (*Quercus muehlenbergii*) and Hickory (*Carya* spp.), and came across periodic openings where Eastern Red Cedar (*Juniperus virginiana*) and Redbud (*Cercis canadensis*) were scattered among

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Photo by Daria Curtis

Top: *Ruellia humilis* is one of many ground-hugging perennials that grow in the nutrient-poor soil of Tennessee's limestone barrens. Right: Indian hemp, *Apocynium cannabinium*, which is preserved in Tennessee's largest cedar glade preserve, can be found in the Garden's bed 304.



Photo by Daria Curtis

(continued from page 1)

exposed limestone and dolomite rocks and varied herbaceous material. It took me a few minutes to realize the poison oak reminiscences I was having were not caused by its eastern cousin, but by another Anacardiaceae member, Fragrant Sumac (*Rhus aromatica*), the female plants of which were covered in brilliant red fruit.

Absorbed in trying to identify every single plant, it took one magenta flower to jolt me out of my reverie and make me look up and around. I had spotted *Echinacea tennesseensis*! The Tennessee Coneflower was believed extinct until its accidental rediscovery at Mount View Cedar Glade in 1968. With five remaining populations, it remains on the federal endangered species list. Having read of the plant, I was pleasantly surprised to find it in full bloom over much of the largest glade opening on the Mount View property.

Also in bloom were two or more species of *Hypericum*, Carolina Rose (*Rosa carolina*), and Smooth Savory (*Satureja glabella*). I spotted False Aloe (*Manfreda virginica*) in bud, Cancer-weed (*Salvia lyrata*), Prickly Pear (*Opuntia humifusa*), *Astragalus tennesseensis*, and Nodding Onion (*Allium cernuum* var. *cernuum*) in seed.

The characteristics of a cedar glade had become clear. Mount View Road in particular reveals a remarkably self-sustaining character. The limestone soil composition and shallow substrate easily maintain the Eastern Red Cedar and the drought-stressed Redbud and Persimmon (*Diospyros virginiana*)

at low enough concentrations to allow the varied and sometimes endemic herbaceous material to thrive.

My next stop was Flat Rock—at 175 acres, Tennessee's largest cedar glade preserve. Though the surrounding area is less heavily populated than Mount View Road, development encroaches. Recreational use poses a problem, particularly horseback riding, which can introduce exotic plant vectors. Whereas Mount View Road is open to the public by permission only, Flat Rock is open year round, and has a 10-car parking lot. I followed a marked loop trail through the first few glade openings, but a sudden and fierce thunderstorm cut my visit short. Before the rain drove me away, I noticed the habitat and flora were very similar to Mount View Road, with the noted absence of *Echinacea tennesseensis*, and the introduction of Colic Root (*Liatris squarrosa*) and Indian Hemp (*Apocynum cannabinum*), which you can also see in the Garden's Bed 304.

Though I also had directions to the Sunnybell Cedar Glade Preserve, they had come with the warning that I would not only have to climb another 6-foot fence, but also walk through a culvert under a major interstate. As the thunderstorm showed no sign of letting up, I decided to save that adventure for another trip to Tennessee's cedar glades, where plant treasures thrive through the dedicated efforts of The Nature Conservancy and countless supporters.

—Daria Curtis

DIRECTOR'S COLUMN

A marker at the entrance to the Bronx Zoo commemorates a well-known episode in the history of plant disease: "Near this site in 1904 the chestnut blight fungus (*Cryphonectria parasitica*) was introduced accidentally into North America from Asia." Though the exact date and location of *C. parasitica*'s introduction has never actually been determined, the history of its onslaught is well known. At the close of the 19th century, nurseries throughout the U.S. shipped thousands of scions and seedlings of Japanese chestnut trees. Because this nursery stock was able to harbor *C. parasitica* without expressing symptoms, it is the likely source of the infection that, within 50 years, left 3.6 million hectares of American chestnut trees dead or dying. While this chestnut blight story is familiar, the story of an earlier chestnut blight is not. The American chestnuts that *C. parasitica* attacked were restricted to upland areas because, since 1824, American chestnuts in moist lowlands had been decimated by the root pathogen *Phytophthora cinnamomi*.

Today, Californians are becoming better acquainted than



we would like with the tongue-twisting name of the fungal genus *Phytophthora*, pronounced Phy-TOFF-thor-uh. Since 1995, a mysterious epidemic has been felling native coast

live oaks (*Quercus agrifolia*), tanoaks (*Lithocarpus densiflorus*), and

California black oaks (*Quercus kelloggii*) in coastal areas of central California. The first reports came from homeowners in Mill Valley, Marin County, who observed tanoaks dying near their properties along the urban forest edge. Called Sudden Oak Death (SOD), this syndrome had, by 1999, progressed to coast live oaks and black oaks. In July 2000, David Rizzo, a plant pathologist from UC Davis and member of the University of California Oak Research Team

(UCORT), fingered an undescribed species in the genus *Phytophthora* as the cause of SOD (See Research Timeline). Its closest described relative is *Phytophthora lateralis*, a virulent pathogen of Port Orford cedar, a beautiful tree in the Pacific Northwest. Like *Phytophthora cinnamomi* on American chestnut, *Phytophthora lateralis* is most damaging in moist soils.

(continued on page 4)

Research Timeline

PHYTOPHTHORA AND THE RISE OF MODERN PLANT PATHOLOGY

1840s

The world's most infamous plant pathogen may be *Phytophthora infestans*. Belonging to a genus of fungi responsible for various blights, *P. infestans* triggered the Irish potato famine. *P. infestans* remains one of the most devastating crop diseases. Out of efforts to explain the Irish potato famine, however, the modern science of plant pathology developed...

1870s

Robert Koch's experiments established protocols for determining whether a particular organism is the agent of a specific disease: The organism must be:

- 1) found in all the diseased individuals examined; then
- 2) isolated from the host, grown in pure culture, and described.

3) Taken from pure culture, the organism must produce the same disease when inoculated on healthy hosts.

Finally, the agent must again be isolated from the inoculated hosts, and its form in pure culture must be comparable to that observed in step 2.

Confirmed Contagion

AS OF NOVEMBER 2000...

...**SOD** was confirmed in Marin, Monterey, Napa, San Mateo, Santa Cruz, and Sonoma Counties.

...**NO** confirmed cases have been made in Alameda, Contra Costa, Humboldt, Mendocino, San Luis Obispo and Santa Barbara Counties.

(continued from page 3)

Knowing the Port Orford cedar connection still failed to explain the origin of SOD, however. The molecular and morphological similarities between *P. lateralis* and the undescribed agent of SOD are not sufficient to identify them as the same species. Perhaps, researchers thought, the fungus had evolved, so it became capable of attacking oaks. A recent rhododendron connection has suggested a far more plausible theory. In January 2001, Matteo Garbelotto, a UC Berkeley plant pathologist, and other UCORT researchers reported, in collaboration with European biologists, that the genes of the *Phytophthora* causing sudden oak death in California have the same ITS sequence (See Research Timeline) as a *Phytophthora* found on rhododendrons in European nurseries. This species, which has yet to be described, was first isolated from European rhododendron nursery stock in 1993, prior to the first reports of SOD in California.

With this information in hand, California researchers sought evidence of infection in California rhododendron stocks. Steve Tjosvold, a Santa Cruz County farm advisor, soon found the fungus in a rhododendron taken from a Santa Cruz County nursery. Garbelotto confirmed with DNA analysis that it was the same fungus killing the oaks. If these fungi are the same species, as the ITS sequences seem to suggest, the rhododendron link could provide an important clue as to its origin: Because rhododendrons are more often moved around than oaks, it could also suggest an important route by which the pathogen may be spread.

A common thread emerging from these examples is that when humans move live plants around, plant diseases spread. In the past, the rate at which pathogenic organisms could move was limited by their own biology.

Just as modern air travel has hastened the rate at which human diseases such as influenza or HIV can move among continents, so air and ground transport of live plants hastens the spread of plant diseases.

Many diseases and pests imported from abroad have dramatically changed forests in North America. The diseases include Dutch elm blight (*Ophiostoma ulmi* and *O. nova-ulmi*), white pine blister rust (*Cronartium ribicola*), butternut canker (*Sirococcus clavigigenti-juglandacearum*), and dogwood anthracnose (*Discula destructiva*). The pests include beech bark disease (caused by a combination of beech bark scale insect, introduced from Europe, and *Nectria* fungus), balsam woolly adelgid (*Adelges piceae*) and gypsy moth (*Lymantria dispar*), which affects many different species of trees. Strict safeguards are needed to reduce the chances of moving such

PHYTOPHTHORA IDENTIFIED

July 2000

David Rizzo and others on the UC Oak Research Team (UCORT) followed Koch's steps, inoculating both seedlings and adult trees with the fungus associated with SOD. Morphological description led researchers to the genus *Phytophthora* as the causal agent of SOD, and Rizzo identified the closest described relative as *Phytophthora*

lateralis, a virulent pathogen of Port Orford cedar (*Chamaecyparis lawsoniana*). But in this notorious genus, what exactly was the SOD species?

Phytophthora enzymes destroy an oak's dead outer and living inner bark. An ooze of wine red sap from a canker (shown here) appears as the first symptom of SOD infection. Leaves turn quickly from green to brown, making "sudden oak death" an apt name.



Photo by David Rizzo

diseases and pests from one location to another (See Prevention Box).

What will be the fate of our oaks? No one really knows. We can take steps to limit the spread of the disease, and we can look to the example of work done to revive the American chestnut populations. Since these contained no resistant trees, all chestnuts in affected areas died to the ground. Remarkably, however, their roots survived and even today, root sprouts of the mighty chestnuts persist throughout the eastern deciduous forest. Occasionally a sprout survives long enough to set fruit, providing material for ongoing efforts to breed blight-resistance genes from Chinese chestnut into the American chestnut.

Another exciting development was the discovery in a European chestnut of a virus that infects the chestnut blight fungus, reducing its virulence. Introduced into North America, this hypovirulence infection did not spread easily in our more genetically diverse populations of chestnut fungus. Subsequently, the two viral genes responsible for disease remission were engineered into the fungus. Tests in Connecticut and Michigan show this strain spreading. Even if hypovirulence and tree breeding are spectacularly successful, though, it is unlikely that chestnuts will ever recover their former ecological dominance. They would face a changed climate, the depredations of root rot by *Phytophthora cinnamomi*, and attack by oriental chestnut gall wasps (*Dryocosmus kuriphilus*), which arrived in 1974 on illegally imported Asian chestnuts seedlings.

Let us hope that our beloved California oaks are luckier.

—Ellen Simms

What to Do

PREVENTING SOD'S SPREAD

The lemon-shaped *Phytophthora lateralis* has been called “highly fecund.” Under optimum conditions, this fungus can produce thousands of offspring (zoospores) in 24 hours. *Phytophthora* is transported by soil—and so by shoes, tires, dog paws, and horse hooves. Since the zoospores have two tails or flagella, they can also swim. The greater the number of ways a disease spreads, the more rapid and farther afield potential contagion. To prevent the spread of SOD, you can take these steps:

- Do not transport out of infested areas soil, rhododendrons or other plants, or wood products such as mulch, bark or firewood.
- Before leaving an infested site, wash soil or mud from shoes, tires, and animal feet.
- Inspect your rhododendrons for cankers (sores) that spread from twig tips to the base of stems.
- If you think your oak or rhododendron is infected, contact your county agricultural commissioner.

Contact phone numbers and other information are listed at <http://www.suddenoakdeath.org>. The other major web site on SOD is cemarlin.ucdavis.edu

FROM MORPHOLOGY TO DNA

To determine the species, UCORT researchers used the genetic code sequence along a piece of a specimen's DNA. In this case, they looked to a region called the intergenic transcribed spacer (ITS) that evolves fast enough that it often differs among species, but not among individuals within a species. The SOD organism's DNA sequence corroborated the morphological

observations, placing the fungus within *Phytophthora*. Comparing its sequence to similar information catalogued about known species of *Phytophthora*, however, UCORT researchers came up short. They appeared to have a new species!

January 2001

UC Berkeley plant pathologist Matteo Garbelotto and other UCORT researchers, along with European biologists, reported that the *Phytophthora* causing SOD in California has the same ITS sequence as a *Phytophthora* found on rhododendrons in European nurseries!

The Horticulture Staff...

Since late last year, Garden members have noticed two new faces...

NATHAN SMITH

Horticulturist of the Native California Section

Nathan was exposed to horticulture at a young age when his father used to send him out to weed the lawn for misbehaving. This punishment gardening must, ironically, have sparked something because through the years, horticulture became a pastime and later a profession for Nathan. His appreciation of California native plants developed while he was studying at UC Santa Barbara, where he hiked with a friend who taught him how to identify the dominant chaparral species.

Yet Nathan's academic interests reveal a breadth that did not initially include horticulture. After graduating with a double major in Environmental Studies and Latin American Studies, he performed small mammal and vegetation surveys for an oak woodland study undertaken at Camp Roberts, California. Shortly afterward, he moved to Costa Rica, where he served as an intern for Conservation International in the buffer zone of the Amistad Bi-National Preserve, which spans the border of Costa Rica and Panama. Working in local schools to establish school gardens and utilize the gardens as instructional tools, he became increasingly interested in horticulture and outdoor work. The experience of working in a developing country that faces habitat destruction and loss of bio-diversity inspired him to look more closely at the plight of plants and ecosystems at home in California.



Photo by Janet Williams

Nathan Smith

After returning to the United States in 1996, Nathan's interest in horticulture deepened through work at two nurseries. When offered a job at the Santa Barbara Botanic Garden (SBBG)—"a great California native garden"—he returned to Santa Barbara. Working as a horticulturist throughout the Garden, he also helped administer the plant introduction program and managed the SBBG equivalent of our volunteer propagator program. "My teachers and co-workers generously shared their knowledge, for which I'm

Gardening Tips

■ **REPELLING...**In Texas, researchers took a gene from snowdrops, *Galanthus nivalis*, and introduced it into sugar cane plants to induce resistance to the Mexican rice borer and the sugar cane borer. The transgenic plants had far less damage than non-transgenic plants. *Sugar Journal* 63 (1): 21...

...According to *Garden Answers*, December 2000: 74-75. Plants that are less attractive to rabbits include: box, spireas, *Viburnum tinus*, *Ilex aquifolium*, paeonies, *Skimmia japonica*, *Sedum spectabile*, *Stachys lanata*, hemerocalis, tulips, dahlias, delphinium and verbena...

...A gardener in Maine reported that grated orange peels sprinkled in the garden repelled cats. *Organic Gardening* 48 (1): 70...

■ **AND ATTRACTING...**During warm months, female aphids reproduce asexually, bearing only other females. Later in the year, they produce males and, following mating, lay eggs which are the overwintering structures. In England, it has been discovered that oil from *Nepeta* species attracts male aphids, offering capability for controlling the aphid population's breeding potential. *The Garden* 126 (1): 7.

—Dr. Robert D. Raabe

...Growing!

grateful." SBBG also carries the memory of his wedding—appropriate for a lover of native California plants—in the shade of an old live oak tree.

When a fellow staff member at SBBG told Nathan about the position here at the UC Botanical Garden, he found, "Everyone had nice things to say about the staff, the Garden and Berkeley in general. The transition has been surprisingly easy. I enjoy the area, and the people I work with. I'm especially excited about the opportunity to work with and learn from Roger Raiche."

When not gardening, Nathan may be found building naturalistically styled mobiles of redwood, steel, brass, and copper. Based on his father's designs, Nathan's mobiles portray the motions of leaves, flowers, birds, and butterflies. He has sold his work at local crafts shows and wholesale to galleries and shops in California and Maine.

Nathan's wealth of experience in horticulture and in the complex milieu of another botanical garden has surely prepared him to assume the major care of the California area.

Welcome, Nathan!

ANTHONY GARZA

*Supervisor of Horticulture and Grounds
Horticulturist of the New World Desert Section*

Anthony Garza grew up in Southern California and moved to the Bay Area three years ago. Anthony was immediately taken with the UC Botanical Garden. After his first visit, he often thought "How wonderful it would be to someday work here..."

It took Anthony three years. He comes to the Garden from Magic Gardens Nursery in Berkeley, where he had worked and been a manager since early 1998.

Anthony comes from a family of horticulturists, gardeners and educators. His interest in plants began during middle school when he visited his father (a landscape & horticulture teacher and administrator) on weekends. He ended up doing a lot of "yard work" and messing around in the backyard greenhouse. He also spent weekend days with his grandmother doing lots of vegetable gardening on her half-acre suburban farm.

At California State Polytechnic University, Pomona, Anthony studied horticulture, sustainable agriculture, and applied environmental science. While at Cal Poly, he lived for 2 years at the Center for Regenerative Studies. The CRS was a live-work-study university institution focused on envi-

ronmental issues and systems including organic and sustainable agriculture, horticulture, landscaping, energy production, water use, passive-solar building design, aquaculture, land use issues, and social systems theories.

He also spent a summer during this time farming on campus with a very progressive agriculturist who had lived and studied under the Amish. Additionally during his stint at Cal Poly, Anthony worked with John Greenlee, the West Coast ornamental grass expert and nurseryman. This anchored his enthusiasm for grasses, and his fascination with monocots of all sorts continues to grow.

On the botanical front, he is primarily interested in plants from the world's mediterranean climates, including California's, and how they enrich the garden environment and sense-of-place in relation to our own bio-region. On a more ornamental note, he is intrigued by plants that provide interesting form, foliage, and texture for year-round interest and thinks all inflorescence types are subordinate to the umbel.

Anthony says, "I'm honored to be a part of the UCBG team, among interesting, knowledgeable, and friendly staff and faculty. I hope my contributions to the Garden and the horticulture staff will be helpful and timely."

At a time when endangered ecosystems present horticulture with new challenges, Anthony's special breadth of experience will indeed be appreciated.

Welcome, Anthony!



Anthony Garza

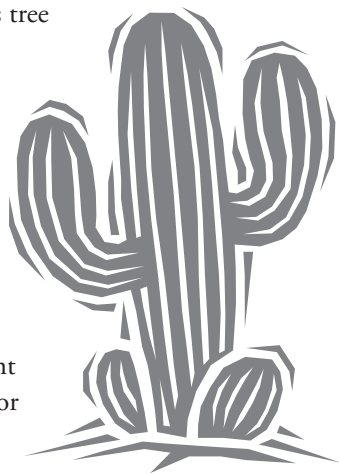
GARDEN NOTES

A CONFERENCE ATTENDED... Horticulturist **Judith Finn** attended a conference at UC Davis on "The Future of Pesticide, Regulations and Restrictions" sponsored by UC Davis. Topics included genetically modified organisms (GMOs), and the ultimate demise of many chemicals that are still in use by the agriculture industry. Though the Garden has not used these chemicals for 15 to 20 years, if at all, it was instructive to learn about pesticide development over the centuries.

SLIDE LECTURES GIVEN... Horticulturist **Roger Raiche** gave the following talks: "Dynamic Plantings with Perennials (and other Plants)" to the Northwest Horticultural Society in Seattle; and "The Cedars, Sonoma County's Spectacular Serpentine Canyonlands" for the Milo Baker Chapter, California Native Plant Society and for the December annual banquet of the California Native Plant Society, held in Berkeley.

FALLING... A redwood tree in the Mather Grove succumbed to high winds in early January, damaging the railing of the Townsend Amphitheater. Another tree, badly leaning, was removed by the campus tree crew...

AND RISING... The new Desert House construction is underway, with completion scheduled for the spring. The concrete flooring was poured in mid-January. Completion of the Center for the Study of Plant Conservation is scheduled for late February.

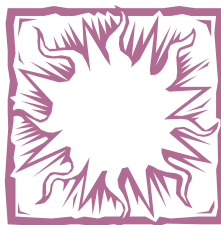


GARDEN HOSTING... The East Bay Chapter of the California Native Plant Society continues to meet in the Garden's Mirov Room on the fourth Wednesday of each month. Meetings are open to non-members. For program information, see the organization's web site, www.ebcnps.org.

STAFF DEPARTURES... The following staff have left the Garden: Horticulturist **Daria Curtis** and Administrative Assistants **Angela Esparza** and **Marilyn Setterfield**. We thank them all for their hard work at the Garden and wish them well.

—Holly Forbes

Mediterranean Climate Gardening



The Garden's programs for 2001 will feature the plants and gardening techniques most appropriate for the Bay Area's "mediterranean" type climate. With our warm, dry summers and cool, rainy winters, we have learned the importance of water-wise or drought-tolerant gardening. As our population increases, using water more sparingly becomes imperative. This year, you can learn from experts, not merely how to make responsible use of our resources, but also how to fine-tune your aesthetic sense for "mediterranean" gardening!

The Garden inaugurated this theme through the Unselct Program Endowment, which sponsors an annual lecture on a botanical or horticultural topic. As the first Unselct lecturer, we invited **Peter Dallman**, author of *Plant Life in the World's Mediterranean Regions*, to lecture on his extensive travels throughout the world's mediterranean regions where he researched their extraordinary floristic diversity. Our Winter & Spring program schedule will follow up with these experts:



- **Annie Hayes** on adding the charm of annuals to dry gardens
 - **Mary and Gary Irish** on achieving drama with agaves and yuccas
 - **Stew Winchester** on selecting trees for drought-resistant gardening
 - **John Greenlee** on new, water-wise grasses
 - **Graham Duncan** on the riches of South African bulbs
- Garden docents will also lead two special tours, *Plants of the Bible* and *Mediterranean Herbs*.

Our **Spring Plant Sale** will also offer its usual splendid cast of all kinds of plants, but drought-tolerant plants—many available only here—will star!

—Nancy Swearingen



Volunteer Wreathmaking

Volunteer **Tanya Muschietti** tackles a "Roger's Red" grape vine, which she coiled into an elegant Holiday wreath.

NEW BOOKS AND UC BERKELEY TREASURES

The Gardens of Gertrude Jekyll by Richard Bisgrove. University of California Press, Berkeley, CA, 2000. Color and b/w photos, color drawings, 192 pages, paper, \$29.95.

They say musicians can “hear” the music they read without having to play it. For those who know plants, reading *The Gardens of Gertrude Jekyll* will enable them to “see” the gardens she designed from the late 1800s until her death in 1932. Interest in the Jekyll gardens is not new. Her work has had an enormous influence on garden design throughout the past century. Her contemporaries knew her from the books she wrote and from over a thousand of her published garden articles. In addition to this large body of work, she designed over 250 gardens and left more than two thousand working drawings about them. Richard Bisgrove, director of the Landscape Management course at Reading University, England, has selected a representative sample of these Jekyll planting plans as the basis for his research and text. With the assistance of a watercolorist and a photographer (and with current plant names), he has been able to reconstruct



Jekyll's gardens so that we can picture their individuality and character.

The documents for this research are part of the Reef Point Collection held, amazingly, in the rare book room of the School of Environmental Design library at the University of California in Berkeley. They have been a source of reverence and delight to the countless UC students who have discovered them, or have been assigned to take care of them. The story of this acquisition is remarkable in itself. The collection was purchased and saved nearly intact by Beatrix Jones Farrand, herself an American landscape architect and one of the founding members of the American

Association of Landscape Architects, at the beginning of World War II.

Farrand intended to use the collection in the library she was amassing for her Reef Point school of landscape design. That English gardeners and the Royal Horticultural Society allowed this sale at all was due, according to Penelope Hobhouse, to the common belief that England was about to lose the war. To help the war effort, everyone was even “melting down their silver.” Later, Farrand realized she would be financially unable to establish her school. After discreet inquiries, she decided to bequeath her Reef Point collections of books, papers and herbarium specimens (these are at the UC Herbarium) to UC Berkeley.

For more than thirty years, studies about Gertrude Jekyll and her gardens have appeared. Reissues of her books and photograph albums have been published, many with scholarly comments and color photographs. For those of us who would like to “visit” her gardens and experience the excitement of handling her garden plans, *The Gardens of Gertrude Jekyll* is nearly the same as the real thing.

—Elly Bade

The Garden Shop also carries the following books related to the above review:

✿ *Beatrix: The Gardening Life of Beatrix Jones Farrand, 1872-1959* by Jane Brown

✿ *Beatrix Farrand's American Landscape: Her Gardens and Campuses* by Diana Balmori, Diane K. McGuire and Eleanor M. McPeck

✿ *The Bulletins of Reef Point Gardens* by Beatrix Farrand, Introduction by Paula Deitz

✿ *Gertrude Jekyll* by Sally Festing

✿ *Gertrude Jekyll at Munstead Wood: Writing, Horticulture, Photography, Homebuilding* by Judith B. Tankard and Martin A. Wood

✿ *The English Garden: Through the 20th Century* by Jane Brown

✿ *Gertrude Jekyll's Lost Garden: The Restoration of an Edwardian Masterpiece* by Rosamund Wallinger

Recognition

Contributions received from 10/20/2000 up to and including 1/31/2001.

New Members

The Garden wishes to thank our new Individual and Family members:

Gretchen Atwood and Javon Kanegson
 Patricia Ayotte
 Monica Baldzikowski
 Wendy and Robert Bergman
 Andrea Biren
 Margaret Blunt
 Alisa Borrone
 Barbara Boster
 Sheryl Brunell
 Elizabeth Carolan
 Randy and Michelle Davis
 Lois De Domenico
 Willow Dean
 Wiliam and Anne Delp
 Sharon Divitt
 Anna Eastwood
 Michael Eisen
 Gloria Galindo
 Dorothy Hamilton
 Laura Kainik
 Gretchen Kell
 Lucy Canter Kihlstrom
 Sydney Kustu
 Marie Lagarde
 Jenella Loye
 Caren Maghreblian
 Shirley McDonald
 Kim Mondell and Tim Beerling
 Florence Morrison Clark
 E. O. C. Ord
 Phyllis Peacock
 Bob and Tina Presta
 Jean Smith
 Angele Sweet
 Herta Weinstein
 Kuniko Weltin-Wu
 Virginia Yang and Walter French
The Garden thanks these new members for their substantial gifts over and above membership:
 Robert Hicks
 William Robinson
 C. von der Hude

Donations

The Garden offers warm appreciation and thanks to these donors for their support of the Garden:

Willy and Charles Adam
 Bayard Allmond Jr.
 Alan and Helen Appleford
 Robert Apte
 Bill and Elly Bade
 Richard and Barbara Barlow
 Doris Beatty
 Margaret Benedict
 Peter and Carol Berkenkotter
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Patricia Coffey
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 Marion Greene
 Elmer and Pamela Grossman
 Jack and Betty Guggolz
 Beth Heckman
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 Ella Hirst
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Vintage BMW House
 Justine Hume
 Grant and Suanne Inman
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 Dwight Jaffee and Lynne Heinrich
 Lyle Jensen
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 Ruth Kasle
 Janice Kidd
 Toni Klassen
 Christopher Knudsen
 Royal Kopperud
 Ron and Mary Lai
 Dawn and Patrick Loretz
 Meredith Marschak
 Stuart and Melva McDonald
 Bill McJohn
 John and Barbara Nagle
 Beatrice O'Keefe
 Donna and Darwin Poulos
 Raymond and Joyce Raiche
 Carla Reiter
 Donald Riley
 Drew Roberts
 Susan Rogers
 Patricia Rougeau
 Jessie Schilling
 Deborah Sharpe
 Jacqui Smalley and John Austin
 Peggy Smukler
 Jean Steidel
 Ted Tawshunsky
 James and Irma Uren
 M. Vacheron
 Elizabeth Waterman
 Jennifer and Marshall White
Shasta Wildlife Conservation Foundation
 Norma and Witold Willer
 Chuck and Barbara Woodward

African Hill

The Garden especially thanks Mr. Robert Ferber for his generous contribution enabling the South African Desert Habitat restoration.

In Support of the Robert Ornduff Fund

The Garden offers warm appreciation and thanks to these donors for their support of the Fund in memory of Dr. Ornduff:

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The Garden Was Pleased to Receive...

...from the estate of Dr. Robert Ornduff, a large donation of books that were purchased on the Garden's behalf by Mrs. Phyllis Faber, Dr. William Culberson, Dr. Peter Raven, and Dr. Douglas James. A special bookplate honoring Dr. Ornduff will commemorate this donation.

...from Mr. George Waters, former editor of *Pacific Horticulture* magazine, a complete run of the magazine, as well as dozens of books, for the Garden Library and Garden Shop.

Myrtle Wolf Library

The Garden offers appreciation to these donors for their generous contributions to the Myrtle Wolf Library:

Joan Rock Mirov Bailard

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Gladys Eaton

(in memory of Dr. Robert Ornduff)

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In Memory

The Garden offers appreciation and thanks for gifts from those donors in memory of:

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The Garden offers appreciation and thanks for gifts in kind:

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WISHLIST

The new research laboratories of the Center for the Study of Plant Conservation at the University of California Botanical Garden are nearing completion. Donation of these items needed for the Center would be very warmly appreciated. If you can contribute, call Janet Williams at 510 643-2937.

- Kodak carousel slide projector ■ patio table and chairs
- 5-drawer filing cabinets (several) ■ 2-drawer filing cabinets (several)
- FAX machine (one) ■ boom box (stereo) (one or two)
- tall metal storage cabinets (several) ■ couch (one)
- under-counter (large dorm-size) refrigerators (several)
- computer tables ■ countertop clinical centrifuge ■ tall bookshelves
- bulletin boards (two or three)

—Dr. Ellen Simms, *Director*

CALENDAR OF EVENTS

CULTURE AND CARE OF AGAVES AND YUCCAS

Mary and Gary Irish, authors of *Yuccas, Agaves and Related Plants*, reveal how to make your dry garden a show-stopper!

Thursday, February 22, 7 pm

\$15, Members \$10.

Booksigning after the lecture.

SMALL TREES FOR WATERWISE GARDENS

What trees are most suitable for a dry garden? Stew Winchester will suggest some particularly interesting ones.

Saturday, March 10, 10 am

\$15, Members \$10.

ORNAMENTAL GRASSES FOR THE MEDITERRANEAN GARDEN

John Greenlee, author of *The Encyclopedia of Grasses*, is at the cutting edge of the grass business. Let him show you how to add the drama of ornamental grasses to your dry garden.

Saturday, March 24, 10 am

\$15, Members \$10.

Booksigning after the lecture.

SOUTH AFRICAN BULBS

South Africa's bulbs make an excellent choice for dry gardens, as Graham Duncan, bulb specialist at Kirstenbosch Botanical Garden, Capetown, will show you.

Saturday, May 12, 3 pm

Free.

Reception after the lecture.

FIBERS & DYES EXHIBIT

Feel the plant fibers and delight in the plant dyes used to make the world's fabrics.

Saturday, April 14 – Sunday, April 29

10 am – 4 pm

Free with Garden admission.

BEGINNING BIRDWATCHING

Learn the basics of finding and identifying birds with our long-time instructor, Dennis Wolff.

4 Thursdays, beginning May 17, 9:30 am – Noon

\$65, Members \$50.

BIRDING BREAKFAST

Join bird-watchers extraordinaire Dennis Wolff and Chris Carmichael for an early morning stroll in the Garden, followed by a hearty breakfast!

Saturday, June 2, 8 am

\$35, Members \$25.

SICK PLANT CLINIC

UC plant pathologist Dr. Robert Raabe and his team of experts will diagnose what ails your plants.

First Saturday of Each Month, 9:00 am – Noon

SPRING 2001 PLANT SALE

A dazzling assortment of all kinds of plants—many available only at the Botanical Garden!

The sale will highlight plants perfect for "mediterranean" gardening in the Bay Area.

PREVIEW & SILENT AUCTION

(including botanical treasures donated by

Dr. Ornduff's estate)

Friday, April 27, 5 – 7:30 pm

Members Only

PUBLIC PLANT SALE

Saturday, April 28

10 am – 2 pm



2nd Annual GARDEN PARTY

Celebrate the completion of the new Desert House and the renovation of African Hill with luscious food, wines from "Mediterranean" vineyards, and lively music in the incomparable setting of the Garden!

Saturday June 16, 3 - 6 pm

MOTHER'S DAY TEA

Celebrate Mom's special day with home-made treats, music, and a stroll in the Garden!

Sunday, May 13

Seatings on the hour,

at 1 pm, 2 pm, 3 pm

\$15, Members \$10.

Children under 12, \$5.

To register for any program or event*, call 510-643-2755. *Reservations are not required for the Sick Plant clinic or the Spring Plant Sale.

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