The Indian summer commonly experienced by the Bay Area provides many afternoons to appreciate the beauty of the Botanical Garden. Taking a close look allows one to realize just how rich the collection is, and how much there is to explore. A good place to start an in-depth look is with the plant labels. A red dot on the lower left corner indicates that the species is rare or endangered. Conservation is a subtheme threaded subtly throughout the Garden, where there are some 500 rare, threatened, or endangered species, mostly in the California Area. Some of these were brought into the collection through the efforts and financial assistance of the Center for Plant Conservation (CPC), a national organization of botanical gardens dedicated to protecting rare species through protective cultivation.

The CPC has described its efforts as the “backstop against extinction.” The work accomplished by this organization is crucial to the preservation of plant biodiversity. While building a National Collection of plants, the CPC researches both the ecological threats and the economic uses of plants. A goal of the Garden as a member in the CPC is to educate—to allow our visitors to see and learn about the rare species most of us never have the opportunity to encounter otherwise.

Two particularly endangered species in the Garden’s CPC collection flourish alongside the main trail in the California section. These are the Catalina Island Mountain Mahogany (Cercocarpus traskiae) and the Alameda Manzanita (Arctostaphylos pallida).

With only seven adult plants surviving in the wild, the Catalina Island Mountain Mahogany, which is a member of the Rose Family and not a true mahogany, is the rarest tree in California. It is amazing there exists a tree species represented by only seven individuals, and it is additionally impressive to discover where and how these plants survive. As the name suggests, the Catalina Mahogany is endemic to Santa Catalina Island, a popular resort island off the coast of Southern California about 25 miles south of Long Beach. Catalina is one of the eight Channel Islands and is about 22 miles (35 km) long and an average 4 miles (6 km) wide. The Catalina Mahogany trees are confined to a canyon occupying a small portion of the island. They occur near the canyon bottom, where the soil is derived from a rock type (igneous saissurite gabbro) found nowhere else on the island. The Catalina Mahogany population, originally of more than 40 trees, was first discovered by B. Trask in 1897 and has since declined to the seven survivors. This decline is largely attributed to feral goats, sheep, and pigs, and to the introduction of bison and mule deer.

The Santa Catalina Conservancy has fenced off some of the plants to minimize the damage. However, long term threats still exist. Hybridization with the more common Cercocarpus betuloides var. blancheae could dilute Cercocarpus traskiae into extinction. This genetic threat is sometimes underestimated when protecting rare plants. Island plants are especially susceptible due to geographic and edaphic limits to their range.

Research into genetic integrity has proven inconclusive due in part to the limited genetic diversity of the Catalina Mahogany. In fact, research raises new questions. Among them is the question of the taxonomic status of the tree. Is it really a species or is it better interpreted as a localized variant of a more widespread species?

The next featured species is a local plant also on display in the California section. The Alameda Manzanita (Arctostaphylos pallida) is known to exist in only two isolated stands in Alameda and Contra Costa counties, forming a population of around 20 plants. In Alameda County the main stand can be found in the East Oakland hills on the summit of Huckleberry Ridge, and the Contra Costa stand lives at the top of Sobrante Ridge. The Alameda Manzanita is a chaparral shrub with narrow environmental tolerances. Among them are its need of bare, sterile, siliceous mineral soil, an intolerance of shade, a need of summer fog, and a typical chaparral need of fire.

The ability of the Alameda Manzanita to grow on bare minimum soil lessens competition from other plants. Additionally, the understory of the Alameda Manzanita is usually free of vegetation. This is attributed to the naturally herbicidal effect of toxins produced by roots, fallen
fruit, and leaf litter. These toxins even prevent the germination of the manzanita's own seedlings, but do not seem to affect mature plants. It is believed the removal of the toxins by fire permits germination of dormant seeds.

The main threat to the Alameda Manzanita on Huckleberry Ridge has come from the onset of branch and stem dieback beginning after the wet winter of 1982-83. Over half of the plants have been affected. It is believed to be the result of a fungus that attacks the root system when moisture in the ground is abundant but drainage is poor. The fungus apparently attacks the roots and deprives the branches of water.

Manzanitas on Sobrante Ridge experience a phenomenon called striping, which is the development of dead or decorticated areas on the branches and trunk. This is believed to be an adaptation to the absence of fire and is more commonly found in larger older individuals. The Manzanitas attain sizes which strain their ability to maintain their entire bulk, and consequently will shut down portions to continue growth in other portions. The Manzanita at the Garden demonstrates striping on the larger and larger branches. During periods of freedom from fire, new branches will make contact with the soil and root in deep leaf litter which would usually removed by fire. This method allows the formation of a new base where new branches can be sent to fight for sunlight.

Cultivated manzanitas on or near Skyline Blvd. and Golf Course Road in Tilden Park have experienced problems in the shade of pines and eucalyptus. The manzanitas experience striping as they compete for sunlight with taller trees.

The Alameda Manzanita’s adaptations to its narrow habitat appear to be rooted in its exposure to fire. Fire recycles nutrients, consumes allelopathic litter, scarifies seeds for germination, opens the canopy providing light and space for seedlings, and reduces pests and pathogens. A problem arises from the closeness of the manzanita stands to fire-free residential areas. As demonstrated by the Oakland Hills fire, the property owners near Huckleberry Ridge live in an area where there is a risk of catastrophic fire. It is believed that well planned fire management programs can help revitalize the Alameda Manzanita populations, and can help reduce the fire hazard increased by years of leaf litter accumulation. In 1987, the Alameda Manzanita Recovery program was started by the Park District and the California Department of Fish and Game to oversee the conservation of the Alameda Manzanita.

Research and conservation efforts for the Catalina Mahogany and the Alameda Manzanita will continue thanks to state and local agencies, the CPC, the UC Botanical Garden, and others. You will probably never see the Catalina Island Mountain Mahogany or the Alameda Manzanita growing wild, but you can enjoy them readily at the Garden.

----- Eric Umemoto, UC Student
THE DOCTOR SAYS...

If your landscaping plans call for California natives, prostrate junipers, or plants native to the Mediterranean, South Africa, or southern Australia, consider planting them just before or during the early winter rains. This will allow plants to become established so that by summer they will not need water at a time when they normally do not have rain.

Christmas tree buffs will be interested in research that has shown trees kept in clear water or water with “keeps-it-green” hold needles better than trees kept in other suggested materials. It is important to make a fresh cut on the bottom of the stem before putting it in water. If the tree base is kept in water, do not let it go dry. This usually breaks the transpiration flow and no more water will enter the plant. Spraying the tree with an antitranspirant also may help. Be sure to choose one recommended for Christmas trees; others may be toxic. If you are a white fir fan and if you plan on keeping the tree up longer than usual, you may have an aphid problem. The aphids will not hurt the tree but may give off honey dew which can spoil ornaments. A good water wash or insecticide before taking the tree inside may help.

If you like to leave your tree up longer, choose one that has good needle retention. Of the trees available here, red fir, noble fir and white fir retain needles well.

If your tomatoes, peppers, eggplants or strawberries did poorly, it could be because of Verticillium wilt. This a common garden problem, and once the soil has the fungus in it, it will stay there a long time. Do not put infected materials in a compost pile unless using the rapid method. Avoid moving soil from such areas to other parts of the garden. Rapid composting, by the way, can be done through the winter, providing the bins can be covered so that the compost does not become wet from the rain.

A common leaf spot on evergreen pear, Indian hawthorn (Raphiolepis), and pyracantha results from infection by the fungus Entomosporium. On those plants it causes considerable defoliation. Loquat and toyon may become infected, but they’re not damaged as much. The fungus produces its spores in a sticky mucilaginous material, meaning it’s dispersed by splashing rain. Sprays of benomyl, timed so that plants are sprayed at least every two weeks but only before rains should aid in control.

Plants vary in their susceptibility to attack by snails. It would be interesting to create a list of susceptible and resistant plants. With your help, I will do that. A list will help in knowing where to use baits or traps more effectively. As susceptible, let’s start the list with common amaryllis (Hippeastrum vittatum) and pineapple-lily (Eucomis autumnalis). Let’s hear your additions to the list. Please send them to me c/o the Botanical Garden.

-------Robert Raabe, Associate Director

TRUSTS, WILLS, AND BEQUESTS

Thanks to the generosity of Friends of the Botanical Garden and other benefactors, many significant improvements have been accomplished in recent years. The Garden is a more enjoyable, educational, and fascinating place to visit as a result of gifts. And yet, there are many funding opportunities that exist for current and future projects that would make the Garden even more valuable for our community and the world at large.

Your giving plan can be structured to give you tax benefits and income. There are multiple ways to provide life income to the donor while making the Garden the long term beneficiary of a gift. The arrangements allow for significant and immediate benefits to the contributor. For example, if you have a highly appreciated stock which provides income, that stock may be given to a Charitable Remainder Trust. The trust can sell the stock and reinvest the proceeds to provide a higher return for the donor. An additional advantage is that there are no capital gains taxes to be paid. In another arrangement called a Retained Life Estate, a person’s home can be given to the Garden allowing the previous owner to retain occupancy for life with significant tax deduction.

Probably the simplest and best known mechanism for making a long-term gift is through a personal will. A portion of the estate can be given as a gift to the Garden. This provides a tax advantage to the donor since the gift qualifies as a full estate charitable deduction which, in turn, reduces the size of the taxable estate.

Estate planning can be set for the mutual benefit of the investor and the Garden. This planning can be done on an individual basis. The University of California has experts to provide technical assistance. If you wish to explore the possibility of making a planned gift to the Garden, please leave word with the Friend’s office at 643-7265 or the Garden office at 642-0849. We will contact you to determine your wishes and assist in providing needed advice and arrangements.

------Gladys Eaton, Chair, Friends Major Gifts Committee

Holiday Gifts

If you are looking for a holiday gift that will be meaningful and useful year-round, call the Friends Membership office at 643-7265. Many Garden memberships are given as thoughtful gifts, and the Membership office hears how much they are appreciated. You may charge a gift membership on your VISA card.
GRATEFUL THANKS

The Friends thank these donors who have made a substantial gift over and above membership:
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A memorial bench for Helen & Ralph Morris was donated by:
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Mary & John Ricksen
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Rupert Ricksen, Jr. and Laureen Vonnegut
Eleanor & Tom Spatz
Carolyn & Robert Stewart

In Honor

A memorial bench has been donated by Robert E. Kroll to the memory of his mother Thelma Emas Kroll.

At the August meeting the Friends Board voted Ned Gould Heringer as the newest Life Member of the Friends.

A gift from Elizabeth Hammond in honor of Lincoln Constance to support an intern at the Garden.

A bench has been donated by Carole Ferguson-Page in honor of her parents, Marie (Holmes) '44 and John Ferguson '43, on their fiftieth wedding anniversary.
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Friends of the Botanical Garden, UC Botanical Garden, Berkeley, CA 94720-5045

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