Notable New Zealanders

Visitors to the Garden have noticed recent changes in the plantings in the former Australasian Area. At one time, this area was dominated by Australian plants, but these suffered badly from the deep freezes of 1974 and 1990, as well as from the heavy soils and cool summers that many Australian plants do not tolerate. As a result, some of the gaps fortuitously created are being filled by native New Zealand plants. These plants seem more tolerant of Garden conditions, and so far most of these are doing well, having survived the deep freeze of last January. Since visitors often complain about the lack of common names on our plant labels, newly installed New Zealand plant labels bear both English and Maori common names.

New Zealand is separated from Australia by about 2400 miles of the Tasman Sea, an oceanic gap that is an important biogeographic barrier. Geologically, biologically, and historically these two island complexes have less in common than one might suppose. While the New Zealand flora has strong ties with the Australian flora, it also shows a strong affinity to the flora of temperate South America. The Australasian Area is across the main loop road from the South American Area. Thus, it is possible to see New World fuchsias growing within a few feet of the peculiar treelike kotukutuku, *F. excorticata*, one of three species of the genus native to New Zealand. Its curious green to purple flowers are borne on woody stems, presumably to facilitate pollination by heavy-bodied honeyeaters, whereas New World fuchsias are pollinated by hummingbirds and bear their flowers held away from the stems and leaves. Likewise, New Zealand members of the southern beech genus *Nothofagus* have been planted within sight of Chilean species of this ancient Gondwanan genus.

New Zealand is rich in conifers, many of which are among the oldest specimens in this planting. The graceful rimu, *Dacrydium cupressinum*, with its slender pendulous branches, was accessioned in 1956. Kahikatea, *Dacrycarpus (=Podocarpus) dacrydioides*, likewise with drooping branches, was acquired in 1961. Our oldest specimen of kauri, *Agathis australis*, is a member of the araucaria family that was acquired in 1973. It is still fairly small, but has already produced cones. In nature this species may grow to over 150 feet tall with trunks up to 20 feet in diameter. The araucaria family currently is restricted to the southern hemisphere, suggesting it is a Gondwanan family, but it is known from...
extensive fossil remains in the northern hemisphere as well. Kawaka, Libocedrus plumosa, of the cypress family is closely related to Austrocedrus chilensis, planted in the South American Area, and our own incense cedar, Calocedrus decurrens, present in the California Area. All these species were at one time placed in Libocedrus, the name that was in use for incense cedar when I first began learning plant names. Tanekaha, Phyllocladus trichomanoides is a very curious tree. Unlike most podocarps, it does not produce leaves but instead has divided leaflike photosynthetic structures called phylloclades that represent flattened branches. The English name for this tree, celery pine, is a descriptive one alluding to these green flattened branches.

New Zealand plants are not noted for their colorful flowers, probably because the pollinator fauna of the islands does not include many creatures with color vision. Thus, many New Zealand plants are grown for their foliage rather than their flowers. Virtually all New Zealand shrubs and trees are evergreen, so they are ornamental throughout the year. Some New Zealand sedges and grasses are well known in cultivation, grown for their distinctively colored foliage. The shrub Senecio compactus has handsome evergreen leaves with white wavy edges. Kawakawa, Macropiper excelsum, a dense shrub or small tree in the mostly tropical pepper family, has striking strongly nerved leaves that convey a tropical effect.

However, a few New Zealand plants bear showy flowers. The beautiful pohutukawa belongs to one of five New Zealand genera of the myrtle family, Myrtaceae, which is richly represented in Australia. It is Metrosideros excelsa, also called Christmas tree in New Zealand because it produces its showy crimson flowers in December. Our young plants were singed by last January’s freeze, but the tree grows well as a street tree in milder San Francisco, where it flowers in summer. Particularly striking is the lily Xeronema callistemon, which produces a nearly horizontal inflorescence with striking crimson flowers. This species is known from only a few tiny islands off the North Island of New Zealand. We also have vigorous individuals of napuka, Hebe speciosa, a rounded shrub with very showy flowers that are a rich reddish magenta. It is a parent of many garden hybrids with colored flowers.

Many New Zealand plants are grown for their foliage alone. These include New Zealand flax or harakeke, Phormium tenax, a favorite of unadventurous landscape designers, and cabbage tree or ti kauka, Cordyline australis, which at maturity resembles the Joshua trees of California deserts. More interesting, however, are lancewood or horoeka, Pseudopanax crassifolium, which bears long pendant lance-shaped leaves on an unbranched trunk when young, and shorter leaves on branched stems of older plants. Many other New Zealand shrubs have strikingly different juvenile and adult leaves; some biologists interpret this as an antiherbivore mechanism, with the unpalatable juvenile leaves borne on younger, shorter plants, and adult palatable leaves borne above the reach of browsing moas. This hypothesis cannot be tested easily, since moas are extinct.

New Zealand’s Southern Alps are, next to the southern Andes, the highest mountains in the temperate southern hemisphere. They support a varied array of alpine plants, many of which have been established in a small planting in the Australasian Area along with lower-elevation plants suitable for a rock garden. Here one can find some striking diminutive Hebes, such as H. decumbens, with its shiny, purplish-black bark, the mat-like H. epacridae, and the bluish-flowered H. pimeleoides. Here also are young plants of the curious golden spaniard, Aciphylla aurea, a member of the parsley family with yellowish, sharp-pointed golden-bronze leaves, and the fleshy-fruit Pimelea prostrata. A particular favorite of mine is scabweed, Scleranthus biflorus, which looks very much like a mossy blob of green bread dough oozing over the ground. Before you reject this plant, take a look at it and see if you don’t agree that it has considerable merit. It’s biogeographically interesting, too, since this species also occurs in Australia and southern South America.

The New Zealand component of our Garden plantings is still under development and there are many species we intend to acquire to make this collection truly representative of this distinctive and attractive island flora.

—Robert Ornduff
As the Garden approaches the end of its first year of reporting to the Office of the Vice Chancellor for Research, we continue to benefit from the strong support of the University. New positions have been created to restore a permanent Associate Director and create an Administrative Specialist position. A search is underway for a new Horticulture Manager to fill the vacancy created by the retirement of Daniel Campbell. In a move to improve maintenance of our scientific collection of wild-collected plants, a new horticulturist will be hired later this Summer. Several horticulturist assistants have been hired as well. And a new horticulture intern program has begun. These vigorous steps are helping to ensure that the Botanical Garden's unique collection receives the attention it deserves.

Because the integrity and safety of our plant collection are paramount, we have begun working on replacing the Desert-Rainforest greenhouse. The deferred maintenance program on campus is working with us to finance and build a new structure based on our design. This is indeed welcome news. We recently learned that the chemical-storage facility across Centennial Drive from the main Garden entrance will be turned over to the Garden in September 1998. We have wonderful support from campus to help our use. The Garden recently was included in the campus' fire fuel reduction effort.

With the hiring of an assistant and new graduate interns in the Garden's Curatorial Office systematic vouchering of our priceless collection of plants will finally get under way. Under Holly Forbes' leadership the Museum Informatics Project on campus has developed specialized software that will allow the Garden to fully computerize our collection data and make it available on-line. We hope you have all visited our Web Page at http://www.mip.berkeley.edu/garden/. Through this new avenue we can better serve researchers and educators alike.

Stop by the Garden of Economic Plants and visit the new exhibit on "Centers of Plant Domestication." The prototype exhibit will continue to be tested with our public during June to ensure the effectiveness of the information. If you would like to participate in the testing of interpretive material in the Garden, please let Jenny know. We always welcome help in soliciting visitors' opinions. It is great fun as well as enlightening.

We have found out that a significant number of visitors are in the Garden on Thursdays and holidays. We have begun giving free docent-led tours on these days to better interpret the Garden for them.

Since January over $40,000 has been raised through entrance fees! These funds have directly gone into a number of educational and interpretive programs including a series of new self-guided tours of the Garden. Look for a revised Serpentine display brochure and a new tour of the Herb Garden, as well as one on Uses of Plants by California Native Americans. Docents have received computer training and are now producing prototype materials on our new computer systems. They are producing myriad materials including interpretive signs and brochures as well as outstanding activities and materials for new "Today on the Terrace" workshops for families. At every turn efforts of the Garden's fabulous volunteers can be seen. Since January, over 8,000 volunteer hours have been logged! And we know many more are spent outside of the Garden. The Garden thrives because of this effort and helps us demonstrate to the University the value placed on the Garden by the community.

The Garden truly is in a new era. Combined with the devotion, talents and commitment of our hundreds of volunteers and our staff, the Garden is going places! Thank you all for helping make our collective dreams become our reality.

—Ian Carmichael, Acting Director
—Jennifer White, Associate Director for Education
THE DOCTOR SAYS

In a research program to determine flavor and acceptability of pumpkin and similar pies, tests were made using pumpkin, sweet potato, Cushaw winter squash and various combinations including pumpkin and squash, squash and sweet potato, and pumpkin and sweet potato with the mixes done in various proportions of each. Ninety testers rated their flavor, texture and overall acceptability. Best was squash-sweet potato when the ratio was 50% of each. Next best was the mixture of 25% squash-75% sweet potato.

Did you ever hear of Rattail? It’s an heirloom radish Raphanus sativus var. caudatus which grows 4 to 5 feet tall and produces many foot-long seed pods in about 50 days. The pods can be added to stir-fries and when sliced and salted can be substituted for beer nuts.

‘Patriot’ is a new hybrid elm released by the USDA. Though its parents are European and Asian, the tree resembles the American elm, especially in its vase-shaped crown. It is resistant to the Dutch elm fungus and to elm yellows, a virus disease of elms.

The city of Albuquerque, New Mexico, has adopted an ordinance that bans the sale of commercially grown cypresses (Cupressus), mulberries (Morus), elms (Ulmus), junipers (Juniperus, except female clones) and all poplars except Populus fremontii var. wislizenii, P. tremuloides and P. acuminata. Sycamores (Platanus) and ashes (Fraxinus spp.) have to be labelled, warning of their possible allergenic properties. Some cities in Arizona ban sale of olives (Olea europea) and white mulberry (Morus alba).

In the southeast, ‘Silver Queen’ sweet corn has been the ruling “monarch.” In a recent variety test which included appearance, sweetness and flavor, the top ranking variety was ‘Snow White’ (35), followed by ‘SnowBelle’ (25) and then by ‘Silver Queen’ (23).

Did you know there are approximately 1 million identified species of insects but only about 5% are classed as pests causing plant problems? Recent studies have shown that approximately 10% of a plant’s leaves can be chewed, discolored before it is recognized as having a pest problem.

From England, there are new fruit trees called Minarettes. These are slender, single stem, upright trees that have fruit spurs from top to base. They are grown on the most dwarfing of root stocks to keep them small, and in fact, can be grown 2 feet apart. When mature, they are 6-8 feet tall. Presently available are 7 cultivars of apples, 2 of pears, 2 of plums and 1 cherry.

Although various approaches to extending the vase life of flowers are continuing to be suggested, recently one that combines several of the previously suggested materials has been published. It consists of 1 cup of regular 7-Up™, 1 cup of water and 1/2 tsp. household bleach. (The question might be raised as to whether other non-diet, non-caffeine soft drinks might work.) This should be changed every several days and more frequently if bouquets are mixed.

The FDA has approved the first ever food-specific health claim. Whole grain oat cereals and oat-based foods can advertise on the containers of qualifying products the FDA endorsement that such foods help combat heart disease.

‘Red Princess’ is reported as the first red delphinium. It has additional advantages in that it has high resistance to mildew and the flowers have a two-week vase life. It made its premier at the International Flower Trade Show in Aalsmeer, Netherlands.

—Dr. Robert Raabe
Champion Conifers

An article in a recent American Conifer Society (ACS) Bulletin discusses champion conifers. A National Register of Big Trees includes some conifers that, according to the article “will knock your socks off.” Number one champion of course, is our own California Big Tree, otherwise known as Giant Sequoia (Sequoiadendron giganteum), which the article claims is “believed to be the biggest tree in the world.” That is, the biggest Big Tree is the biggest tree in the world.

The Big Tree register is operated by American Forests in Washington, D.C. Individual specimens listed in the register must be “nominated” by someone. Specimens submitted for consideration are rated on a point system, must be correctly identified, and relevant measurements submitted. The last include circumference of the trunk 4 1/2 feet above the ground (if the trunk is forked, additional regulations fall into place), the height of the tree (hints are given on how one can determine the height of very tall or distant trees), and average diameter of the crown. The vital statistics are then subjected to a series of calculations that result in a specific number of points awarded to that specimen. If more than one specimen of a species is nominated, the one with the greatest number of points makes the champion list, although close calls are considered ties. Champion specimens of tree species that are normally small will obviously have fewer points than those that are large. In the 1996/1997 champion listing, one champion has only 22 points. It is roughleaf velvetseed, otherwise known as Guettarda scabra in the madder family; this 8-foot behemoth resides on Totten Key, Florida. At the other extreme is the champion Giant Sequoia, with 1,300 points.

Not surprisingly, many of the champions grow in California. Although Giant Sequoia is not the tallest conifer, it received its high score because of its combined height (275 ft.), trunk circumference (26+ ft.), and spread (101 ft.) thus achieving 1300 points. Next is the champion Coast Redwood (Sequoia sempervirens), which is taller (313 ft.) than the champion Giant Sequoia, but since it has a smaller trunk circumference (22+ ft.) and spread (60 ft.); it received only 1183 points.

Some other California specimen conifers make the list. Pacific Silver Fir (Abies amabilis), is listed in the 1993 Jepson Manual as known from only two populations in California (both in Siskiyou County), although it is a common forest tree northward to British Columbia. It is a surprise, then, that the 180-foot-tall champ of this species grows in California (512 points) at the very southern end of its range. But then, the tallest Coast Redwood grows at the northern end of the range of that species.

There are two champion Piute cypresses (Cupressus arizonica ssp. nevadensis), a tree also said by The Jepson Manual to be rare in California. The two champs received scores of 166 and 168 points—not quite a tie, but too close for the judges to call. Cuyamaca Cypress (C. arizonica ssp. arizonica), also rare in California, has its champ here (144 points). The champ Pygmy Cypress is also in California; that specimen is 142 feet tall. If that individual grows in the Pygmy Forest it should be easy to spot. Six other champion cypress species grow in California, but the champ of these champs is a Sargent Cypress (C. sargentii) that is only three feet taller than the champ Pygmy Cypress. So much for common names. The champion Bigcone Spruce (Pseudotsuga macrocarpa) and the champion California Nutmeg (Torreya californica) are in California, not surprising since these two conifers grow naturally only here.

Two champion junipers grow in our state: California Juniper (Juniperus californica, at 137 points) and Western Juniper (J. occidentalis, at 581 points). Brewer Spruce (Picea breweriana), a strikingly beautiful endemic of northwestern California and southwestern Oregon, has its champion in California, a 176-foot tall tree with 391 points. If pulchritude counted, this species would rate more highly, but it doesn’t count. The champion Western Bristlecone Pine (Pinus longaeva), Foxtail Pine (P. balfouriana), Knobcone Pine (P. attenuata), Bolander Pine (P. contorta ssp. bolanderi), Lodgepole Pine (P. contorta ssp. murrayana), Singleleaf Pinyon Pine (P. monophylla), Western White Pine (P. monticola), Bishop Pine (P. muricata), Jeffrey Pine (P. jeffreyi), Sugar Pine (P. lambertiana), Parry Pinyon Pine (P. quadrifolia), Monterey Pine (P. radiata), Gray or Foothill Pine (P. sabiniana), Torrey Pine (P. torreyana), and Washoe Pine (P. washoensis) are all in California. There are two champion yellow pines (P. ponderosa), one in Oregon (531 points) and one in California (527 points). Granted, several of the pines named above are endemic to California or nearly so; thus the champs should grow here. Some species, such as Western White Pine, Jeffrey Pine, and Lodgepole Pine occur widely outside the state, yet the champs of these are in California. This is also true of Incense Cedar (Calocedrus decurrens).

If you wonder why the champion Bristlecone Fir (Abies bracteata), endemic to the Santa Lucia Mountains, is not in California, the explanation is simple. There is no champion Bristlecone Fir—anywhere. There also is no champion Santa Cruz Cypress (Cupressus abramsiana), a species known only from the Santa Cruz Mountains, no champion Gowen Cypress (C. goveniana ssp. goveniana), known only from the Monterey Peninsula, and no champion Coulter Pine (Pinus coulteri), which ranges from central California into Baja California. There are no champions of these species because no specimens of any of them were nominated for the current register. If you want to do a good deed for one of these California conifers, and add another Californian to the List of Champions, write to the National Register of Big Trees, American Forests, P.O. Box 2000, Washington, D.C. 20013 or contact the California Department of Forestry and Fire Protection for information on the nomination procedure. If no one else nominates a Coulter Pine, any old tree you choose to measure on Mount Diablo should be the 1998/1999 champion.

—Robert Ornduff
Research and the Botanical Garden

An important mission of the Botanical Garden is to foster biological research. Garden policy requires that wherever possible, plant acquisitions must be accompanied by field data on the origin of the plants. As a result, our living collection has considerable scientific as well as horticultural merit. It represents about 5 percent of the world's known species of vascular plants. The current holdings of the Garden comprise more than 21,000 accessions representing 324 plant families. These living accessions represent approximately 13,200 different species and subspecies (2,885 genera), making it one of the largest and most diverse collections in the United States.

California native plants (ca. 4,000 accessions) occupy approximately one-third of the area and mostly are grouped by plant communities. These include nearly one-half of the state's native vascular plant species (according to *The Jepson Manual: Higher Plants of California*) and 174 taxa on the California Native Plant Society's list of rare and endangered species. Other outstanding collections in the native plant area include manzanitas (*Arctostaphylos* spp.) with 81 taxa (252 accessions), California-lilacs (*Ceanothus* spp.) with 55 taxa (164 accessions), and an almost complete collection of California bulbous monocots in the Lily and Amaryllis families (*Fritillaria, Calochortus, Lilium, Erythronium, Allium, Brodiaea*) with 118 taxa (234 accessions).

The Garden is truly a botanical garden rather than a horticultural display garden, even though most of our visitors come to enjoy the plants for their esthetic values and not because of their scientific merit. Garden collections are available to researchers on campus and elsewhere in the world. Some research projects have been carried on within the Garden, and the Garden also houses research collections of several faculty (Herbert Baker, Bruce Baldwin, Lincoln Constance, Carla D'Antonio, Robert Ornduff), research staff (Donald Dod, Barbara Ertter), and graduate students (Terry O'Brien) at our campus. However, most of the research use of Garden plants involves filling requests sent in by researchers in many corners of the world.

In recent years, the Garden has received requests for research material from researchers in over half the states in this country (CA, OK, MO, VA, UT, TX, HI, OR, IL, AZ, MA, NM, CO, WA, MD, GA, DC, IN, FL, GA, NC, NV, UT, OR, WI, LA, and FL). Requests also have come from Canada and Mexico and from several countries overseas, including Germany, Denmark, Italy, United Kingdom, Slovenia, Spain, France, Australia, People's Republic of China, Philippines, Switzerland, Japan, Greece, Hungary, India, Russia, and Austria.

A Wide-Ranging Request List

Requests include those for seeds, cuttings, rooted specimens, dried specimens, liquid preserved material, wood samples, leaves, and pollen. We ask researchers to provide a brief description of their research projects so we can gain an idea of the range of uses to which our plants are put. We also ask that the contribution of the Garden to the research project be acknowledged in any publications and that copies of these publications (mostly research papers) be sent to us for our files.

The diversity of uses to which our plants have been put is remarkably broad. One of the very active contemporary areas of plant systematics is molecular systematics, in which the molecular structures of genes are determined and then used to work out relationships among plants. Most recent requests for plant materials fall into this area of research. But other projects utilizing Garden plants include studies of the evolution of fatty acids in seeds, chromosome...
structure, plant embryology, ultrastructure, plant breeding, horticultural trials, potential for insect repellents, flowering physiology, antibiotic properties, seedling behavior, water stress, archaeology, paleobotany, pollination biology, metabolic pathways, conservation biology, leaf architecture, protein analysis, natural products chemistry, seed proteins, plant pathology, host-parasite relationships, and biogeography.

In April of this year, the Garden provided branches of two conifer species to the Institute of Economic Botany of the New York Botanical Garden, where they will be studied for their potential role in the treatment of cancer. On a more immediate level, the Garden provided leaves, branches, and flowers of medicinal plants for the UC San Francisco Mount Zion Medical Center for use in workshops with cancer patients. They make impressions of the plants by pressing them into the surface of clay tablets. These tablets will decorate a hallway leading to a patient courtyard.

Washington State University at Pullman graduate student Jason Koontz is studying phylogenetic relationships within a section of the genus *Delphinium* (larkspur). The Garden was able to provide him with leaves from the Garden and wild population sites for other collections (with all the necessary permits, of course!) for his research program. Because of his interest in this genus, we were able to persuade him to take on a Garden project that is part of our affiliation with the Center for Plant Conservation. In collaboration with the Department of Fish & Game and the California Native Plant Society, we provided leaves of the endangered yellow larkspur (*Delphinium luteum*) from one of the two natural populations, from Garden-grown plants, and from another cultivated population for detection of genetic contamination (from crossing with another species) and levels of genetic variation among the plants in each sample. The results of his analysis will tell us if the cultivated populations are suitable for any proposed reintroductions of the species to appropriate natural habitats.

Other active research projects include those of graduate students Sandra Floyd at the University of Colorado, Boulder and Susanna Magallon at the University of Chicago and the Field Museum in Chicago. Ms. Floyd’s project involves the study of early endosperm and embryo formation. Ms. Magallon is performing a comparative study of floral morphology of living and fossil primitive plants.

**An Irreplaceable Resource**

Several years ago, Curator Jim Affolter estimated that filling the request of a single typical researcher saved that individual many thousands of dollars in travel expenses and a few weeks of time if he had been forced to make the collections himself in the field. It took us perhaps an hour or two of staff time to provide the desired material from our living collections.

A worker at the Smithsonian Institution investigating the evolutionary history of the genus *Lewisia* wrote us that “it would be practically impossible...to duplicate these materials for modern genetic studies...it is crucial that such a resource be preserved for research purposes...and I hope the Garden continues to maintain its critical role in facilitating botanical research.”

—Robert Ornduff and Holly Forbes
A Book of Salvias, Salvias for Every Occasion.
Betsy Clebsch; Drawings by Carol D. Barner; Timber Press, Portland, OR, 1997. 87 color photos, 9 color paintings, 40 line drawings; useful lists; 264 pp, Hardcover. $29.95

Betsy Clebsch's many friends in the San Francisco Bay area, elsewhere in California, and in the far corners of the world have been quietly waiting for her book on salvias. Here it is, and it's a joyful occasion for everyone.

It's widely known that Betsy has been growing salvias for more than twenty-five years, and that when she first began growing them she found that many were misnamed or had incomplete or no information about their care and cultivation. So Betsy began searching for information about the salvias she grew and other species she came in contact with. When she traveled, she went to see salvias in their natural settings, and brought seeds home. She visited botanical gardens and exchanged seeds and plants with gardening friends. Her knowledge about salvias grew, and pretty soon people were coming to her with questions about them. Eventually, instead of answering these questions one by one, she began to write her book.

In her book Betsy provides information on well over 103 salvias, more than gardeners can find in one place elsewhere. Except in a few cases, which she mentions, Betsy has grown every one of the plants she describes. Her entries are arranged alphabetically by botanical name for easy reference. She gives common names when they are known. She describes leaves, stems, flowers, colors, plant appearance, and cultivars, and includes hardiness ratings and cultivation requirements. Her intimate knowledge and use of plants are so extensive that she easily is able to suggest companion plants which will look well with, and be culturally compatible with, the salvias she tells us about.

In recent months, garden writers here and abroad have written about Betsy's garden with admiration and affection. This is the fifth garden she has made. The site is a grassy knoll protected from deer by two four foot fences five feet apart. It drops off steeply on one side and is bordered on another by an oak grove. The garden is arranged simply, with winding paths. It contains a rich diversity of plants at first seemingly familiar but on closer inspection unusual in cultivation. Nearly all the plants have been grown by Betsy from the seeds or cuttings she has collected. Her book is much like her garden: a relaxed, quiet, gentle guide to the plants she loves and knows so well.

Betsy Clebsch will be giving a slide lecture at the Garden on June 29, 1997 from 2-4 pm in the Conference Center. The title of her talk is "Salvia and Friends." Her new book will be available for purchase at that time, and she will be happy to sign it.

Salvia carduacea  Salvia discolor  Salvia mexicana
Not many of the first and second editions of *Where On Earth*, undertaken on behalf of the San Francisco Landscape Garden Show—as is this edition—are around to compare to this. They have been thumbed, creased, bent back, dropped, carried around and generally dog-eared to pieces. This 3rd edition has come out when we need it most, and is reasonably-enough priced to let us feel we can afford to thumb, crease and dog-ear it all over again. Organized by regions, nearly 300 specialty nurseries have been chosen, along with their addresses, telephone numbers, business hours, plant specialties, and directions on how to find them. E-mail and websites are given when they are known. A handy pocketbook, backpack or car glove compartment size. This book is a reference no California gardener can do without. Profits from the sale of this book benefit Golden Gate Park in San Francisco.

**Kashaya Pomo Plants.** Jennie Goodrich, Claudia Lawson and Vana Parrish Lawson; Heyday Books, Berkeley, CA, 1980. Linguistic diagrams; maps; drawings; appendices; index; 171 pp. Paper. $12.95


The best time to visit the California section of the UC Botanical Garden is early spring, following the winter rains. Everything is fresh and lovely. The first early flowers of the California currant attract resident hummingbirds. Gradually the section comes into bloom. This small replica of the California flora is an example of California as it has been for hundreds of years. This is a flora on which our California Indians depended for their existence.

Heyday Books has reissued a 1980 study of the plants used by the Kashaya Pomo, who originally lived along the Sonoma County coast in an area of, roughly, 300 square miles. Most of the plants they used for tools, food and medicine are familiar to us in the San Francisco Bay area. Originally published by the American Indian Studies Center at UCLA, the book describes 168 plants that are arranged alphabetically by their English common names. Botanical names and Kashaya names are given too, as well as Kashaya uses of the plants. Members of the UC Botanical Garden community will be interested to learn that the information about the Kashaya language is based on the linguistic field work done by Dr. Robert Oswalt. During the course of his field work, Dr. Oswalt collected plant specimens for identification by university botanists, and twice brought two Kashaya Porno to the Garden to identify plants in the California section. Dr. Oswalt is the husband of our Garden docent, Esther Oswalt.

Those of us living in California have many opportunities to view fine museum collections of historic California Indian baskets. However, not many of us are aware that there is a small, energetic group of California Indian basketweavers determined to keep their basketweaving traditions alive today. Linda Yamane is one, and she has spent many years learning about the basketry of her Ohlone ancestors. In *Weaving a California Tradition* she writes about Carley Tex, an 11 year old Western Mono girl, who is learning to weave baskets in the way her ancestors did, using the same plants they used. In her book, intended for young readers, Linda describes Carley’s every day life at school and her family life at home observing traditional Western Mono customs.

The Garden Gift Shop has other Lerner publications for young readers in their series about Native American life today. Some of the titles are: *Ininatig’s Gift of Sugar*, by Laura W. Waterman; *Four Seasons of Corn, A Winnebago Tradition*, by Sally M. Hunter; and *Sacred Harvest*, by Gordon Regguinti.

---Elly Bade
GARDEN NOTES

We said farewell to two longtime staff members in March: Garden Manager Daniel Campbell took early retirement to pursue another career. Mr. Campbell was manager for 17 years, during which time he facilitated many new developments in the Garden (see the Fall 1996 Newsletter for his staff profile). Administrative Assistant Toni Kafton also took early retirement. Mrs. Kafton was employed at the Garden for more than 15 years and worked elsewhere on campus prior to that. Best wishes to them both!

The Entrance Kiosk was also fully staffed in March. Please welcome Margaret Richardson, Marilyn Setterfield, and Candice Schott during your next visit to the Garden. They will each be working part-time handling admissions and performing various clerical duties.

Curator Robert Ornduff has been elected to a second term as Honorary Trustee of the Missouri Botanical Garden.

The Garden received a grant of $12,800 from The Stanley Smith Horticultural Trust in support of interpretation of our Garden of Economic Plants. These funds will be used to develop a prototype educational kiosk to support changing information around the theme "centers of domestication".

The Propagation House was remodeled in March to create a "clean" room for computerization of the horticultural records.

Acting Director Ian Carmichael spent a month (February-March) in Mexico studying volcanoes, a project he has been carrying out for twenty years.

The Spring Plant Sale April 25-26 was a wonderful success. Many unusual plants were available and were quickly snapped up by visitors to the sale.

Horticulturist Martin Grantham taught a fern workshop for UC Santa Cruz Extension in April and for the Redding Arboretum in May. Martin also lectured for the Solano County Cooperative Extension's Master Gardener's program in April; and in June for the California Horticultural Society he spoke on the topic of southern Chilean flora.

Associate Director Jennifer White, Assistant Curator Holly Forbes, and Acting Garden Manager Judith Finn attended the annual meeting of the American Association of Botanical Gardens and Arboreta held in New York May 27th-31st. Curator Robert Ornduff also attended, representing The Stanley Smith Horticultural Trust.

Special Item of Interest

After construction of the new serpentine plant display in the California Native Area of the Garden in 1992, the informational brochure developed for that display (now being revised) stated that "it promises to be one of the world’s largest and finest garden displays of serpentine-adapted plants." That language hedged a bit, since at the time we were not sure there were serpentine plantings in botanical gardens elsewhere. Now we know there are at least two of them. In corresponding with University of Washington botanist Arthur Kruckeberg (whose classic work on serpentine endemism earned him a doctorate in Botany at Cal in the 1950s), Curator Robert Ornduff learned that Kruckeberg visited one of these gardens in the 1980s. He wrote, "It is the Makino Botanic Garden in the city of Kochi on the southern island of Shikoku. At the time it had a nice little display of serpentine plants with some magnificent ultramafic rocks ('jamongon' in Japanese). The garden memorializes the Asa Gray of Japanese botany, Tomitaro Makino. Other than UCBG, the Makino Garden is the only other one I know about that features serpentine flora and rocks."

The second garden with a serpentine planting was brought to our attention by Integrative Biology graduate student Mateo Rutherford, who has conducted field work in Cuba. It is the Jardin Botánico Nacional de Cuba in Havana, a 1500-acre botanical garden founded in 1968. Cuba has extensive serpentine outcrops and this Cuban garden has established a collection of serpentine plants, with serpentine rock and soil brought in from elsewhere on the island.

Distribution of serpentine in California
New Members
The Friends of the Botanical Garden welcome the following new members.

John Huddleston
Ingrid Barker and Ken Fullmer
Laurie Sverdrup Goldman
Phyllis Calechman
Dolores Bishop
Catherine Gallagher
Marvin Baron
Robert G. Fowler
Deborah Kemp
Deborah Braunecker
Doug Cole
Elise Brewster and Paul Smith, Jr.
Aurjoon K. Ghosh
Paul Winnicki
Peri Danton and Ellen Felker
Elizabeth Keithly
Deborah Haynes-Stone
Itaj Tavares
Nancy and Edward Markell
Karen LeGaault
Penelope Bradshaw
Carol Baker
Calendar of Events

**JUNE**

**Borneo Trip Preview with Jerry Parsons**
**Thurs, JUN 5**
A natural history, wonderful slides and a good dose of wanderlust are featured in Jerry Parsons's preview of his upcoming Borneo trip. 7:15-8:30pm. FREE.

**Creating and Cultivating an Herb Garden**
**Sat, JUN 7**
With Diane Kothe and Jerry Parsons. A wonderful opportunity to start your own herb garden! Participants will propagate six different herbs to take home in this hands-on workshop. More herbs available for purchase. 10am-Noon. Mirov Room. $15 members, $20 non-members, preregistration recommended.

**GREEN STUFF SUMMER CAMP BEGINS**
**Sat, JUN 21**
A wonderful experience for junior botanists and kids who just want to have fun. Weekly sessions throughout the summer. $125 per session. For more information, call (510) 642-3352.

**Two August Family Nights: Discovering Leaves/Discovering Flowers**
**Thurs, AUG 7; Leaves**
**Thurs, AUG 14: Flowers**
Come enjoy the Garden “after hours.” Bring a picnic supper, then explore the fascinating variety of leaves and flowers in activities led by botanist, teacher and author Glenn Keator. Appropriate for all ages. Garden opens for supper at 6:00 pm, program begins at 7:00 pm. For each program: Members $15 per adult/child pair, $5 per additional child; Non-members $20 per adult/child pair, $5 per additional child.

**TRAVEL EVENTS**

**A Natural History Tour to Borneo**

**South Africa Nature Tour**
Join UCBG horticulturist Martin Grantham and South African botanist Anne Bean in an exploration of the spectacular Cape floral region, the Drakensberg, and Natal, including a walk on what may be the original surface of Gondwanaland. March 2-23, 1998. Co-Sponsored with UC's Jepson Herbarium.

For information and itineraries call Geostar 800-624-6633.

For further information on classes and events, call 510-642-3352. To register for classes, send checks made out to UC Regents 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. Preregistration 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 $3 for adults, $2 for seniors, and $1 for children.

UC Botanical Garden
200 Centennial Drive, Berkeley, CA 94720

For further information call 510-642-3352.