

# American Horticulturist

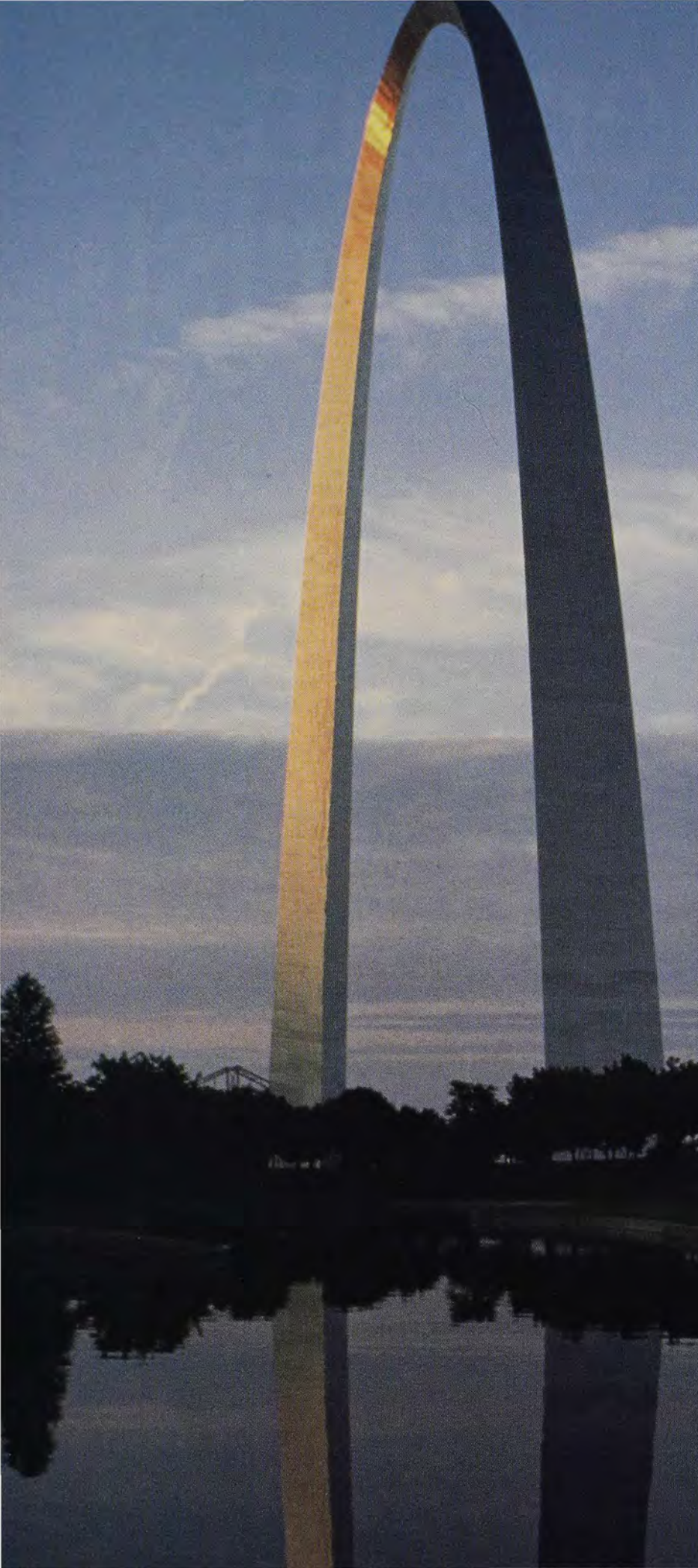
December 1995

A Publication of the American Horticultural Society

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**AMERICAN HORTICULTURAL  
SOCIETY'S ANNUAL MEETING**  
MAY 30-JUNE 1, 1996

Plan on joining us in St. Louis next spring for lectures, garden tours, and socializing with fellow gardeners.

Our 51st Annual Meeting will be held in conjunction with the American Association of Botanic Gardens and Arboreta, which means members will have access to an even broader range of experts and lectures. Special "insider" tours will take us to Shaw Arboretum and the Missouri Botanical Garden, whose William T. Kemper Center for Home Gardening was the 1993 recipient of the Society's G. B. Gunlogson Award for creative use of new technology in home gardening.

Participation will be limited to ensure the quality of the garden tours, which have become the hallmark of our Annual Meeting. Look for details in upcoming issues of *American Horticulturist*—and mark your calendar now!

*The symbol of St. Louis—the Gateway Arch on the Mississippi River—will welcome members to AHS's 51st Annual Meeting next spring. Participants will stay at the Hyatt Regency, a recently renovated hotel situated in the historic Union Station complex.*

PHOTO COURTESY OF ST. LOUIS CONVENTION AND VISITORS COMMISSION

ANNUAL MEETING

# American Horticulturist

Volume 74, Number 12

December 1995

## ARTICLES

### Showdown on Santa Rosa

by Yvette La Pierre ..... 16  
Is cattle grazing compatible with the protection of rare plants? Conservationists have a big beef with the National Park Service's failure to address the issue.

### Peter Henderson, Plant Pioneer

by Robert F. Becker ..... 24  
Through his writings, this market-garden entrepreneur influenced a generation of professionals and amateurs.

### Magnificent Mariposas

by Hugh P. McDonald with Karin R. Stokkink ..... 30  
In our West, two transplanted Easterners discover a genus of exquisite native bulbs.

### Sowing the City

by Mike Peters ..... 37  
Houston resident Bob Randall wants to see more urban and suburban residents growing food close to home. His own garden serves as a model for cramming useful plants into limited space.

### Palm Beach Premiere

by Mark Browne ..... 42  
Avid gardeners and city officials joined forces to launch an annual flower show for south Florida.

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### DECEMBER'S COVER

Photographed by Steve Junak

Among the highly variable Western bulbs known commonly as mariposas are the fairy lanterns, whose hanging globe-shaped flowers look as though they might illuminate the night-time escapades of tiny forest denizens. *Calochortus albus*, the white fairy lantern or snowdrop, blooms in late April and early May in the northern Sierra Nevada foothills and California's south Coast Ranges. Beginning on page 30, authors Hugh P. McDonald and Karin R. Stokkink take us on a journey through the West and into Mexico, following the bloom time of *Calochortus* species from the break of spring through October.

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*The American Horticultural Society seeks to promote and recognize excellence in horticulture across America.*

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# COMMENTARY

Last fall we surveyed members about our publications and received an overwhelmingly positive response. You asked for more articles on some topics, and we immediately responded.

Many of you had difficulty answering one question: whether you prefer our magazine or our News Edition. Twenty-one percent checked both. Of those who did make a choice, 65 percent said they preferred the magazine. Some members suggested that we might combine publications to save postage.

The time has now come for us to make our choice. The cost of paper has risen dramatically in the last few years, as has postage. A postal increase due to occur in the fall of 1996 will hit nonprofits especially hard. Both commercial and nonprofit publications—including other gardening magazines—have responded to these pressures in different ways, many by publishing less frequently, some by reducing their “trim size” to use less paper, and some by increasing their ad rates and/or subscription price. Since advertising is a small portion of our income and we did not want to increase dues, we had to look at reducing paper and postage costs.

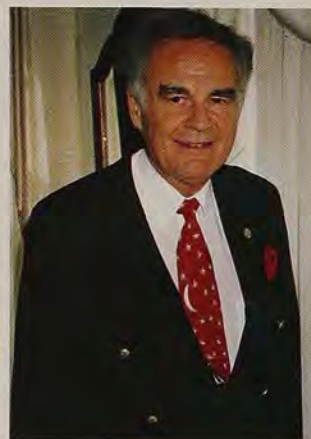
Beginning in April 1996, every other month you will receive a redesigned, combined publication. In place of the current 48-page magazine, you will receive a 64-page color publication containing features and departments found in both the magazine and the News Edition. We hope that you will find the new magazine more lively, readable, and useful. In January you will still get our Annual Seed Catalog, and in September an Annual Report on the activities of the American Horticultural Society.

The April issue will bring another big change. *American Horticulturist* is getting not only a facelift, but also a new name—*The American Gardener*. Many gardeners believe that the magazine is only for professionals, or at best, for gardeners who have achieved some unattainable level of excellence. We want people at all levels of experience to join us in becoming more successful, environmentally responsible gardeners. *American* will remain our first name, and we will continue to emphasize American gardens and American environmental concerns.

This issue illustrates the breadth of those concerns. Hugh McDonald and Karin Stokkink write about mariposas, bulbs native throughout the West and Mexico. Houston writer Mike Peters visits with Bob Randall, who uses his own garden to teach urban residents how to bring their food sources closer to home. Yvette La Pierre reports from California's Santa Rosa Island, where a cattle-grazing and hunting operation is destroying rare plants, and Mark Browne tells us how the city of West Palm Beach, Florida, organized its first flower show last year. Retired Cornell University professor Robert Becker tells us about Peter Henderson, once considered the most influential figure in American horticulture.

We hope that you will be as excited as we are about our new design and expanded format, and trust that you will continue to give us your feedback.

H. Marc Cathey, AHS President





# OFFSHOOTS



BILL FIRESTONE

## Garden Schizophrenia

by Caroline Nesbitt

When my sister and I were merry young things, we loved attending the contra dances that were held in town, dressed in all our finery. The uniform was pretty standard—a swirly skirt with some sort of pretty peasant blouse, preferably of the hand-embroidered-in-a-Third-World-country variety.

From this point, all resemblance between us ended. My sister always dressed in flowing skirts and blouses that oozed taste, lovely colors complementing one another to perfection in a generally pleasing and muted palette. I, on the other hand, would rummage through a closet whose contents were collected more by whim than any innate sense of design, throwing on whatever the moment's fancy dictated and adding things that jingle-jangle-jingled. The effect ranged from...well, let's say unique to...uh, positively breathtaking. My beleaguered sister's response was invariably: "You can't wear

all those colors together! They vibrate!"

Years later, while I was working as a picture framer, my boss said she could distinguish the work of each of her employees simply by looking at the color and style of matting used, maintaining that this was also a good indicator of personality. She summed mine up in three succinct words: "Flamboyant and cheap."

This all took place before my life as a born-again gardener. And in the early stages of the epiphany that catapulted me from the ranks of the mildly appreciative to those of the passionately dedicated, color was something entirely secondary to the fact that there were perennials in my garden that were surviving. Color meant flowers. Flowers meant I had finally succeeded in persuading things to grow and thrive.

It was years before I noticed that, like my clothing and my mats, my garden had become a jungle of beloved individuals that didn't necessarily go with one another. Orange lilies grew next to flaming magenta liatris, and were bordered by delicate hollyhock mallows. At one point I decided I had to have a ma-



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*Hibiscus moscheutos*

room iris, which I somehow planted next to a tangerine viola. The result of all this gay abandon was blinding. I reflected that if, as the experts informed me, hot colors bring things close and cool ones make them distant, my garden probably suffered from an acute form of vegetative schizophrenia.

I set about earnestly reading up on color and its use in the perennial garden, trying to memorize what went well with what. I transplanted all sorts of bulbs and roots to new locations where I reasoned they would grow into diaphanous harmony, tranquil to the eye and soothing to the senses. I knew that any day now, I would have one of those gardens that people love to photograph and exclaim over.

Alas, it was no use. My Moon Garden became overrun with spontaneous blue, pink, and purple columbine, joined by a chipper bunch of pansies that kept reseeding their multicolored selves in blithe disregard of their reputation for being annuals. The Sun Garden that I planted in delicious yellows, oranges, and flames was entirely taken over by a pink rugosa, shot through with brilliant red monarda. Whether I willed it or no, there were coral poppies everywhere. And the whole bed was strangely accented by gigantic hollyhocks that began life as pale lime and watermelon, only to fall in love, cross-pollinate, and recreate themselves in an endless variety of bizarrely striped sports.

I knew that any self-respecting gardener would have pulled these sorts of horticultural indignities out of an honest perennial bed, but I didn't have the heart. The effect was so...individual. And they looked like they were having so much fun.

Then I realized that my eye-bending garden wasn't just vibrating, it was actually moving. It was alive with butterflies, hummingbirds, and bumblebees. They didn't care if anything matched. They just rolled and fluttered and buzzed around in it all day long in a bacchanal of taste and scent.

I had to agree that it had become a pretty overwhelmingly sensual and happy place. My kind of place, no matter what the experts said its shortcomings were. So it remains to this day a gypsy garden. A non-gardener's garden. A multicultural, rainbow-hued, tossed salad kind of garden, the sort of place about which you can almost hear plants saying, "Hey, guys, let's reseed ourselves at Caroline's. She doesn't care what we are as long as we bloom!"

I do recommend sunglasses if you stop by. Even if it's raining.

*Caroline Nesbitt is a free-lance writer living in North Sandwich, New Hampshire.*



# PLANTING THE FUTURE

## French Quarter Memorial

by Peter Busowski

**O**n a quiet street in a neighborhood steeped in French tradition and surrounded by Spanish architecture sits McDonogh 15—the only public elementary school in New Orleans’ historic French Quarter. Here, where the sounds of automobiles are often joined by the clip-clop of horse-drawn carriages, its students learn math, science, and journal-keeping aided by classroom materials that include sweet bay magnolias, silver bells, black-eyed Susans, and four-o’clocks.

The school is an arts magnet academy for tomorrow’s poets, writers, musicians, and dancers, and its outdoor classroom is a peaceful place, bordered with pink- and purple-flowered crape myrtles to create privacy. It is actually two gardens: a native plant garden along the perimeter, where students can learn the natural heritage of Louisiana, and a front garden, where plants donated by neighbors offer a lesson in traditional Southern gardening. But the front garden—a memorial conceived when a student was killed in a family murder-suicide—is also a poignant reminder of how violent our society has become.

The garden’s guiding spirit for five years has been Betty Norris, who lives a block and a half from the school. In spite of its location in a neighborhood where grand gardens are as common as kitchens and despite a recent renovation of the 80-year-old school building, the school grounds had been allowed to become an eyesore. “It was horrible,” recalls Norris. It was not merely unattractive but dangerous, she says, with branches made sharp by a heavy-handed effort to hack back some ligustrums.

Norris, a self-described “compulsive weed puller,” alternated her time between tugging at unwanted vegetation in the garden and tugging at the purse strings of community leaders. At times it seemed there were more turn-downs than weeds, she remembers. But things began to take



PHOTOS COURTESY OF BETTY NORRIS



*McDonogh 15’s memorial garden includes a small pond, left. Neighbors donated tables and benches, above, where students, teachers, and community members gather.*

off after two years when landscape architect Chris Friedrichs agreed to donate his services to design the garden. “Having a professional involved gives credence to a project,” Norris has concluded, “and it helped that Chris knows absolutely everybody.” The Vieux Carré neighborhood association donated \$3,500, half of which was used to install an irrigation system.

About the same time, in September 1993, a group from the nonprofit National Coalition for Equity in Learning was touring the school, and the children told the coalition the one thing they would change about their school was to plant a garden.

“They’d been hearing about it for years,” says teacher Judith Darensburg, who formed the student garden club that would do the planting. The coalition designated the garden a worthwhile project, and its blessing brought in checks from people like Camille Cosby, wife of comedian Bill Cosby.

Two months later one of the students, eight-year-old Sita Redding, was murdered by her stepfather, who also killed her mother and shot her younger brother before turning the gun on himself. The school was shell-shocked, according to principal Cynthia Morrell.

“One of the kids said, ‘After we’re gone, who’s going to know they ever lived?’” Morrell recalls. “It was true. The whole family was gone.” Although the brother hadn’t died, he had moved to another country to live with relatives. It was then the students decided that they wanted a memorial garden for Sita and 17 other children who died while McDonogh students. They set to work removing old bricks buried in the grounds, selling the better bricks as a fund-raiser.

Norris began taking the children to historic gardens in the French Quarter to give them ideas about what to do in their own garden. The tours helped the children, most of whom do not live in the Quarter, to “understand the neighborhood where they go to school. Behind the shutters are real people who are neighbors.”

Friedrichs met with the children to plan the garden—a series of benches and small beds were used to create “bays” where individual work groups can study—and develop a plant list. “The plan was somewhat vague in that way,” says Norris. “We didn’t want this to be a formal garden with clipped hedges, but something the children would enjoy because they planned it. And we knew there would be donations.”

Bags of Boston fern came in. Someone





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donated a fir that had been a living Christmas tree, and Friedrichs added a bald cypress. Dan Gill, a Louisiana State University horticulturist and local newspaper columnist, planted an herb garden.

The children said they wanted a butterfly garden, says Morrell, "so we studied what kinds of plants butterflies like" and obtained some. As the garden began to take shape, more members of the community could be seen weeding and planting, and, often, plants would seem to appear from nowhere. There were also gifts from nature, such as the night-blooming jessamines (*Cestrum nocturnum*) that volunteered everywhere.

Norris did make a plant list for her native garden, a four-foot-wide border between the school and an asphalt lot intended to serve as a playground. "But because of the lack of parking in the Quarter, there are often cars illegally parked there." Plants include hackberry, rose mallow (*Hibiscus militaris*), parsley hawthorn (*Crataegus marshallii*), sassafras, maypop (*Passiflora incarnata*), coneflower, yaupon holly, and drummond maple (*Acer rubrum* var. *drummondii*), all bounded by railroad ties.

A ligustrum in the native garden annoyed Norris no end. "It's Chinese," she says. "It just doesn't belong in a native garden." Then one morning, in what is now called "Betty's Act of God," a transformer blew up and incinerated the shrub.

Friedrichs praises Norris' skill at persuading people to donate benches, tables, plants, and whatever else was needed. Norris is modest about her accomplishment, saying it wasn't difficult because "people in the South are real inclined to say 'Let me know what I can do.'"

She feels amply rewarded by seeing the children in the garden. "It just thrills me," she says. "From the very first week when we got those benches, I would see children doing homework, teachers having conferences. It is a place for people to gather. Part of the community."

Just how much a part was amply demonstrated in April when a ceremony was held to dedicate the memorial garden. "The children sang accompanied by an old piano," recounts Norris. "The singing was wonderful but the piano was pathetic. Right away, someone attending the ceremony offered to give the school a new one. Chris Friedrichs said to me, 'You never know what you're going to get when you plant a posie.' And I said, 'Yes, you might even grow a piano.'"

*Peter Busowski is a free-lance writer living in New Orleans.*



# GARDENERS' INFORMATION SERVICE

**Q:** *How do I germinate seeds of Scotch pine?*  
—E. P., Cincinnati, Ohio

**A:** Scotch pine (*Pinus sylvestris*) seeds are carried in cones that ripen in September and October and are normally dispersed from December to March. There is some disagreement among authorities about whether the seeds need cold treatment to germinate, but exposure to cold probably speeds up the germination process. Seeds collected in fall can be placed in a moist paper towel and stored in an air-permeable polyethylene bag in the refrigerator for two weeks to three months. Collecting seeds later in winter seems to eliminate any need for chilling. Norman C. Deno, author of *Seed Germination Theory and Practice*, writes that Scotch pine seeds collected in January germinated in a week at 70 degrees. Another option is to sow seeds in pots in fall and overwinter them in a cold frame to go through the natural cycles of cold and heat. Plant seeds at a depth of one-eighth to one-half inch in a soil mixture rich in peat moss. Newly germinated seedlings should be kept in a partially shaded spot until they harden off.

**Q:** *Is there such a thing as a vegetable called a pregnant onion?*  
—A. B., Bowie, Maryland

**A:** Pregnant onion (*Allium cepa*) is more commonly known as Egyptian or top onion. Its unusual name is derived from the way a dense cluster of tadpole-shaped bulblets form at the tip of the plant's stem. These small bulbs can be harvested and eaten when the onion tops begin to wilt and dry out. Egyptian



onion's underground bulbs can become rather strong-tasting late in the season, but can be harvested in early spring as green or bunching onions. Plant Egyptian onions in fall by setting out bulblets in well-prepared soil amended with organic matter. They

will tolerate a hard freeze so that plants left over from the previous season can sometimes be harvested even into winter.

**Q:** *What are lingonberries? My Swedish relatives often refer to them.*

—A. G., St. Paul, Minnesota

**A:** Lingonberry (*Vaccinium vitis-idaea*), also commonly known as partridgeberry or cowberry, is a low-growing, creeping evergreen shrub of European and Asian origin. An indigenous variety, *V. vitis-idaea* var. *minus*, known variously as dwarf lingonberry or mountain cranberry, is found from Labrador south to Massachusetts and west to Alaska and British Columbia. Both the species and the variety are cherished for their lustrous dark green foliage, bell-shaped white to pink summer flowers, and dark red edible berries that ripen in late summer. Lingonberries grow to about 10 inches tall, while mountain cranberries usually get no higher than four to eight inches, forming dense mats that spread by creeping rhizomes. The species is hardy to USDA Zone 5, while the variety is hardy to Zone 2. Both do well in full sun or part shade and prefer moist, acidic, rich organic soils.

**Q:** *We seem to be continually having to replace our yew shrubs. The needles first turn yellow at the growing tips, then the entire shrub yellows and dies. Can you help us?*

—J. T., Bethesda, Maryland

**A:** You describe a serious and quite prevalent problem known simply as "dieback." This problem is usually not directly related to disease, but rather is associated with adverse environmental factors such as heavy, poorly aerated soil or extremely acid soil—sometimes a combination of both. Phil Normandy, plant collections manager at Brookside Gardens in Wheaton, Maryland,

says the problem sometimes occurs because yews are planted too deep, or are planted where they receive flow from a downspout. Yews should only be planted in well-aerated soil that has a pH between about 6 and 7.5. Get your soil tested and amend it with lime if it proves to be too acidic. If the soil is poorly drained, Normandy says, "There's no reason you can't build up the soil by incorporating organic material. Fine pine bark chips are good—they act essentially like perlite because they rot very slowly." He recommends purchasing small plants so the roots can take hold in the better drained soil near the surface.

**Q:** *There are a number of pawpaw trees growing in a forested area on property I own in Indiana, but I rarely see any fruit on them. How can I get the trees to produce fruit?*  
—D. A., Indianapolis, Indiana

**A:** Neal Peterson, founder of the non-profit PawPaw Foundation, says pawpaw trees are generally self-incompatible—requiring a genetically different tree for successful fertilization and fruit set to occur. In the wild, pawpaws often spread by root suckers and form groves of trees with identical genotypes. Additionally, natural pollinators of pawpaw flowers—bees, flies, and other insects—are not always dependable or available. Trees in a wooded setting are also often heavily shaded and thus less vigorous than trees in the open.

To improve fruit set, Peterson recommends thinning trees around the pawpaws to provide more light, transplanting wild pawpaws from other areas of the woods to offer genetic variability, and hand-pollinating pawpaw flowers when they bloom in early spring. But the best way to ensure the development of quality fruit, Peterson says, is to purchase grafted clones of several pawpaw cultivars and plant them in an area where they will receive full sun.

—Neil Pelletier, Director  
Gardeners' Information Service

# NATURAL CONNECTIONS

## The Popular Parasite

A plant rich in legend, lore, and tradition in Western civilization, mistletoe also has a long history of medicinal use in both Western and Eastern cultures. Although the name “mistletoe” is usually associated with the temperate species seen at florists and roadside stands in December, the common name is in fact applied to members of two families—Loranthaceae and Viscaceae—comprising between them about 80 genera and nearly 1,500 species found worldwide, a majority in the tropics.

Diversity among mistletoes is astonishing, ranging from showy-flowered mistletoes in the genus *Psittacanthus*, found mainly in Central and South America, to leafless dwarf mistletoes in the genus *Arceuthobium* that are a serious pest of conifers in western North America, to the mainly European mistletoes in the genus *Viscum*. Some mistletoes, such as *Phoradendron libocedri*—found almost exclusively on incense cedar in Oregon and California—are extremely host specific. Others, such as *Phoradendron villosum* in western North America, which grows only on oaks, are genus specific. Yet others are found on a wide range of hosts—the Asian mistletoe *Dendrophthoe falcata* is known to grow on more than 350 species. Although most mistletoes grow on trees, others are found on shrubs, cactuses, and even ferns. What mistletoes do have in common is that most are semiparasitic plants that have varying capacities to photosynthesize their own nutrients, but meet some part of their nutrient and water requirements by tapping into the host plant. This is accomplished with adventitious roots—known as haustoria, or suckers—that penetrate the bark of the host and spread laterally within its vascular system.

The mistletoe first popularized as a Christmas tradition in Western literature is European mistletoe (*Viscum album*), which is native to Europe and temperate Asia. In-



DAVID CAVAGNARO

*The translucent white berries of Phoradendron mistletoes are toxic to humans.*

dividual shrublets grow to about three feet tall with pendulous jointed branches, straplike leathery leaves, inconspicuous yellow flowers, and sticky white berries. European mistletoe has naturalized in Sonoma County, California, after being introduced there in the early 1900s by renowned plant breeder Luther Burbank. It is thriving in its new home—infesting alder, apple, black locust, cottonwood, and maple trees, among others—and is now rated a Class-B pest in the state.

The mistletoes most commonly sold for seasonal decorations in North America, however, are American or eastern mistletoe (*Phoradendron serotinum*, also listed as *P. leucarpum*)—native to east and central

North America from New Jersey south to northern Florida and west to southern Illinois, central Texas, and Oklahoma—or greenleaf or hairy mistletoe (*P. tomentosum*), which ranges from south-central Oklahoma south and west through Texas into Mexico. *P. serotinum* tends to grow in one-to-two-foot spheres that dangle from branches. It has shiny, succulent, somewhat oval leaves, tiny yellowish flowers, and bears translucent white quarter-inch berries composed

of sticky tissue surrounding a single seed. Although toxic to humans, the berries are popular with various birds, including cedar waxwings and bluebirds. Greenleaf mistletoe is similar in appearance to its eastern counterpart but slightly smaller, with downy leaves and twigs. A mistletoe—likely *P. tomentosum*—was designated the state flower of Oklahoma in 1893 by the territorial legislature because it was one of the few green plants available to lay on graves in winter.

The bulk of commercial harvesting occurs in central Texas, where mistletoe grows on mesquite and other low-growing trees and thus can be gathered while standing on the ground or picked while perched on the back of a pick-up truck. Robert “Speedy” Tiemann, who runs Tiemann’s Holiday Mistletoe in Priddy, Texas, estimates that about 90 percent of the holiday mistletoe comes out of Texas. Some small-scale mistletoe harvesting is done throughout the Southeast, but east of Texas the plant usually grows high in large trees and can only be collected using a bucket truck or by the time-honored trick of shooting clumps down with a shotgun.

Most of the 12 *Phoradendron* species in North America use deciduous hardwood



trees as hosts, but in the West a few species grow on evergreens such as juniper and fir. Despite their ominous generic name—*Phoradendron* translates to “tree thief”—the leafy mistletoes are not considered serious pathogens of forest trees because they tend to extract more water than nutrients from their hosts. They can be damaging to ornamental trees, however, particularly large trees under stress from urban conditions or disease.

In contrast, dwarf mistletoes in the genus *Arceuthobium* were described by the late Frank Hawksworth—a research plant pathologist with the U.S. Forest Service’s Rocky Mountain Forest and Range Experiment Station in Fort Collins, Colorado—as “the most serious forest disease agents in much of the West.” Timber losses in the West directly attributable to dwarf mistletoes are estimated at more than \$3 billion annually.

The majority of dwarf mistletoe species are native to North and Central America from Alaska and northern Alberta throughout the western United States and south through Mexico into Guatemala and Honduras. Dwarf mistletoes grow exclusively on members of the pine family, including pine, fir, spruce, Douglas fir, larch, and hemlock. One of the most widespread species is *A. americanum*, which favors Rocky Mountain lodgepole pine (*Pinus contorta* var. *latifolia*), but also is commonly found on jack pine (*P. banksiana*). Dwarf mistletoes form clusters of two-to-four-inch leafless shoots with a whorled branching pattern. The host normally develops a swelling at the site of the infestation, caused by penetration of the parasite’s modified root. On young tissue, this attachment stimulates dormant buds, and often dense branch clusters known as “witches’ brooms” develop. Most dwarf mistletoes are dioecious, with individual plants bearing either male or female flowers. The green or yellow flowers—pollinated by both insects and wind—are small and inconspicuous, especially on female plants. Ovoid greenish fruits bear a single seed that is ejected at velocities up to 60 miles per hour when mature. Like its counterparts in *Phoradendron*, dwarf mistletoe seeds are surrounded or capped with sticky tissue that can adhere to animals or birds to be spread even farther.

Dwarf mistletoe can damage its host in a number of ways, including retarding growth, reducing the number and viability of seeds, reducing the strength and quality of the wood, and generally reducing vigor—thus predisposing the host to attack by insects or disease.

Control of *Phoradendron* species is usually unnecessary except in heavy infestations of a prized ornamental tree. Infected branches should be pruned about a foot below the point at which the mistletoe is attached. On the trunk, or on larger branches that can’t be pruned, the mistletoe should be cut flush with the bark and the site wrapped with dark polyethylene or landscape fabric to deprive the parasite of light.

In a forest setting, however, control of dwarf mistletoes has proven difficult de-

spite years of research. Current control methods include thinning or clear-cutting infected stands, planting trees immune or resistant to the prevalent mistletoe species, and, where valuable trees are only mildly infested, pruning infected branches. In some cases, fire has proven effective in controlling heavy infestations, because the trees tend to regenerate faster than the parasite can spread from outlying areas.

—David J. Ellis  
Assistant Editor



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# THE URBAN GARDENER

## Restoring Spring Meadow

by Tom Baugh

As a conservation biologist and a teacher of environmental and natural science for many years, I like to think that I have been responsible for the restoration of many acres. But that was other people's land, not my own.

Then in 1994, my wife and I bought a sadly neglected home on three-quarters of an acre just outside the beltway that encircles Atlanta. The house and land had been poorly treated and we knew that the cost of correcting 10 years of hard and irreverent use would be high. But we saw great potential in both, and the price was right. We were so taken by the name of the 30-year-old development, Spring Meadow, that we made it the name of our home as well.

It took a full year to finish what was primarily cosmetic surgery on the house—painting, cleaning, and removing old carpet, linoleum, and a poorly done suspended ceiling. Finally, we were able to turn our attention to the land. As all residents of the Southeast know, vines here—when left to their own devices—will cover everything, and it took the better part of six months to bring ours under some semblance of control. The kudzu we removed by hand; the poison ivy, of necessity, got a dose of herbicide. Under them all were the remnants of sweet gums with their lower limbs consumed, dogwoods barely alive, and stunted and oddly bent white oaks and yellow poplars. Freed from the constraints of the vines, the trees rapidly put on foliage and reached for the sun.

Although it was painful—and expensive—we paid arborists to remove several large storm-damaged loblolly pines leaning too near our house. A safer distance away and throughout the property we created island beds for volunteer seedlings of some of our rescued tree species. Instead of spending substantial sums on fieldstone, we salvaged



TOM BAUGH

*The author used "recrete" to build beds, walks, and walls.*

chunks of concrete—I've never had anyone turn down my offer to haul away the remains of their sidewalk or driveway—and used this "recrete" to build raised beds, walks, and walls.

No organic matter has left Spring Meadow since we began caring for the property. We gather leaves, pine straw, and grass to mulch the growing number of island beds that are now rapidly converting the once expansive lawn into winding green pathways.

As we opened the land to the sky, we were surprised at the number of other animal species with which we humans share Spring Meadow. From our first visit to the property, the sight of eastern cottontails darting into the underbrush may have done more to convince us to buy than did the low price, and we were determined to keep them around. We cut up the vines and gathered dead and downed limbs into brush piles in

both back and front yards. Then we camouflaged them by training wild grape over them and surrounding them with azaleas. Strategically placed *Buddleia* attract dozens of tiger, zebra, and spicebush swallowtail butterflies, frequently joined by

red-spotted purples, red admirals, and numerous other species.

Our property slopes gently downhill from south to north. At the downstream end of this slope we've built a low wall of recrete blocks to create a dam that the rabbits and chipmunks enjoy sitting on. Twice a day, sorties of gray squirrels descend from the hill behind the house to raid our bird feeder, and by the end of the day the rabbits and chipmunks join cardinals, bluebirds, towhees, chickadees, and titmice in cleaning up the squirrels' leftovers from around the bottom of the feeder.

Last spring we used prefabricated hard liners to put in a series of ponds complete with eel grass (*Vallisneria* spp.) and pickerel rush. This spring, with the rushes now rising above the water and ferns, daylilies, and grasses surrounding the pond area perimeter, we fished half a stringer of frog eggs from the shallows of a nearby lake, assuming that they would produce tree frogs akin to those I had known from other places I have lived around the country. I hatched them in the small lab I set up on the lower level of our house and released the tadpoles into the ponds gradually over the summer, anticipating their familiar song.

Atlanta, like most of the East Coast, was



brutally hot and dry last summer. When the drought was broken with the rains from Tropical Storm Jerry, I heard what I first thought was an unusually loud thrumming of crickets. I soon realized, however, that I was hearing the song of the southern cricket frog. I came to enjoy it as much as the song of the tree frog, hearing in it a reassuring message that the restoration of Spring Meadow was well under way.

Then this fall, Hurricane Opal paid us a visit. After the winds had passed, the driving rain had stopped, and the creek had gone down, I pulled on a windbreaker and walked up the hill behind our home. There in the northeast corner of our property where the land begins to slope up again, a great old sweet gum had been pulled apart, ripped from the ground, and dumped unceremoniously against the hill. The tree had taken part of our fence and several dogwoods to the ground with it.

For the next week, the sound of chainsaws filled our hollow. But once the debris was cleared away, we could glimpse a green carpet of wild strawberry, with dogwood and oak seedlings poking through the duff, and we realized that even Opal was part of the natural process. Over the next few years we'll help out the process the storm started, planting the now almost barren slope with cosmos and sunflowers and other species chosen to complement the meadow already planned for a shallow basin behind the recrete dam. Elsewhere, we'll continue to let the wild strawberry replace the scraggly lawn and, although not purists, will begin replacing undesirable introduced species with natives.

In spite of the setback, the process has been a delightful challenge, made even more so through sharing everything we learn with my students. Every week there is a new tale to share about boxwood turtles and garter snakes, or a beautiful sharp-shinned hawk that is helping control the surplus population of chipmunks, or a newly discovered way of recycling materials to use in our garden. I like to think that the students will remember these stories—perhaps more than the lectures on ecological science—and that our restoration of Spring Meadow will have a lasting impact not only on the direction of their careers but also on the way they shape their personal landscapes.

*Tom Baugh is a conservation biologist with a federal natural resources agency, and a teacher of environmental and natural science and horticulture science at a technical college outside Atlanta, Georgia.*



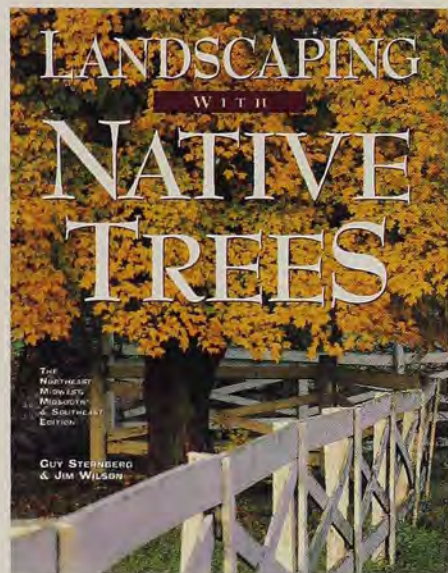
## BOOK REVIEWS

### Landscaping with Native Trees

Guy Sternberg and Jim Wilson. Chapters Publishing, Ltd., Shelburne, Vermont, 1995. 288 pages. 8 1/2" x 11". Color photographs. Publisher's price: hardcover, \$34.95; softcover, \$24.95. AHS member price: hardcover, \$31.45; softcover, \$21.45.

The production of garden, landscape design, and single-focus plant books continues unabated. Rearrange the information, provide sufficient color photographs, make the cover eye-catching, and a "new" book/reference/tome surfaces. What a pleasant surprise, then, to receive a book like *Landscaping with Native Trees*, which has wonderful content, both pragmatic and poetic photographs, and real-world believability because of the authors' attention to detail. I skimmed, then casually read, and finally scrutinized the text. The authors provide plant portraits that mix fact with their professional opinions. Jim Wilson and Guy Sternberg decided to forsake everyday life, travel the highways and byways, photograph and collect information on notable native trees, and produce a book with a unique, user-friendly personality. Although the emphasis is on native tree species, the authors do not treat cultivars as infectious diseases. In fact, they extol the merits of cultivars and often give credit to the introducers. I counted 17 cultivar listings under *Acer rubrum* alone.

Each species entry is separated into sub-headings that include: Description, Leaves, Flowers and Fruits, Seasons, Native and Adaptive Range, Culture, Problems, Cultivars, Related Species, and Comments. The "description" category is a virtual introduction to the merits of the species, its growth habit, use, and size (often listing the whereabouts of living behemoths or national champions). Information about native and adaptive range includes a discussion of distribution, provenance (the region where seed was collected), and ecotypes. Throughout, the authors emphasize the importance of growing trees in the same geographic area from which the



seeds were collected.

The photographs emphasize varying features for different species. For *Acer saccharum*, fall color, flower, and bark are depicted. Photographs of yellowwood (*Cladrastis kentukea*) include shots of foliage, bark, flowers, and a venerable old specimen—a national champion—in Cincinnati, Ohio. I have observed this specimen many times, for it is housed in Spring Grove Arboretum, a magnificent plant sanctuary that I always visit when I return home to Cincinnati. Most of the photographs were taken by the authors, although a number of free-lancers provided respectable work.

The first 35 pages include an introduction to the philosophy behind growing native trees, their propagation and preservation, how to care for established native plants, and an index of tree and leaf silhouettes. The core, crux, and heart of the work, however, are the plant profiles of natives from *Abies* to *Ulmus*—82 in all—covering 218 pages. Also included is a mini-section on specialty trees, a glossary, a source list of nurseries, a listing of conservation groups, a bibliography, and an index.

The book does not try to be all things to all plant lovers. It stays within the bound-





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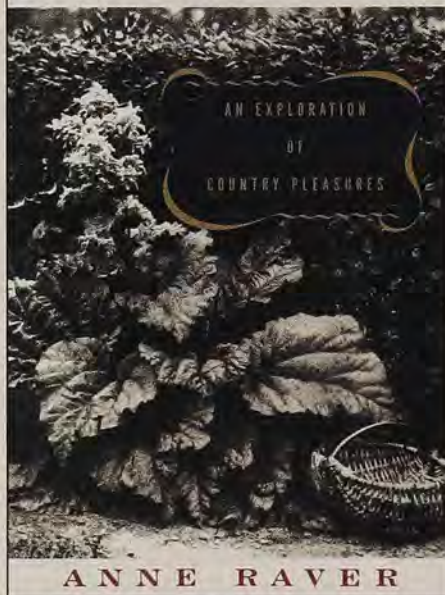
aries of the authors' reservoir of knowledge and experiences, but the textual credibility is superb because the authors really lived their production of the book.

*Landscaping with Native Trees* is one of those rare books that will be used by the reader on a sustained basis. The information is eminently credible and, along with the excellent photographs, will foster greater appreciation and use of native woody trees and shrubs.

—Michael A. Dirr

Michael A. Dirr is a faculty member in the Department of Horticulture at the University of Georgia in Athens and author of numerous books, including *Manual of Woody Landscape Plants*.

### DEEP IN THE GREEN



### Deep in the Green: An Exploration of Country Pleasures

Anne Raver. Alfred A. Knopf, New York, 1995. 280 pages. 8 1/2" x 5 1/2". Black-and-white illustrations. Publisher's price: hardcover, \$24. AHS member price: \$21.60.

Perhaps it is true that the British have an edge on us as far as gardens are concerned. Maybe we can't boast of such great borders of blossoms tumbling one over the next, but we do have a fairly respectable array of exceptional garden writers on this side of the ocean. We sure can talk up a storm. And in a field of stiff competition, Anne Raver has firmly established her place on the very top of the heap.

Perhaps it's the wry one-liners. Perhaps it's the deftly syncopated sarcasm. For whatever reason, *Deep in the Green* is addictive. Part of the appeal definitely lies in the fact that Raver is so very human. She

gets divorced, wrestles with weeds, forgets to order seeds, and goes on vacation while the flowers wilt—just like you and I. Raver is a genuine gardener, complete with all the flaws. Her thoughts drift to her cosmos when she's supposed to be hanging attentively on every syllable uttered by her luncheon date; she lies awake worrying that the leeks won't mature before frost. Her peas rot, her lettuce bolts, and the radicchio melts. Things run amuck in her garden just as they do in everyone else's.

But the difference between Anne Raver and other gardeners is that this lady is brave enough to publish her foibles. She readily admits that she never rooted those cuttings of *Rosa rugosa* because on the way to pick up the mayonnaise jars (you know, the ones with the yawning mouths that work so well as mini-greenhouses) from the delicatessen she got diverted by a friend. In fact, she is a walking, talking comedy of errors. Her plans to grow dozens of tomatoes end with a sole spindly seedling; a search for the perfect mower concludes with our heroine wielding a scythe.

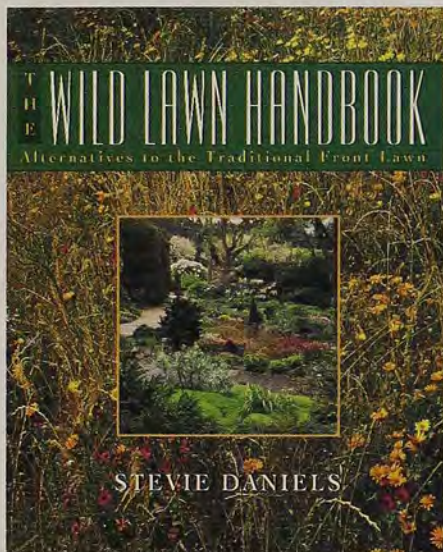
Yet *Deep in the Green* delves deeper than mere slapstick. It points out the link between gardens and life. Raver can see how everything is connected. If you can't get along with your spouse in the garden, how on earth are you going to compromise on other marital matters? If you can manage to communicate with your father on rosarian subjects, well then, you've definitely made major steps toward closing the generation gap. She can see the metaphor for life in all matters horticultural.

Of course, there's plenty of practical stuff here, too. Tucked discreetly between the poop on Cricket Krap lies a whole dissertation on fertilizer (if you didn't happen to notice that gardeners are quirky before opening *Deep in the Green*, you'll definitely pick up on that fact by reading between the lines). There's also an eyebrow-raising exposé of beneficial insects as well as instructions on how to force Easter lilies to bloom at exactly the wrong moment. In fact, there are facts and figures galore—always delivered with a teaspoon of sugar, mind you. Raver is a journalist from head to toe and loves to follow the scent of a juicy cantaloupe story to its logical conclusion. And beyond.

It's mighty tempting to try to read *Deep in the Green* from cover to cover. And if you do, you're likely to experience some time warps. This is, after all, a compendium of newspaper articles written over a lengthy period of time but presented here by subject. A better idea might be to savor the book slowly, one chapter at a sitting. I

keep it close by, to pick up whenever I need to chuckle. I read it whenever I want proof that other gardeners occasionally overwater their house plants. I read it when I want to empathize with another soul who is willing to admit that she suffers occasional bouts of loneliness. We need more of this kind of person around. —Tovah Martin

*Tovah Martin is horticulturist at Logee's Greenhouses in Danielson, Connecticut. Her most recent book is Tasha Tudor's Garden, published by Houghton Mifflin.*



### The Wild Lawn Handbook: Alternatives to the Traditional Front Lawn

Stevie Daniels. Macmillan, New York, 1995. 223 pages. 9 1/2" x 7 1/4". Color photographs. Publisher's price: hardcover, \$20. AHS member price: \$18.

Are American lawns on the way out? There are certainly sound reasons why they ought to be.

They drink too much: 10,000 gallons a season for an average lawn, which is more water per week than falls as rain during the summer months anywhere in the country. They don't hold their water either: Ninety-five percent of rain is lost as runoff over a lawn's shallow sod. This waste is a rich brew—if you like your drink spiked with pesticides, topped with fertilizer suds.

Speaking for myself, I hate taking care of a lawn. I find no enjoyment in working to keep a planting looking exactly the same all season long and year after year—and for all the effort get no thanks but grubs and fungus. I don't get along with mowers; they're noisy, smelly, polluting, cantankerous machines. So I hire others to mow, and then I hate to pay the bill. America's total bill for

lawn care is \$7.5 billion annually. I bet it would be cheaper in the long run to pave suburbia's 24 million grassy acres with asphalt, and tar would be just as effective as turf in removing the area from any use by wildlife. Who wants butterflies, anyway, disturbing the peace of our perfect yards?

I have yet to meet anyone who has anything against butterflies, but I haven't met a lot of people who are rushing to reduce their turf, either. If the reason is that they don't know how, or can't imagine what to plant instead, Stevie Daniels' *The Wild Lawn Handbook: Alternatives to the Traditional Front Lawn* should arm them for the venture.

This admirably researched book begins logically with how to kill a lawn (or a portion of it) and proceeds through numerous examples to describe environmentally sound, ground-covering plantings for every region of the country. Some—like native buffalo grass for dry Western yards or mosses for moist wooded lots—are alternative lawns whose similarly flat, smooth, uniform look might tempt those who are reluctant to stray too far from tradition. Others, though, are richly textured and flowery—from natural Florida grassland, New England meadow, and Midwestern prairie to more studied plantings such as a heather lawn in northern California and a ground-hugging mix of shrubs and perennials on a shady lot in Oregon.

A particular strength of Daniels' handbook is that her extensive interviews with the owners or designers reveal early failures as well as the ultimate success of these often experimental yards. There is plentiful cultural and management advice, and no end of plant lists for various habitats, regions, and circumstances. Perhaps the plant lists are too comprehensive—the mind blurs at so many choices—but Daniels' descriptions of species and varieties are concise and informative, and she distinguishes clearly among native, naturalized, and cultivated species. The photographs are handsome—I wish there were more of them. But for that I blame the publisher, not the author, whose generous contribution to the illustrated literature of alternatives to lawns will surely amplify what has so far been only the whisper of a trend away from the traditional American front yard. —Sara Stein

*A resident of Pound Ridge, New York, Sara Stein is the author of Noah's Garden: Restoring the Ecology of Our Own Back Yards. She is currently working on a more comprehensive restoration guide, to be published in the fall by Houghton Mifflin.*

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# Showdown on



*Hikers look east from the mouth of Santa Rosa's Lobo Canyon.*



# *Santa Rosa*

*Cattle grazing on this California island has pitted the Park Service against conservationists.*

BY YVETTE LA PIERRE





PHOTOS BY STEVE JUNAK

Soft-leaved Indian paintbrush, top, and Hoffmann's slender-flowered gilia, above, are among the Santa Rosa Island species considered endangered.

Off the most heavily urbanized area of the West Coast lie eight bumps of rare wilderness called the Channel Islands. Five of the islands—Anacapa, Santa Cruz, Santa Rosa, San Miguel, and Santa Barbara—and their surrounding one nautical mile of ocean are protected as part of the National Park Service. More than 800 species of plants and animals, some found nowhere else in the world, make their homes in the park's 250,000 acres—125,000 acres of island land, and 125,000 acres of submerged land and water surrounding the islands. Many of these species are listed as endangered by either the U.S. Fish and Wildlife Service or the California Department of Fish and Game.

During the last Ice Age the northern Channel Islands were all part of one big island known as Santarosae. Sea level was much lower then, and wildlife, such as mammoths, foxes, and flightless geese, could swim to the islands. Over time, as the glaciers melted, the sea level rose and the islands were separated. Plant and animal species on the various islands were permanently cut off from each other and from the mainland. Thousands of isolated years later, island species remain similar to those on the mainland, but they have evolved into endemic subspecies with unique size, shape, and color variations. Some of these species, such as the island tree mallow (*Lavatera assurgentiflora*), a rare shrub threatened by erosion and competition from non-native plants, occur on several of the islands. Other species exist only on one.

Plants endemic to Santa Rosa, the second largest of the Channel Islands, include the soft-leaved Indian paintbrush (*Castilleja mollis*), a partially parasitic perennial herb in the figwort family (Scrophulariaceae), which survives only in small, random populations on the island, and a Torrey pine subspecies (*Pinus torreyana* subsp. *insularis*). Only two stands of this long-lived member of the pine family (Pinaceae) exist, on the east side of Santa Rosa.

Recognizing the rare quality of the islands, Congress established Channel Islands National Park in 1980 and charged the Park Service with the protection, interpretation, and, where necessary, the restoration of native species. But 15 years later it appears that Congress's faith was misplaced. On Santa Rosa, the Park Service has violated regional water quality control standards, an environmental organization has filed a notice of its intent to sue for bet-

ter management of the island, and the U.S. Fish and Wildlife Service has published a proposal to place 19 native plants—five found only on Santa Rosa—on the federal endangered species list.

So why has the National Park Service, a land management agency that most Americans trust to preserve our natural heritage, apparently failed to protect native plants and other resources on Santa Rosa Island? At issue is a cattle ranching and commercial hunting operation—two activities that are not normally associated with national parks.

When the Park Service bought Santa Rosa Island in 1987 from the Vail & Vickers Company, the deal included an agreement allowing Vail & Vickers to continue its cattle ranching and commercial hunting operation for 25 years. The contract contains language, however, that basically says the deal can be called off if grazing proves incompatible with resource protection. Many feel that incompatibility is already obvious. Grasslands are often grazed bare as cattle browse and trample plants, including rare native species.

The Fish and Wildlife Service has repeat-



STEVE JUNAK

edly warned the Park Service that changes are needed in grazing patterns to protect plant species. The National Parks and Conservation Association (NPCA), the organization that has threatened to sue, agrees.

“Grazing is the key problem,” says Brian Huse, NPCA Pacific regional director, “though the potential is there for impacts from off-road vehicle use for the hunting operation.”

Santa Rosa is covered by grasslands that are crisscrossed with trails and heavily grazed by 5,000 cattle, as well as about 3,000 deer and elk—all alien species—used for commercial hunting. According to Huse, the actual number of animals is not known because the Vail & Vickers Company does not allow the Park Service to survey the herd.

In addition to eating and trampling native species, the animals erode the topsoil with their hooves, making it harder for native plants to germinate and easier for non-native weeds to take over, says Connie Rutherford, a Fish and Wildlife Service botanist. Cattle are more or less unfenced on Santa Rosa and tend to congregate in riparian areas, degrading banks and conta-

minating water, Huse says. Contaminating water and failing to comply with state water quality laws are violations of the federal Clean Water Act.

Grazing is not new to Santa Rosa. In fact, it is an historic use of the island, beginning in the early 1840s with a Mexican land grant to José Castro, a former governor of California. Walter Vail and J. V. Vickers bought Santa Rosa Island at the turn of the century and repopulated the existing sheep ranch with cattle. Vail’s two grandsons now manage the cattle ranch, as well as a commercial hunting operation. (The company charges \$7,600 for a four-day trip and guarantees the hunter a six-point elk.) Therefore, native plants have been under pressure for more than a century.

“It’s difficult to say how recent the decline of plant species has been on Santa Rosa,” Rutherford says. “We know from looking at herbarium collections from the turn of the century that these plants were once more widespread.”

Vail & Vickers contends that the condition of the island has improved since it replaced sheep with cattle.

“There’s probably good reason for them

*The torrey pines on Santa Rosa, below left, are an endemic subspecies of only two stands. Dudleya blochmaniae subsp. insularis, below, is one of two members of this succulent genus that have been endangered by cattle grazing.*



STEVE JUNAK

## FIVE ISLAND SPECIES AT RISK

There are five plant species endemic to Santa Rosa Island that are proposed for inclusion on the federal endangered list. All are said to be endangered as a result of soil loss, habitat alteration, and grazing and trampling by cattle, elk, and deer.

☛ *Arctostaphylos confertiflora*. Santa Rosa Island manzanita, a perennial shrub in the heath family, grows four to six-and-a-half feet tall and occurs in both upright and prostrate forms, the latter probably the result of grazing and weather. It has smooth, dark red-purple bark, very hairy branchlets, bracts, and pedicels, and light green round-to-oval leaves. The flowers appear in numerous dense panicles that mature into flattened reddish brown fruits. It is known from only two areas on Santa Rosa, on sedimentary substrates and sandstone outcrops.

☛ *Castilleja mollis*. Soft-leaved Indian paintbrush is a perennial herb in the figwort family, presumed to be partially parasitic. It has semiprostrate branches that grow to 16 inches, with grayish, fleshy bracts and upper leaves that are broad and rounded at the tip, while the bracts and calyxes are yellow to yellow-green above. Once found on San Miguel Island, it is now known to occur only in two populations on Santa Rosa, on stabilized dunes with shrub vegetation and along the north shore with native milkvetch and non-native ice plant and grasses. It is also threatened by competition from these non-native species.

☛ *Dudleya blochmaniae* subsp. *insularis*. A small succulent perennial in the stonecrop family, it has a cormlike root structure. Several stems from one to three inches tall emerge from a basal rosette of spade-shaped leaves. The white, five-petaled flowers and resulting fruits are fused at the base and wide spreading. It is known from only one location of less than two acres, an ancient marine terrace with a cobbly surface. It is estimated that there are only about 2,000 individual plants. It is also threatened by collecting and by damage from vehicles.

☛ *Dudleya nana*. Munchkin dudleya has a short caudexlike stem and small, gray oval to lance-shaped leaves in a cluster of up to 20 basal rosettes. Its one-to-three-inch stems bear pale yellow, five-petaled flowers that are fused at the base and spread only at the tips. It is known from only one location, on a windswept ridge with cobbly soil. There are an estimated 3,200 individual plants.

☛ *Gilia tenuiflora* subsp. *hoffmannii*. Hoffmann's slender-flowered gilia is a small, erect annual herb in the phlox family. Its central stem grows about two-and-a-half to almost five inches tall from a rosette of very hairy, strap-shaped, short-lobed leaves. Its flowers are purplish and funnel shaped below, widening to five pinkish corolla lobes. It seems to have disappeared from one location near the Vail & Vickers ranchhouse, and now occurs at only one other site, as a component of dune scrub vegetation bisected by a National Park Service road.



STEVE JUNAK

Santa Rosa Island manzanita occurs in only two areas.

saying that," Rutherford says. Sheep are "more efficient" grazers than cattle, she says, and will pull entire plants out of the ground. In addition, the cattle on Santa Rosa are better managed than the sheep were. Areas that were stripped by sheep have vegetation growing on them again. "But looking more closely at plant communities on Santa Rosa, we're able to tell that a lot of what's growing there is non-native," Rutherford says. "That shows there's been a really big change in plant communities."

What seems to puzzle and frustrate Fish and Wildlife Service personnel and environmental organizations most is the Park Service's unwillingness to call the grazing agreement into question, despite their clear right to do so under the contract. "They think they have an obligation to allow grazing to continue unchanged," Rutherford says.

The Park Service believes it is protecting native plants as well as it can while upholding the agreement with Vail & Vickers. "We're fencing off some of the *Dudleya* species to keep the public and cattle off those areas," says Kate Faulkner, the park's chief of resources management. "Anything we do, such as fencing areas off, we do in conjunction with Vail & Vickers."

The Park Service is expanding its vegetation monitoring program, designed to look at whole plant communities, to search for individual rare plants. According to Faulkner, they are finding some of the species that are candidates for the endangered list in new locations—but some not at all. Island phacelia (*Phacelia insularis* var. *insularis*), for example, was recently rediscovered on Santa Rosa after not being found for more than 20 years. This member of the waterleaf family (Hydrophyllaceae), which has lavender, bell-shaped flowers, is also found on San Miguel Island and is similar to the form of *Phacelia* that grows in northern California.

"There are some species that we know occurred on Santa Rosa in the past, such as *Arabis hoffmannii*, but we haven't located them," Faulkner says. "And we've been searching." That doesn't necessarily mean that the Vail & Vickers herds are to blame. "For many plant species, cattle are not the issue at all," Faulkner says. "In some cases we need to look at other factors." According to Park Service reports, soil loss, habitat degradation, and predation are the major threats to this perennial in the mustard family (Brassicaceae). Recent surveys

also have failed to turn up Hoffmann's rock cress on Anacapa Island, where the plant was collected in the 1930s and '40s, though three small populations survive on Santa Cruz Island.

Island barberry (*Berberis pinnata* subsp. *insularis*), a perennial shrub that produces yellow flowers followed by blue berries, and island rushrose (*Helianthemum greenei*), a small shrub in the rock-rose family (Cistaceae), also have not been found on Santa Rosa recently. In addition to soil loss, factors blamed for the decline of this plant and other native species include grazing, rooting by feral pigs, and competition from non-native weeds. And grazing is a factor in the latter case as well. More than 150 years of browsing has resulted in the replacement of native plant communities with non-native grasses and forbs. In fact, nearly all the grasslands, which cover 85 percent of the island, are composed of non-native species.

Having an endangered species on your property can be a bit like having the president for a permanent house guest—an honor that can become a huge annoyance if you just want to go about your business. This is as true for federal agencies, including the Park Service, as it is for private landowners. The Endangered Species Act, passed in 1973, made protecting endangered species the highest legal priority of government and gave Fish and Wildlife and the National Marine Fisheries Service ultimate veto power over all other federal agencies. Thus if any plants or animals living in a national park are placed on the list, the Park Service must consult with Fish and Wildlife to make certain that any current or planned activities in the area won't harm the species. And the Channel Islands are already home to a dozen terrestrial and marine species protected under the Endangered Species Act, including American peregrine falcons, humpback whales, sea otters, and the western snowy plover. The Park Service attributes a small percentage of plover nest failure to trampling by cattle.

According to the NPCA's Huse, the Clinton administration directed the Department of the Interior to slow down the number of species being listed by the Fish and Wildlife Service as the result of damaging activities on the part of other federal agencies. "Agencies are supposed to work things out on their own," Huse says. Theoretically, if the Park Service follows recommendations and can document im-



PHOTOS BY STEVE JUNAK



*Island plants are endangered not only by the grazing and trampling of cattle, above, but by the presence of elk and deer brought to the island for a commercial hunting operation. The Park Service is protecting some plants, such as this island oak (*Quercus tomentella*), top, with fencing.*



provement in the health of the candidate species, Fish and Wildlife will not have to list those species.

As a result of the department directive, the Fish and Wildlife Service has begun to emphasize what it calls “pre-listing activities”—actions that will allow species and their habitats to recover without going through the formal listing procedure. Biologists from that agency and the Park Service are working together to propose pre-listing activities to protect endangered and candidate species, both plant and animal, on all the Channel Islands. Rutherford, however, is skeptical about how cooperative the other agency will really be in the end.

“We’ve been talking about this issue since 1990—the Park Service has had a long lead time,” Rutherford says. “Even before then, the park’s own research scientists and biologists were gathering biological information and sounding the alarm on the status of the resources. With that information and the legal mandates to improve management of their sensitive resources, it is puzzling why the park hasn’t done more to change management over the past five years.”

The Fish and Wildlife Service published the proposal to list species from the Channel Islands, including the 19 plant species and 11 animal species, in late July of this year. The next step is to invite public comment. Typically, the agency has one year to respond to those comments and publish a final rule.

“In general, with most of the [plant] species that we’re looking at, their status is so critical,” says Rutherford, that the Fish and Wildlife Service would probably go ahead with listing at the end of that year. “A lot of the species are down to just a few populations. A random event—flood, fire, drought—can wipe out what little is left.” Congress, however, has passed a moratorium on publication of final rules.

Neither Fish and Wildlife nor environmental groups are necessarily advocating the removal of all the grazers at this time. If the cattle, deer, and elk all disappear at once, non-native plant species may take over and crowd out the rare natives. But Huse believes that if the Park Service waits to make changes until 2012, the year the grazing contract is up, it will be too late for some of these endemic species.

“NPCA is asking the park to take more of a role in the management of the cattle-grazing operation so that resource protec-

tion is the primary focus of the activity,” Huse says. “We are asking the Park Service to basically do its job while allowing for use of the island under this contract.”

According to Rutherford, it is possible to have both grazing and resource protection on Santa Rosa Island, but not without a fundamental change in management strategies. Using grazing to keep non-native plants under control, for example, can help endemic plant communities recover. “We’d like to see the grazing be used as a management tool to promote the recovery of the island ecosystem,” she says. “It’s a real shifting in the focus and purpose of having grazing.”

The issue of grazing and native plant protection on Santa Rosa Island may seem on the surface as isolated as the island itself. But its solution may have far-ranging implications. The problem at Santa Rosa concerns two of the more contentious environmental issues of late—grazing on public lands and the reauthorization of the Endangered Species Act. After pledging to raise grazing fees to a more realistic level, Secretary of the Interior Bruce Babbitt dropped a fee increase from his Rangeland Reform package, which environmentalists say doesn’t go far enough to protect and restore land. Authorities agreed to set grazing fees on Santa Rosa Island at roughly one-half the already low standard federal fee, in order to offset Vail & Vickers’ high costs of transporting cattle to and from the island. And the Endangered Species Act is under attack by the new Congress, which has introduced legislation that would effectively demolish the act.

This issue’s resolution may have a more direct impact by influencing the management of other parks. Channel Islands is only one of several national park units that allow grazing (sheep graze on Santa Cruz Island, as well), and it’s widely felt that the National Park Service has inadequately addressed potential ramifications of that grazing.

“I certainly hope the Park Service will take it as a wake-up call if the plants get listed,” Rutherford says. “I hope they will review their own policy on grazing-sensitive resource protection, and reassess whether or not they are doing everything they can to protect these species.”

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*Formerly the associate editor of National Parks magazine, Yvette La Pierre is a freelance writer and children’s book author living in North Dakota.*



TIM HAUF



BRAD SILLASEN

*The Hoffmann’s rock cress, opposite, used to grow on Santa Rosa but can no longer be found there. Life on the Channel Islands can be precipitous under any conditions, as evidenced by this coreopsis in Lobo Canyon, top. Soil loss is one reason that some species are on the brink of extinction. Animals, like the snovy plover, above, are endangered as well.*

# Peter Henderson

BY ROBERT F. BECKER

Few Americans, even avid gardeners and professional horticulturists, recognize Peter Henderson's name or know what he did for horticulture. Some older gardeners may remember hearing of the Peter Henderson seed company—they may even have ordered seeds—but they, too, probably know little about Henderson himself. Yet there was a time when his name was synonymous with horticulture in America. In fact, it has been said that Henderson exerted more influence on horticultural practice in this country than any individual of his generation.

A trained, hands-on horticulturist and gardener, he advanced the art and practice of market gardening and floriculture in the United States both by personal example and through his many published works. A brief biography of Henderson included in Liberty Hyde Bailey's *Standard Cyclopedia of Horticulture* reads in part, "Few men, if any, have done so much to simplify and improve methods of handling plants for commercial purposes. His greenhouses were an object lesson to many visitors, his methods were widely copied, and his business successes were the goal of ambitious market-gardeners and florists, among whom he was for many years the most commanding figure."

The son of a land steward and grandson of a nurseryman and florist, Henderson was born in 1822 near Edinburgh, Scotland. From an early age Henderson showed an interest in plants, and at 16 he began a four-year apprenticeship in the gardens of Melville Castle, near Dalkeith. While apprenticed he was awarded a medal by the Royal Botanic Society of Edinburgh for his herbarium collection.

In 1843, Henderson emigrated to America and soon found work at the Astoria, New York, nursery of George Thorburn, a fellow Scot whose family had founded the J.M. Thorburn & Co. seed house. Seeking additional experience, he moved to Philadelphia to work for another Scotsman, Robert Buist, a prominent nurseryman, florist, seedsman, and author—all accomplishments



# Plant Pioneer

*A Jack-of-all-horticultural-trades, this 19th-century Scotsman made his mark in the New World.*

for which Henderson himself would eventually be recognized. Buist later called Henderson the most skillful workman he had ever employed. Henderson's next stop was Pittsburgh, where he took the position of estate gardener for Charles F. Spang.

Although he arrived in the United States with practically no money to his name, by 1847 Henderson had managed to accumulate the grand sum—for the times—of \$500, with which he started a market garden business in Jersey City, New Jersey, in partnership with his older brother, James. They rented a plot of land and three small greenhouses and began to raise vegetables to supply the market in nearby New York City. When the partnership dissolved several years later, James continued to focus on vegetable gardening while Peter stayed in Jersey City and expanded into the production of ornamental plants. Although he continued to live in Jersey City—which was to be his home for the remainder of his life—in 1864 he moved his business a short distance to South Bergen, where he erected what was considered to be a model range of greenhouses with sophisticated and efficient heating and ventilation systems. Hundreds of florists and plant growers toured these greenhouses during the next few years, and Henderson was always glad to share his knowledge of greenhouse construction.

To expand the sale of ornamental and vegetable plants, Henderson had opened a sales office in New York City in 1853. Nine years later he moved his office to the seed store of James Fleming and William Davidson and published his first annual plant catalog. In 1865 he purchased Davidson's share of the seed business, and the firm became Henderson and Fleming. After this partnership was dissolved in 1871, Peter Henderson & Co. was established at 35 & 37 Cortlandt Street, an address that was to be associated with the company for many years.

The firm became widely known and highly respected for its marketing not only of flower and vegetable seeds, plants, and bulbs, but also garden and lawn tools—a progenitor of today's



COURTESY OF CORNELL UNIVERSITY



COURTESY OF CORNELL UNIVERSITY

*Always an innovator, Peter Henderson was at the forefront of the movement toward one-stop garden supply companies, as the cover of his 1888 catalog, top, shows. His greenhouses in Bergen City, New Jersey, as seen in an illustration from his 1885 catalog, above, were considered state-of-the-art long after their construction in 1864.*

one-stop gardening supply companies, proudly advertising that it could supply "Everything for the Garden." After 1876, Henderson's sons Alfred and Charles joined the business, which remained in the family after Henderson's death in 1890. Unfortunately, lacking the innovative and progressive influence of Peter Henderson, the company failed to adjust to the changing business requirements of the mid-20th century, continuing to do business by traditional methods, in antiquated offices and warehouses. In 1951 the firm was merged with Stump and Walter; the merged seed company filed for bankruptcy in 1953.

It wasn't Henderson's commercial success, however, that made him one of the horticultural giants of the late 19th century, but his vast knowledge of horticulture and his strong desire to share it with others. He once said, "I never was good at keeping a secret." Henderson was a prolific writer, and it was through this medium that he made his greatest contribution. His son Alfred, who penned a short biography of his father titled *Peter Henderson, Gardener-Author-Merchant: A Memoir*, wrote that it was in his father's literature "that we find his power and personality displayed in the highest degree."

It is to Henderson's credit that he was willing to share what he knew with all who would read his books and articles or visit his place of

business. He apparently was unconcerned that some of these individuals were, or would be, his competitors. For this trait, he was greatly admired.

Henderson wrote his first published article, about transplanting large trees, while he was working for Charles Spang in Pittsburgh. It appeared in a popular journal, *Hovey's Magazine of Horticulture*. He later contributed to a host of other agricultural and horticultural publications, including *The Horticulturist*, *Gardeners' Monthly*, *Moore's Rural New-Yorker*, *The Country Gentleman*, and *Tilton's Journal of Horticulture*. For a number of years he wrote a column for the monthly farm magazine *American Agriculturist*. According to Alfred Henderson, the editor of *American Agriculturist* so desired Henderson's articles that he paid him "a price per column that has been considered perhaps the largest rate ever paid an American writer." Henderson wrote in a terse but engaging style about subjects with which he was thoroughly familiar, effortlessly covering an almost endless range of horticultural topics from roses for winter flowering to the Egyptian beet; from base-burning water heaters for conservato-

ries to the best way to apply manure. (See box on page 28.)

After Henderson wrote a piece on market gardening for the 1865 *Report of the United States Department of Agriculture*, George Thurber, who was then editor of *American Agriculturist*, asked him to write a book on the subject. After some hesitation, he agreed. *Gardening for Profit: A Guide to the Successful Cultivation of the Market and Family Garden* was first published in 1866 by Orange Judd and Company, the publisher of *American Agriculturist*. Henderson claimed that he wrote the entire text in about 100 hours, a remarkable feat considering that the book is 243 pages long. Because of his busy schedule he wrote primarily during the noon hour or late at night, usually lying on his back or stomach in bed.

*Gardening for Profit* was the first American book devoted to the commercial production and marketing of vegetables. Previous books on vegetable gardening had dealt mainly with the home kitchen garden.

*Gardening for Profit* achieved its author's goal as a valuable tool for market gardeners, especially those who were just starting in the business and those struggling to put together their lives after the Civil War. The favorable reaction to *Gardening for Profit* encouraged other experienced market gardeners and seedsmen to publish similar works during the next 30 years. Because the technology of production kept



The late 19th century has been described as "the golden age of seed catalog art." Henderson's catalogs were no exception, using colorful illustrations such as the ones above to entice growers.



changing, Henderson brought out a revised edition of *Gardening for Profit* in 1874 and a revised and enlarged third edition in 1886.

One interesting section of the book reviews the costs and returns of producing market vegetables near New York City. According to Henderson, commercial vegetable production could be very profitable. He hypothesized that successive crops of spring cabbage, summer lettuce, and fall celery might generate an annual profit per acre of \$735. In 1867 this was a handsome sum of money, more than the annual wages of many working men.

By the time the third edition was published two decades later, production costs—labor in particular—had increased and returns decreased so that the theoretical spring cabbage/summer lettuce/fall celery operation would net only \$420 per acre. Henderson suggested that produce prices might have fallen due in part to increased competition.

Nevertheless, supporting oneself, or at least supplementing one's income, from the sale of vegetables and berries was a popular idea during the latter part of the 19th century. Book publishers, including A. K. Loring of Boston, who published the famous Hora-

tio Alger stories, released dozens of similar rags-to-riches tales of small-acreage farmers. At least one, *Miss Tiller's Vegetable Garden and the Money She Made from It*, cites Henderson's *Gardening for Profit* as its heroine's inspiration.

Encouraged by the response to *Gardening for Profit*, Henderson wrote a companion work titled *Practical Floriculture: A Guide to the Successful Cultivation of Florists' Plants, for the Amateur and Professional Florist*, which appeared in print in 1869. Since Henderson felt that he lacked experience in several subject areas he wished to include, he enlisted friends to write sections on landscape design, orchids, forcing violets, and creating bouquets. *Practical Floriculture* also proved to be a success, leading to revised editions in 1874, 1878, and 1887.

The next book to come from Henderson's busy pen was *Gardening for Pleasure: A Guide to the Amateur in the Fruit, Vegetable, and Flower Garden, with Full Directions for the Greenhouse, Conservatory, and Window Garden*. The title tells it all! Published in 1875, this book for home horticulturists was revised and enlarged in 1888.

After a break of six years, Henderson published his fourth book in 1881. *Henderson's Handbook of Plants*—a deceptively modest title for an encyclopedia of botanical classification, methods of propagation, and culture of both useful and ornamental plants—is a scholarly work that must have required innumerable hours of research.

Henderson's fifth book, *Garden and Farm Topics*, a compilation of 43 essays on various horticultural subjects, was published in 1884. Some essays had appeared previously as articles in horticultural journals, while others were transcripts of addresses that Henderson had made to either the New York Horticultural Society or the National Association of Nurserymen, Florists, and Seedsmen.

Also published in 1884 was *How the Farm Pays: The Experiences of Forty Years of Successful Farming and Gardening*, co-authored with William Crozier, a farmer from Northport, Long Island. A stenographic record of conversations between Crozier and Henderson, the book covers such topics as soil drainage, fertilization, tillage, garden and farm crops, farm animals, crop pests, and agricultural equipment.

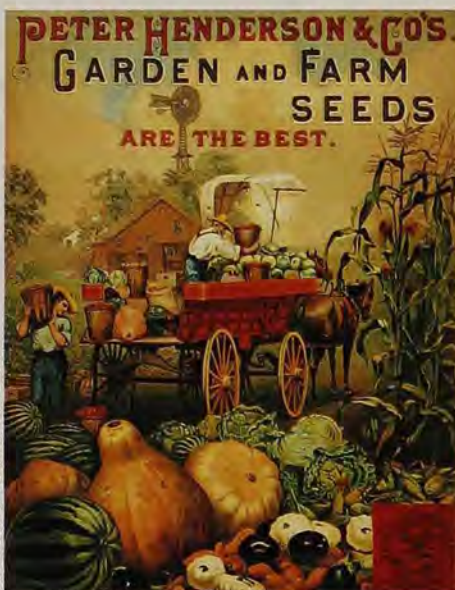
Henderson's books were popular and widely read. By 1890 a quarter of a million copies of the six books were in circulation. They still appear frequently in the catalogs of dealers who specialize in old books on horticulture.

But Henderson's prolific writing ability extended far beyond his numerous books and magazine articles. Until around 1880 he also penned all the material for the firm's plant catalogs and a portion of the seed catalogs. In addition, he personally answered all letters addressed to him, writing rapidly in a clear, easily read script. Alfred Henderson estimated that his father wrote or dictated about 175,000 letters during his lifetime, two-thirds of which were in longhand. Alfred claimed that all letters were answered the same day they were received.

Henderson's contributions to horticulture weren't limited to words, however. By his son Alfred's estimation, Henderson "introduced more valuable new seeds and plants than any other one man in America." Henderson's sharp eye and his ability to recognize superior traits meant many of his introductions, including 'American Wonder' pea and 'American Banner' rose, soon became industry standards. Prior to 1890 there were no bush varieties of lima beans, only climbing pole types. When a mutant bush plant was discovered growing along a country road near Lynchburg, Virginia, in 1883, Henderson quickly realized the value of such a plant and purchased the rights to it.

Through selection, he developed a high quality variety released in 1889 as Henderson's Bush Lima Bean. The introduction was an immediate success and is only one example of the improved varieties that Henderson made available. It is not surprising that many gardeners and farmers eagerly awaited their copies of Henderson's spring seed catalog: What new wonders would it hold?

While Henderson's accomplishments are remarkable, his personal characteristics are perhaps equally worthy of mention. He was a tall, broad-shouldered man, erect in bearing, who walked and moved rapidly. He was one of the very first to step from the New Jersey–New York City ferry when it docked each morning. Wishing never to waste time, he would order his lunch in advance, so it would be served as soon as he arrived at the restaurant. He was a kind, friendly man who always found time to help others. These characteristics, along with his honesty, modesty, and keen sense of humor, gained him many friends, including industrialist Andrew Carnegie, a fellow Scot, and the well-known preacher Henry Ward Beecher, who shared Henderson's love of gardening. Henderson married twice. Having outlived his first wife, Emily Gibbons—who was only 36 when she died in 1868—



Among the many new vegetables and ornamentals Henderson introduced through his seed catalog, above left, were improved varieties of sweet corn and muskmelons, above right.



## ONION GROWING FOR MARKET

*"It is the generally received opinion that Onions grow best in old ground. This, I think, is an error. It is not because the ground is "old," or has been long cultivated, that the Onions do better there, but because such lands, from their long culture, are usually better pulverized; and experience has shown me repeatedly, that when new soil has been equally well pulverized*



*Peter Henderson & Co. retained its founder's name for years after his death in 1890. Here, a cornucopia of vegetables adorns the cover of an 1895 catalog.*

*and fertilized, an equally good crop is obtained, and usually a cleaner crop, more exempt from rust or mildew. As a matter of fact, the finest crop of Onions I ever beheld was on sandy swamp land, which had been first thoroughly drained and broken up. In fact, new soils, particularly when broken up from pasture land (turned over early enough in the fall, so that the sod is rotted completely), make excellent land for Onion crops, as they are usually free from weeds."*

—from *Garden and Farm Topics*,  
published in 1884

he later married Jean Reid, the daughter of a friend.

Being a straightforward, honest person, Henderson did not shy away from controversy. If some commonly accepted horticultural practice or theory seemed incorrect based on his personal observations and experiments, he did not hesitate to raise questions. At the New York Horticultural Society he once delivered a presentation titled "Popular Errors and Scientific Dogmas." In it he took issue with Charles Darwin's theories about stock plants and grafts, and dispelled the apparently popular notion that plants expelled potentially lethal carbonic acid at night.

Because Henderson was a man of high ethical standards, he endeavored to market only quality plants and seeds. To ascertain seed quality, he pioneered techniques to test individual seed lots for viability. He was also one of the first seedsmen to use "grow-out" trials to check seed lots for purity. Henderson had no patience with those who deliberately deceived the public, and endeavored to expose fraud when he encountered it. In one instance, Henderson brought to the attention of a leading New York City newspaper the fallacious claims of two salesmen who were promoting such wonders as blue moss roses, strawberry trees that produced fruit the size of oranges, and a variety of peach almost as large as a muskmelon. Another time, he himself fell victim to a sales pitch when he bought 50 cents' worth of seeds at the Washington Market in New York City from a vendor known as Dutch Peggy. The seed, said to yield red mignonette flowers, instead produced red clover. Telling of this incident in a speech he called "Humbugs in Horticulture," presented to the National Association of Nurserymen, Florists, and Seedsmen in 1880, Henderson reported that "Peggy has long since been gathered to her fathers, and I have entirely forgiven her for selling me the red mignonette."

Henderson's indefatigable style stayed with him to the end. Although his fourth book, *Henderson's Handbook of Plants*, had received a favorable response, he apparently felt it had been prepared too hastily, so in early 1889 he started work on an enlarged edition, *Henderson's Handbook of Plants and General Horticulture*. He finished reading and correcting the draft copy on December 26, became ill a week later, and died of pneumonia on January 17, 1890. His final work was published a month after his death. A nonsmoker and temperance advocate with a very healthy lifestyle, he reportedly suffered only one other illness during his life.

During Peter Henderson's lifetime, horticulture was largely an art rather than a science. In the years shortly after his death, this would change, with the advent of publicly funded experiment stations and state colleges of agriculture with faculty members such as the great horticulturist Liberty Hyde Bailey. Henderson was an extraordinary teacher, leader, and guide, who helped pave the way for horticulture to emerge as a true science and to keep pace with the age of modern technology.

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*Recently retired from the Department of Horticultural Sciences at the New York State Agricultural Experiment Station at Cornell University in Geneva, New York, Robert F. Becker writes frequently on horticultural history.*

*Peter Henderson & Co. catalog artwork was provided courtesy of the Seed Trade Catalog Collection at the National Agricultural Library in Beltsville, Maryland, and of the Liberty Hyde Bailey Hortorium at Cornell University in Ithaca, New York.*



VIEW OF THE  
**SEED WAREHOUSES**  
 OF  
**PETER HENDERSON & CO.**  
 35 & 37 CORTLANDT ST. NEW YORK. Frontage 51 feet, Depth 130 feet.

*In 1871, Henderson's seed company was established at 35 & 37 Cortlandt Street in New York City, an address with which the company would be associated for many years.*



# Magnificent Mariposas

*These beautiful wildflowers are native to a wide range of Western habitats.*

BY HUGH P. McDONALD WITH KARIN R. STOKKINK

**W**hen we first moved to the West to be near its rugged mountains and the Pacific Ocean, we weren't expecting the bonus of its many different wildflowers. Among our happy discoveries were the mariposas, a group of bulbs completely unknown to us in the East. Of the 65 species of *Calochortus*, 40 occur in California, but they are found in virtually every western habitat from western Canada to northern Guatemala and from California to the Dakotas. They got their common name from early Spanish explorers who thought the elaborate petal markings of some looked like those on butterfly wings.

Native American tribes taught the early pioneers of Utah to harvest mariposa bulbs for food, enabling them to survive their first, lean years in the state. In gratitude, the settlers made the most common species, *C. nuttallii*, Utah's state flower. This is the sego lily, whose name is derived from *segaw*, the Shoshone word for the plant.

Botanists have divided the genus into three subsections: section *Calochortus*, with smooth leaves and variable flower shapes; section *Mariposa*, with grooved leaves and large upright flowers, centered mostly in the Southwest; and section *Cyclobothra*, usually distinguished by pendulous flowers, centered mainly in Mexico. Tremendous variation in mariposas throughout their wide range has spawned a host of evocative regional names, including star tulip, globe tulip, fairy lantern, butterfly lily, pussy ear, and cat's ear.

Mariposas were popularized at the turn of the century by nurseryman Carl Purdy,



MICHAEL S. THOMPSON

*Weed's calochortus, opposite, grows from Orange County to Baja, California. A slope in the Oregon Cascades, above, is lit up in July by white mariposa, red Indian paintbrush, and blue delphinium.*

who dug wild bulbs and shipped them around the world. The inability of these wild-collected bulbs to survive in inhospitable climates gave them an undeserved reputation for being difficult to grow, even in their home states. Indeed, the very virtues of the plants, including their tenacious drought resistance, made them unsuitable for climates like that of England, where rain can be a daily occurrence, or the northeast United States, with its heavy

snowfall and summer rain. Since these areas shaped gardening tastes for all of us, mariposas quickly lost favor.

The recent rekindling of interest in native wildflowers, as well as the search for plants that don't require intensive watering, has helped bring mariposas back into horticultural fashion. Mariposas bloom over a long season, so a carefully planned journey through western North America and into Mexico allows one to see different species from March through October.

The journey would begin in California in late March or early April, right at the break of spring. California, like most of the Pacific Coast, has a Mediterranean climate with rainfall that is moderate to heavy in winter and spring but very sparse in summer. Most flowers bloom before the rainy season ends in mid-May and go dormant during the long summer drought. Bulbous plants such as mariposas are well suited for such climates because they can store nutrients for resuming growth in late fall.

The earliest *Calochortus* to flower are members of section *Calochortus* found in the woodlands and wet meadows of the mountain foothills in the central part of the state. The lavender star tulip (*C. uniflorus*) occurs in open meadows, where it receives full sun and heavy moisture, from Monterey to Oregon in the Coast Ranges. Its flower looks like a bell, with the edge of the sepals and petals forming a rough star shape.

The tiny pussy ears found in pine and oak woods also begin to bloom in early spring. They grow most abundantly in small clearings, where the indigenous open-canopied gray pine (*Pinus sabiniana*) offers shade, and decayed oak leaves pro-

vide nutrients. The flowers, densely covered with hairlike growths, reminded the early pioneers of cats' ears. They are almost golden on the yellow pussy ear (*Calochortus monophyllus*), which grows in the foothills of the Sierra Nevadas, and range from white or lavender to deep purple in Tolmie's cat's ear (*C. tolmiei*), which grows from San Francisco Bay to northwest Oregon, where it blooms up to one month later. Along the northern California coast, thick fog allows it to grow in the open.

Appearing in much the same area later in April and into May are the fairy lanterns. Their charming globe-shaped flowers hang down, evoking images of "wee folk" who might hide in the woods by day and dance by the light of the globes at night. Fairy lanterns are generally taller than other species in the conifer-oak woodlands. Their flowers remain almost completely closed, but pollinators are lured inside by nectar that drips out a small

opening. A yellow species known as Diogenes' lantern (*C. amabilis*) grows in the north Coast Ranges. Its bright yellow globe peeks out from under triangular sepals, as though it were truly "looking for one honest man." In the southern Sierras can be found a lavender and pink species, the rosy fairy lantern (*C. amoenus*). A white fairy lantern known as snowdrops (*C. albus*) grows in both the northern Sierra Nevada foothills and the south Coast Ranges, where it takes on pink shadings.

Southern California's magnificent mariposas begin blooming in April and early May, first on the coast and then in the Mojave Desert, progressing from lower to higher altitudes. These tend to be tall plants with upright flowers shaped like goblets, funnels, or bells, and can occupy one of five types of habitats—grassland, chaparral, wetland, desert, or mountain—with many variations within these habitats.

In California, grasslands occur both in the Coast Ranges and in the Sierra Nevada foothills. Grassland soil, generally low in nutrients essential to other plants, can favor the development of bulbs.

The Santa Catalina mariposa (*C. catalinae*) is usually the first to bloom in this habitat. It grows on slopes along the Southern California coast. The flowers have lavender petals on the exterior, white on the inside, and purple spots at the base.

Also found on the coastal side of Southern California is the beautiful mariposa (*C. venustus*), considered by many the most striking of all and probably the plant for which the genus was given its Spanish name. It grows in fairly dry places in the southern Coast Ranges, mostly on the leeward side among grasses. In the Sierra foothills, however, it grows on windward slopes, in wetter habitat. There are stands with virtually every color under the sun, including red, purple, lavender, white, yellow, burnt orange, magenta, and indescribable shades in between. One—a dusty rose with antique gold markings—reminds us of a grandmother's salon. There are magnificent bicolors with one color on the exterior and another on the interior, such as the red and white ones in the Tehachapi mountains. On the petals are kaleidoscopic combinations of dots, streaks, and other patterns.

In central and northern California, the mariposas also begin blooming in May. The earliest is the common gold nuggets (*C. luteus*), wistfully named by the '49ers. This golden yellow mariposa with brown markings on the inner petals grows along

the sides of the great Central Valley of California and even in it, as well as farther west in the Coast Ranges, usually at lower altitudes than the beautiful mariposa. Stands can be seen growing together with other native bulbs, such as blue ookows (*Dichelostemma* spp.) and pink wild onions, creating their own spring bouquet.

Later in May the superb mariposa (*C. superbus*) is in bloom in '49er country, as well as to the north and northwest. Like the beautiful mariposa, it comes in a variety of colors and markings, dots and striations. Their ranges overlap, and in some stands there is evidence of hybridization between these closely related species. The superb mariposa has a long bloom time, into July at higher altitudes such as in Yosemite National Park. It is generally found on grassy inclines of the higher foothills of the north Coast, Sierra, and Cascade ranges.

The splendid mariposa (*C. splendens*) is delicate lilac or pink, often with purplish markings on the inner petals. Its range extends all the way from southern to northern California in the Coast Ranges. It is found in chaparral, a habitat where mixed shrubs grow close together on steep slopes. Endemic flowers must find a foothold between the shrub roots and grow tall enough to reach over their tops.

Another chaparral species is the club-haired mariposa (*C. clavatus*), a large, showy, yellow species, often with brown markings on the petals. On the inner petals, small hairs can be found near the base. Unlike most other mariposas, it has adapted to the humid conditions on the windward side of the Coast Ranges. Also found from southern to northern California, its huge yellow blossoms peek from branches of surrounding shrubs as if growing on them.

From the leeward side of California's mountains some snowmelt flows east to the Mojave, often ending in areas called sinks where the streams seem to disappear like water flowing down a kitchen drain. They leave behind mineral salts that build up to form highly alkaline soil hostile to much plant life. But certain plants have adapted to these conditions, among them the alkali mariposa (*C. striatus*). Like other desert species, it is often found between branches and roots of tough shrubs, usually sage or juniper, that offer light shade, support against desert winds, protection from predators, and perhaps nutrients from fallen leaves. The alkali mariposa can grow to two feet or more. Found near the foothills from Southern California to



ANITA SAGARESE



JERRY PAVIA

*Gunnison's mariposa, top, is most often found on the Rockies' eastern slopes, while the sagebrush mariposa, above, grows in the Great Basin and Columbia Plateau in our Northwest.*



Nevada, it is white or pink with narrow purple or pink stripes—striking against the clear blue desert sky and its gray-green companion plants.

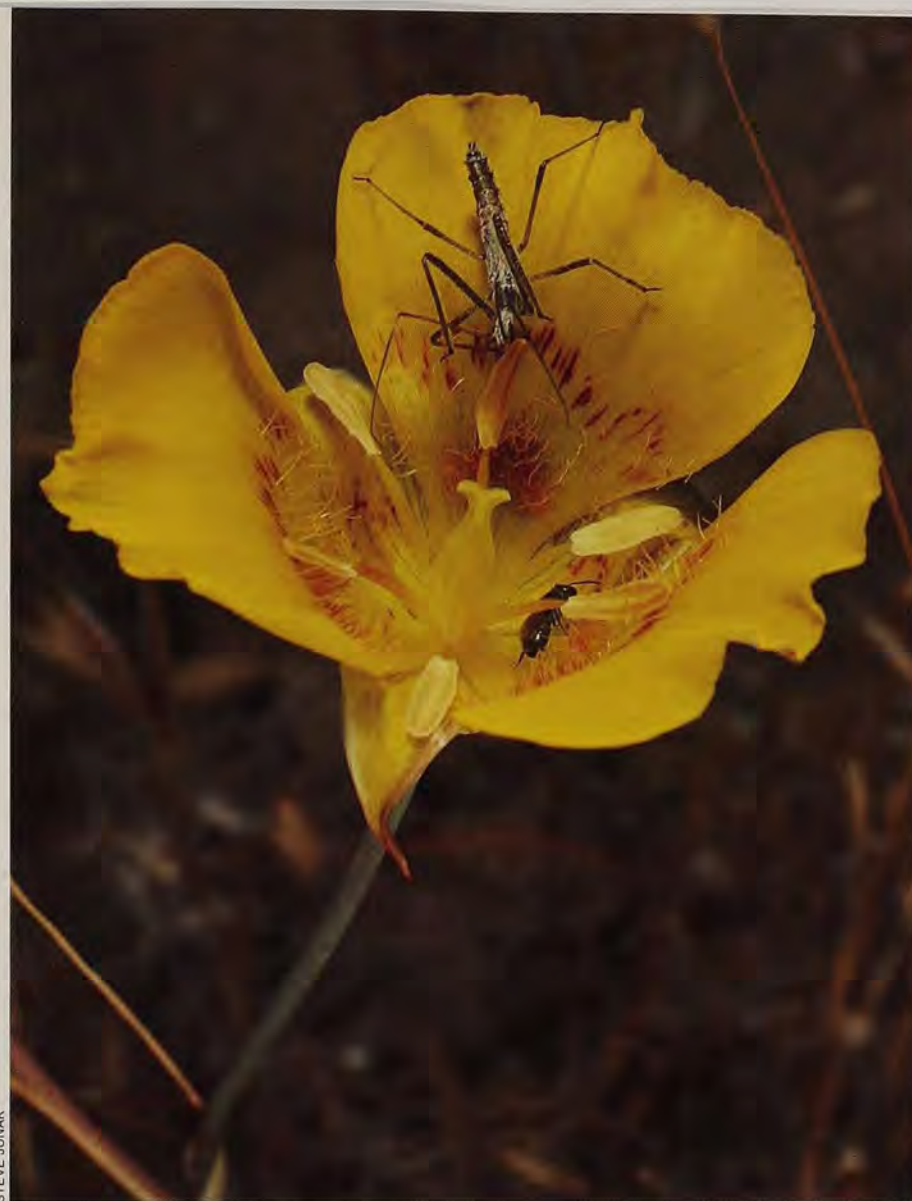
At about the same time in May, the Southwest deserts come into bloom, beginning with the low- and medium-altitude deserts of southeast California, southwest Arizona, and northwest Mexico, which are mild in winter, and progressing into the high deserts of the Great Basin and Columbia Plateau, where winters are severe.

In the western Mojave, the desert mariposa (*C. kennedyi*) is a brilliant vermilion. To say that it stands out from the desert's earth tones puts it mildly. Farther east it can be orange, apricot, or yellow, with dark spots at the base of the petals. Its range extends all the way through Arizona and New Mexico to west Texas.

At the vaguely defined border between the low Colorado desert and the medium-altitude Mojave can be found the earliest blooming stands of the straggling mariposa (*C. flexuosus*), which twines itself about the branches of neighboring shrubs for support. This species is white to lavender, and many shades in between, with a yellow-and-white throat. At lower altitudes, the plants often grow on banks above washes, which channel the rare but torrential desert downpours and then dry up. Like many desert plants it has become so adapted to a dry climate that it is difficult to grow elsewhere, even in relatively dry portions of the Southern California coast. The straggling mariposa ranges from California to Colorado, with those at lower altitudes blooming as much as two months before the higher-growing stands.

In late May, the mariposas bloom where Arizona, Nevada, and Utah meet, in an area of huge mesas that tower over the surrounding plateaus. The earth here is red, orange, or salmon and covered with gray-green sage. Juniper stands grow at the crests of the rises and on the slopes. Rainfall is low, summers hot, and winters cold, but straggling mariposa is at home here, growing even more thickly than it does farther south.

Utah's sego lily (*C. nuttallii*) also begins blooming in late May. It is usually found at the crest of gently rolling hills, but can occupy several habitats in its extensive range—Nevada to the Dakotas, Montana to New Mexico—from sage meadows and juniper forests to high mountain passes. The flowers are a bright white, or occasionally light pink or magenta, and stand



STEVE JUNAK

*The mariposa called gold nuggets was reputedly named by '49ers.*

out starkly in the clear, dry air of the West. Near the base of the inner petals, a dark brown band surrounds a yellow nectary.

June brings a sudden burst of color to the higher altitudes of the California mountains. As the snow melts, it wets the scabby mountain soils, wrought thin by wind and carried off by water. The spring deluge is brief, so plants must do their growing in a very short period or adapt to arid conditions. Some alpinists employ the latter strategy; bulbs use the former.

A common species at high altitudes of the Sierra Nevada and Cascade mountains of California—including Yosemite National Park—is Leichtlin's mariposa (*C. leichtlinii*). The flowers are white, smoky gray, or occasionally yellow or pink. At the base of the inner petals is a dark band of purple or black above a yellow base. Leichtlin's mariposa generally prefers the light shade of open woods or clearings, but can also be found in full sun at high altitudes. At the Sierras' summits, this species tends to pro-

duce dwarf stems, possibly due to the short growing season or to withstand high winds.

The Shasta star tulip (*C. nudus*) is found from the mountain after which it was named—where it is a beautiful purple—south through the Cascades to the northern Sierras, where it tends toward a pale lavender. It likes wet conditions and is often found near the partially shaded edges of clearings in the transition zone between wet meadows and wooded areas.

To the north, in the Klamath and Siskiyou mountains along the Oregon-California border, grows another pussy ear—the elegant cat's ear (*C. elegans*), the first *Calochortus* species discovered. It is the only mariposa species that grows both in this Mediterranean climate, where it can be found on the mulch-covered floors of open pine forests, and in the northern Rockies of Oregon, Idaho, and Montana, where it appears in sheltered woodland nooks. In the hundreds of miles between, no plants of this species can be found. How the plant

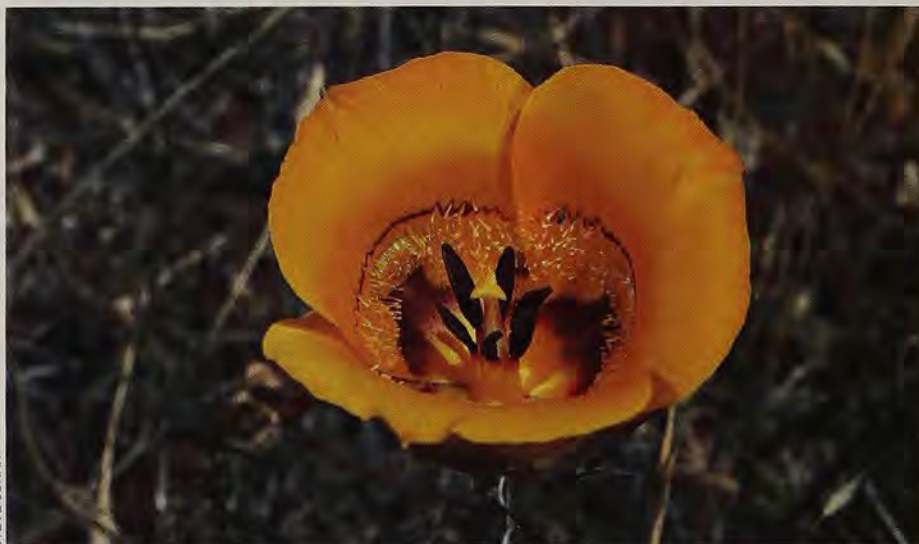
JESSIE M. HARRIS



JERRY PAVIA



STEVE JUNAK



*Tolmie's cat's ear*, top left, grows from San Francisco Bay to northwest Oregon. *Douglas's calochortus*, top right, grows on western slopes in Idaho and Washington. In May the flowers of club-haired mariposa, above, can be seen peeking through shrubs in the chaparral of California's Coast Ranges.

ended up in both areas is a mystery. The flower can be pure white but more often is bicolor with a purple or black base.

In Southern California's lowlands it is dry by late June, and most flowers have come and gone. Why would any flower bloom? To take advantage of the reduced competition for pollinators! This is seemingly the strategy of the California Cyclobothras, whose tough bulbs—covered with netlike fibers—are readily suited to sending up a flower well after the rains have ceased. There are three or four species in this group, which generally grow in chaparral.

In the south is Weed's calochortus (*C. weedii*), which grows from Orange County to Baja, California. Its flowers are pale to bright yellow, sometimes with brown

markings. There are tiny hairs on the petals, which are often wavy at the edge, like a serrated knife. Plummer's calochortus (*C. plummerae*) grows in similar habitats to the north, from Riverside to Ventura counties. The striking flowers can be lavender, pink, rose, reddish, or a deep purple. It is seriously threatened by the rapid development around the Los Angeles basin.

In late June and July, a distinctive group of *Calochortus* blooms in grassy meadows from northern California and up through Oregon, Washington, and the northern Rockies. Like some of the southwestern species in the Mariposa section, these generally grow in grassy meadows, but the northwestern species are snow-belt plants and occupy wetter habitats. Sometimes

called meadow tulips, many have upright, gobletlike flowers that are similar in shape to the star tulips but larger and showier. Each occupies a distinctive habitat niche.

The long-bearded meadow tulip (*C. longebarbatus*) can be found on the eastern sides of the Cascades from northeast California to Washington state. It looks like a small pink or purple tulip and grows in considerably wetter habitat than most mariposas, sometimes in virtual bogs.

The dry sage lands that surround such seasonal wetlands get extremely cold in winter and hot in summer. One plant that has adapted to these extremes is the sagebrush mariposa (*C. macrocarpus*), found in the Great Basin and the Columbia Plateau areas of the Northwest. The Great Basin has a temperate desert climate, with four seasons. But winter lows can reach 40 degrees below zero, and there is little precipitation any time of year and, as a result, meager snow cover. Sagebrush mariposa ranges from British Columbia south to California and east as far as Montana. It grows up to three feet tall with broad, triangular flowers that are usually purple, blue, or lavender, but occasionally pink, grayish, or white. The inner petals sport a contrasting darker band and yellowish hairs at the base, while the outer petals bear a distinctive vertical green stripe.

In the Rocky Mountain region, plants must not only endure frigid temperatures, but must adapt to a rush of spring snowmelt and to drought that occurs not in summer but in winter, when moisture is locked up in snow and ice.

In addition to the elegant cat's ear, northern cat's ear (*C. apiculatus*) can be found here, growing in ponderosa pine forests from southwest Canada to Idaho, Montana, and Washington. Sometimes known as Baker's cat's ear, it produces flowers that are white or pale beige with yellow hairs covering the petals and three distinct spots, one on each petal.

There are also two meadow tulips that make their home in the northern Rockies. Growing in grassy forest openings or exposed western slopes in Idaho and Washington is Douglas's calochortus (*C. nitidus*). Named after David Douglas, the early 19th-century plant explorer who first distinguished the species, it has beautiful purple or lavender flowers. Those of big-pod mariposa (*C. eurycarpus*)—which is not technically in section Mariposa—are usually white with a band of rich purple or maroon on the central petal and yellowish hairs at

## GROWING MARIPOSAS

the base. Occasionally its flowers may be lavender or purple, especially in the western part of its range. This gorgeous plant occupies high mountain meadows or gentle grassy slopes from eastern Oregon's Blue Mountains to Yellowstone National Park. Because winters in this habitat are extremely frigid, while spring is late and summer is mild, the species has little competition.

More common to the Rockies' eastern slopes than to their western is Gunnison's mariposa (*C. gunnisoni*). It is often mistakenly called the sego lily, but although the ranges of these species overlap, they can be readily distinguished. Gunnison's mariposa can be white, lavender, purple, yellow, or pink. It is as often bicolored, with one color on the inner petals and another on the outer, and sometimes also sports narrow bicolored stripes. Near the base of the inner petals is a ring of yellow hairs, often with a band of purple above it. The overall effect can be quite beautiful.

Gunnison's mariposa grows from Montana south to New Mexico and from Utah to the Dakotas, although it is most common in Colorado. Its growth cycle begins in very late spring with the prodding of snowmelt, and, depending on altitude, it continues to bloom until July or August. Its habitats are diverse: sage flats, mountain meadows, rocky slopes, and even conifer and aspen stands. In part of its range it endures severe cold, gale-force winds, and even occasional summer snowstorms. Thus it requires a period of exposure to frigid temperatures to break dormancy.

If we travel to Mexico in late summer we can catch its late-blooming mariposas. Because Mexico's rainy season is during the summer and winters are dry, these species bloom from August to October.

Central Mexico consists of a fairly high-altitude plateau bordered by high mountain ranges—the Sierra Madre Occidental in the west and the Sierra Madre Oriental in the east. As one descends from the higher altitudes to the coasts, the climate patterns change from temperate to subtropical, with cool, dry winters and warm, wet summers, to tropical, with a warm dry season and a hot, humid rainy season.

In central Mexico, both earthquakes and volcanic eruptions are relatively common. This activity disrupts the earth's surface, forming new soils, frequently low in plant nutrients. Since mariposas are among the plants that tolerate soils of low fertility, many of the Mexican species are found in the geologically active band of moun-

**H**orticulturally, *Calochortus* can be divided into three groups: the winter-growing species of lowland California; the spring growers, from both the high-altitude areas of the Pacific Coast and temperate areas farther inland; and, finally, the summer-growing species from Mexico. In areas with mild winters (USDA Zones 8-10) the winter-growing, Mediterranean-climate species can be grown during their normal season.

Mariposas will not tolerate summer rain. In mild parts of California, Oregon, and similar summer-drought areas along the Pacific Coast, they can be left in the ground during the summer. (Remember not to water them!) Gardeners in areas with significant summer rainfall, such as our Southeast, may find it easiest to grow them in pots, which can be stored and allowed to dry out in summer. In areas with frigid winters, they are best started in late winter and treated as spring growers.

The spring-growing species generally require chilling during the winter and will be at home in the North. If they are grown in areas that have very mild winters, they will need cold treatment; as with tulips, this can be done by storing the bulbs in the vegetable bin of a refrigerator for about three months. Mariposas from the Pacific Coast naturally receive little or no summer water, and their growing season is quite short—from snowmelt to bloom time in about two to three months. Like their lowland cousins, they perform best when allowed to dry out in summer. Species from the Rockies will tolerate more summer water. Again, pot culture is probably most suitable for mariposas outside their climate range.

The temperate summer growers from Mexico can be left in the ground in winter, while the Mexican subtropicals should be stored, dry, in an area where the temperature will remain above freezing. An alpine house—an unheated, passive-solar greenhouse—offers a good way to grow the lowland Mediterranean and subtropical species in a frigid climate.

When planted directly in the ground, mariposas will tolerate a wide range of soils but, like most bulbous perennials, they prefer a medium that drains well. The University of California at Davis has developed an excellent medium for pot culture that consists of one-half sphagnum peat moss and one-half sharp, coarse sand, by volume. This mix works far better with the addition of bulb fertilizer. Mariposas respond well to fertilizers, both in the ground and in containers, particularly fertilizers formulated especially for bulbs.

If any generalization can be made about exposure, it is that most of the species prefer part shade, especially a situation in which the leaves of the plant are in shade and the flower in sun. The woodland species, of course, prefer more shade. In areas with mild summers, all other species will tolerate full sun.

Watering should follow the pattern of each species' natural habitat. The Mediterranean-climate species should be watered in winter and spring and then dried out in summer and fall; the temperate species should be watered in spring and early summer. All the Mexican species, both temperate and subtropical, should be watered from May to October. The temperate species of Mexico are used to winter snow, but they can be allowed to dry out during the winter like all the Mexican Cyclobothras.

Except for the desert species, one inch of rain or water per week is generally sufficient, but some will tolerate more. The desert species should be watered thoroughly but infrequently—about every three or four weeks in season.

Mariposas can be started from seed, at the same time as in their indigenous area. They should be planted one-quarter to one-half inch deep and an inch apart. Bulbs should be planted about two inches down for the smaller species, such as the cat's ears, and deeper for the larger types. The desert species prefer very deep planting—five inches or more in a one-gallon pot.

—Hugh P. McDonald



STEVE JUNAK

*Santa Catalina mariposa* blooms in April on grassy Southern California slopes.



STEVE JUNAK

The markings of the beautiful mariposa are thought to have earned the genus its common name, which means “butterfly” in Spanish.

tains across the center of the country.

Climate is as much a function of altitude as of latitude, and winter may last year-round on higher peaks even at the Equator. *C. venustus*, called *secate* by the Tarahumara Indians of northwest Mexico, occurs at moderate to high elevations in the Sierra Madre Occidental from Chihuahua in the north to the state of Mexico in the south. Its small flower is yellow or sometimes white. Unlike other Mexican species, this plant receives year-round precipitation, but in the form of snow both winter and summer. It grows in open conifer forests where it can get some sun, in pockets of mulch that have collected between rocks in the otherwise scabby soil.

The most common and wide-ranging Mexican species is the bearded cyclobothra (*C. barbatus*). It grows primarily in subtropical areas of the foothills and up to medium altitudes on the leeward slopes of mountains surrounding the central plateau, from Chihuahua in the north to Oaxaca in the south, from Durango east to Hidalgo. This vast area varies in rainfall—with twice as much in the south as in the north—soil, and climate, although the plant is found in roughly similar altitudes, usually in open grasslands. Due to these climatic differences, the species blooms from as early as August to as late as October. Its nodding flowers have suggested the name by which it is known in the area of Mexico City—*ay-atito*, meaning a skirt large enough to hide things under. The flower is generally yellow

and open on the bottom, with serrated petal edges and brownish hairs covering the interior petals. At the northern end of its range is a form with brown on the top of the outer petals and sepals.

Another species with a wide range is the purple cyclobothra (*C. purpureus*), which inhabits open meadows or grassy slopes at medium altitudes. Like many of the Mexican cyclobothras, its exterior petals and its sepals are often slightly different shades. The exterior is often reddish purple, varying to a deep and intense purple. Occasionally, the outer sepals are green, while the interior is generally yellow. Because of the flower’s nodding habit, it is called *aretillo*, or earring. Perhaps this habit keeps out water during the occasional torrential thunderstorm in its region, from Durango in the north to the central mountains. This species produces profuse little baby bulbs at the base of its leaves.

On the western side of the Sierra Madre Oriental, tropical storms provide lush growing conditions, and plants need adaptive mechanisms to compete. For Ghiesbreght’s cyclobothra (*C. ghiesbreghtii*), which grows at middle elevations from the state of Querétaro south to Guatemala, the strategy is to tolerate shade. It is usually found under shrubs or trees on north slopes. The lovely flowers look surprisingly like Tolmie’s cat’s ear decorated with embroidery at the base of each petal. Its hairy petals are white to yellowish with distinctive red horseshoe-shaped nectaries.

The plant gets tall, perhaps seeking the scant light that filters through the subtropical canopy.

Finally, there is one truly tropical species, recently named *C. balsensis* by Abisai Garcia-Mendoza of the Botanical Garden of the Metropolitan Autonomous University in Mexico City. Its flower is large, nodding, and globe-shaped—a very showy yellow with greenish sepals on some plants and hairy interior petals. Its local name is *coconchi*, suggesting a resemblance to conch shells. The plant is found on southwest coastal hills from Guerrero to Oaxaca, growing on small rises and slopes among grasses or in the light shade of shrubs and trees. This habitat can get extremely wet, with more than 50 inches of rain per year. It blooms in October, suggesting that it needs a long growing season to develop such a large, spectacular flower.

Our journey has taken us from Canada to the tropics, and from March to October—over half the year. Other than *Calochortus*, there are very few genera of plants with such a long collective bloom time combined with such spectacular flowers and such interesting habitats.

Hugh P. McDonald and his wife, Karin R. Stokkink, live in Berkeley, California, and edit *Mariposa*, the quarterly newsletter of the *Calochortus* Society.

## SOURCES AND RESOURCES

Formed in 1989, the *Calochortus* Society is an international organization formed to promote an understanding of, and share information about, the genus *Calochortus*. Members receive a quarterly newsletter, *Mariposa*, which includes articles about individual species, conservation issues, and field trips. Members also receive free seeds in an annual exchange. Dues are \$8 for U.S. members and \$10 for international members. For more information, contact Hugh P. McDonald, The *Calochortus* Society, P.O. Box 1128, Berkeley, CA 94701-1128.

### Sources of mariposas include:

Neglected Bulbs, P.O. Box 1128, Berkeley, CA 94701-1128. (Free plant list available beginning in 1996.)

Theodore Payne Foundation, 10459 Tuxford Street, Sun Valley, CA 91352, (818) 768-1802. Catalog \$3. (Seeds only.)

Southwestern Native Seeds, P.O. Box 50503, Tucson, AZ 85703. Catalog \$1. (Seeds only.)

# Sowing the City

*In Houston, Bob Randall's garden is also a classroom for localized food growing.*

B Y M I K E P E T E R S

Stand in the middle of Bob Randall's driveway, your back to the house, and you see his suburban corner lot meeting four others at a typical Houston intersection. Randall, standing in the same spot, sees the Nile River delta.

"That part of the yard was always a mess," says the sixtyish Randall, gesturing toward the steep grade at the foot of his drive, where horsetail reeds and crinum lilies pepper the tough clay soil. "We'd get leaf debris on top of the clay, but then—in one of those months where we get 10 inches of rain—that humus and topsoil would go straight to the gutter." He crosses his arms, squinting in the late-morning sun. "When we were kids in school, we read how ancient Egyptians struggled because floodwaters would wash away their good topsoil, until they learned to collect that rich effluent in the river delta. The lesson of history was: clever Egyptians. Then we grow up, have land of our own, and never notice a landscaping problem that we actually learned how to solve at about age 12."

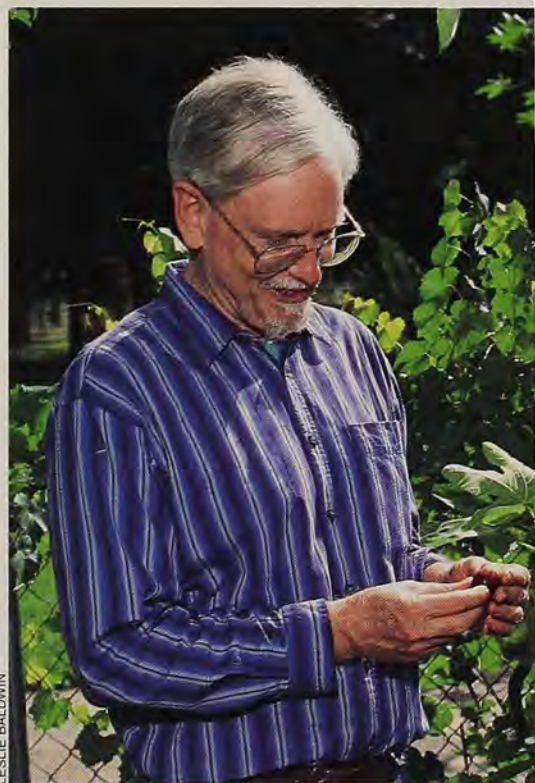
Except, of course, Randall *did* notice. He thrives on such lessons, and not just to recover his own compost from the gutter. His goal is nothing less than addressing what has become a tenet of modern life: that cities, created as centers of plenty and fulfillment, today offer little of either. It's "ominous," he says, that "inner city" connotes want and "suburban lawn," at least to him, connotes our alienation from the rest of nature.

An evangelist for community gardens and organic growing methods, Randall himself hasn't always been attuned to nature. As a college student in the early '60s, he took a career path marked with a slogan of the era: better living through chemistry. He conducted research at American Cyanamid on a potential new means of applying Malathion. The World Health Organization was fighting disease-carrying mosquitoes in the tropics, and Malathion was full of promise. "I learned an awful lot about pesticides," Randall says, and he became convinced that you can't test all the possible combinations and uses of a chemical. So how could you ever be sure it was really safe?

"Around the same time, I personally started having some physical and neurological problems. I can't prove the cause," he says with a shrug, "but I certainly was exposed to chemicals in high vapor densities." Randall admits he wasn't all that interested in ecology then, though he made time to read *Silent Spring*, Rachel Carson's newly published warning about pesticide use. "But I *was* growing disinterested in commercial chemistry," he says.

A stint in the Peace Corps, where he taught math, English, and basketball to West African youngsters, made him curious about food systems. "You had whole communities there whose overwhelming occupation was peanut farming, all for export. We were in a town of about 3,000—90 miles from an electric light—but why were so many people going hungry in a place where they grow food?" The riddle nagged him as he studied urban food systems in sub-Saharan Africa, India, and later the Philippines, as he worked toward a doctorate in ecological anthropology.

And the riddle continues to nag him today in America's fourth largest city, where he



Bob Randall tests a freshly picked fig for ripeness.

At the edge of Randall's property three *Cassia* species, below, screen his tempting edibles. Reluctant to waste any space, he takes advantage of a low spot near a pond to grow water-loving plants such as taro, bottom.



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has studied the evolution of gardens and land use for 20 years. He came to Houston to teach anthropology, and by 1983 he was also opening his home three times a year for adult-education classes on “commonsense” gardening. Four years later, the Houston Metropolitan Ministry’s Interfaith Hunger Coalition began to seek money, land, and know-how for community gardens, and they heard that Randall could supply the latter. He agreed to lend his food-growing expertise to a network of neighborhood gardens, most sponsored by churches and their affiliated food banks.

“In the early ’80s, we projected that more than 400,000 people in this area were hungry,” he says. That’s a huge number—some 10 percent of the metropolitan area—but this was during the oil bust, when bumper stickers invited the last person leaving Houston to turn out the lights. “Most of the people going hungry were unemployed,” he says. “Many were children or disabled people, but not all. My question was, if they’re not working, why aren’t they gardening?”

Randall remembers growing up around grandparents who farmed: “I knew as a kid that you could grow food, and that what you got tasted a lot better than anything at the store.” But as he asked questions about hunger in contemporary cities, he discov-

ered that horticultural know-how was in short supply.

“Never before in the history of the world,” he says, “have so many people owned land who knew so little about how to use it. Very little of our food is locally produced, but most people work hard to cultivate their land: to grow turf grass.”

After several years, Randall concluded that a separate nonprofit organization was needed to educate city residents about better land use. But he wanted to spend his time helping people plant things, not handling the reams of paperwork needed to maintain a nonprofit status. In April 1994 he formed Urban Harvest, a community garden and orchard program, under the sponsorship of The Park People, a 15-year-old nonprofit organization dedicated to enhancing parks and open spaces. Urban Harvest is supported by foundation grants, donations from local garden clubs, and \$25 annual memberships. Randall, as its director, along with Urban Harvest volunteers, offers gardening and fund-raising advice to about 65 school and community gardens and orchards in the Houston area. And when he drives home to the suburbs, he brings his vision of sustainable landscapes with him.

Randall’s big-picture view of gardening informs every plant he chooses. A student of permaculture, he resists the “oh, that’s pretty!” impulse that keeps nurseries in business. “Do the bees need it?” he asks. “Will it shade the roots of a sensitive vine? Can I eat it?” It takes more than one “yes” to win his heart.

You can see it from the street. Three different *Cassia* species—*C. alata*, the candlestick shrub, *C. corymbosa*, and *C. splendida*, the golden wonder or golden shower shrub—at the front edge of the lawn will bloom in succession from September to December. Besides the long splash of bright yellow, the cassias attract butterflies and create a screen for ripening fruit that might otherwise tempt unauthorized harvesters. (Randall has another natural control for such human pests: ‘Carrizo Citrange’, a hybrid between orange and trifoliolate orange that bears delicious-looking fruit with “a turpentine flavor that lasts forever.”) Several pines, originally Christmas trees, are clustered at the property line to hide an ugly corner. They also provide a windbreak on the north side, and nesting cover for birds and other creatures.

Randall’s practical approach made him gravitate toward perennial food crops, es-



ANITA SABARESE

pecially trees. His own garden feeds a family of three on a 100-foot-by-100-foot lot, with pocket environments packed with edibles. In a low spot, water spinach, taro, and Asian sweet potato thrive around a small pond, where mosquito fish naturally control an old nemesis from his days in chemistry.

Not for him the measured spacing of plants in set-apart rows. “Squash stuff together, like the forest does, and do it vertically, too,” he tells a recent class. “Bare ground is a bad idea—a gross waste of sunlight. People are too hung up on rules created for harvesting equipment.” The 25 adults huddled in his living room listen eagerly. A mix of professionals, homemakers, and a few retirees, most are interested in adding edibles to their landscapes. A twenty-something face in the crowd belongs to Marshall Levit, who organized and built The Garden of Eatin’ at Congregation Beth Yeshurin as an Eagle Scout project. Levit’s garden continues to support two food banks. The class is a refresher for Levit, who has been here at least twice before. “But I always learn something new,” he says.

The class breaks at midday for a walking tour of Randall’s yard, where biodiversity rules because “more kinds of habitat attract more kinds of creatures.” Randall has stacked horizontal and vertical spaces with tall and short trees, shrubs, vines, ground covers, perennial plants, and root crops to create a more complex system that is more stable. “It reduces weeds, too, and you get a succession of useful plants from season to season.” He savors the fact that, even in the middle of a hot day, you can hear birds in his garden.

Randall grows more than a thousand different plants, but because citrus, berries, and peppers deliver so much to the kitchen, they have first claim on his time and space. About 200 varieties of fruits, including about 50 different hardy citrus and a good collection of pawpaws, are nestled in garden pockets tailored to different needs for drainage and winter protection. Most of the common culinary herbs can be found in one underplanting or another.

From any perspective, the vista is dense and multi-textured. Surprisingly, Randall planned the whole thing to *avoid* garden work.

“A conventional lawn is a lot more labor,” he says. “You have to mow, fertilize, thatch, deal with fungal patches, chinch bugs, and grass clippings. The worst part: That turf is just as much work a hundred weeks later as it was the first week you put



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it in.” In contrast, the raised bed of hardy citrus Randall cultivates near the house requires less maintenance as the years go by. “And half of *that* work is harvesting!”

Randall believes in growing food as close to housing as possible, so the food is fresh, doesn’t require fossil fuels for transport, and doesn’t cause environmental damage to prairie and forest systems. The Houston city government recently asked Urban Harvest to assess vacant lots and other fallow lands it has seized in tax cases, and Randall eagerly made a wish list now under review by the mayor’s office. In another study, Randall’s staff found that the eight-county region grows little of the food the Houston area consumes. “We grow an excess of pecans and rice, and we grow enough beef, peanuts, and soybeans,” he says. “Everything else is a deficit: We probably grow less than five percent of our fresh vegetables and fruits, and there’s one dairy cow for every 3,200 people.”

A few feet from Randall’s front door is a harvest in waiting. A deep raised bed across the front of the house is the most protected garden nook, and here several hardy citruses jostle for position with a fruit-laden banana tree. That’s a bonus this year: Although bananas thrive on the upper Texas Gulf Coast, they need 15 months without a freeze to produce fruit, and that’s a rare occurrence.

Randall pauses to admire a honey mandarin, ‘Puncheon Orange’. “It may be the finest of all fruits,” he says, with the authority of one who has tested many. Randall makes introductions as he walks: “That’s Meyer lemon. It grows from seed—on its own roots—so it will come back after



DAVID CAVAGNARO

*Pierce’s disease plagues most commercial grapes in south Texas, but these native muscadines, top, will deliver a reliable crop for jelly and juice. They also shade the south side of Randall’s house as they grow. Meyer lemon, above, is not grafted and will grow back from its roots after a freeze.*

# Rediscovering our Horticultural Heritage

BY BOB RANDALL

Most people who live in cities know little about how food is produced or about the nature that surrounds them. Yet many urban areas contain unused land that would support gardens and parks if people had the inspiration and the appropriate knowledge to create them. As director of a community garden program in Houston, I try to understand why people have forgotten what they once knew and help them recover and enhance their horticultural heritage.

During this century there has been a change in the role of agriculture in daily life. Early in the century, more Americans lived in rural areas and were in closer contact with nature. They were motivated to learn the basics of land use and had informal networks and agrarian institutions to help them do so. As the century progressed and more people moved to urban areas, for a time the rural heritage guided garden building in the cities and suburbs. But eventually this heritage became more remote and more people reached adulthood without even basic horticultural knowledge. Until recently, there seemed to be few incentives for cities to take action to reverse this trend.

But the effects of urban horticultural ignorance are now being seen in a broad spectrum of environmental, medical, psychological, and economic problems, including:

## Environmental Consequences

- ☹ Overuse and misuse of pesticides and lack of knowledge about natural controls.
- ☹ Pollution of ground water, rivers, and lakes by overuse of water-soluble fertilizers.
- ☹ Wasteful irrigation practices and failure to control run-off of surface water.
- ☹ Over-reliance on lawns in home landscaping, resulting in unsound environmental practices including high water use and pollution from mowers.
- ☹ Landfilling of yard waste rather than composting.
- ☹ Loss of urban habitat for wildlife.
- ☹ Loss of natural areas where children can learn about nature, which leads to ignorance about horticulture being passed on to succeeding generations.

## Health Consequences

- ☹ Widespread hunger and malnutrition despite available land for growing food.
- ☹ Reliance on food shipped in from other areas.
- ☹ Reliance on canned and frozen foods, which are less flavorful and nutritious than fresh.

a freeze," unlike grafted varieties. "Oh, that one's honey tangerine, but in stores this is a totally different fruit." He steps across a patch of lawn (yes, he's got some, though it gets smaller every season) and stops rather shyly next to a large plum tree.

"This is a 'Randall' plum," he says, grinning. "I bought it as a 'Methley', which is a very good plum for this area, but it seems to be a new variety. This has better taste and it keeps longer." Another curiosity is the "fruit cocktail tree"—a hardy rootstock with a dozen assorted grafts, enabling the tree to produce several different fruits at once.

Most people eat about 220 pounds of fruit per year, and Randall's yard produces about that much. "We actually eat more fruit than that," he laughs, pleased that he's conditioned to seek out nectarines instead of Twinkies. "We buy bananas, cherries, and some other fruits over the course of the year. We buy extra carrots and sometimes onions. On the other hand, we grow more sweet potatoes than we can possibly eat." The Randalls do buy bread, pasta, dairy products, and, rarely, meat.

Vegetables are the only annuals that find their way to Randall's garden. They have their place in the back yard, where raised beds are delineated with eight-inch con-



LESLIE BALDWIN

*Cement pavers are Randall's favorite edging for raised beds because they're easy to move and weed around, don't rot, and don't leach arsenic residue as treated timbers will.*

crete blocks (no treated wood, thank you).

"Home-grown always tastes better," Randall says. "As soon as you pick them, vegetables start deteriorating. Green beans lose about 60 percent of their vitamin C in the first 10 days after picking, and that's the average amount of time it takes to get them from the farm to the consumer." Farmers plant varieties that have a long shelf life and produce the most, he notes, and they're not necessarily the best tasting.

"With a wide variety of fresh produce," Randall says, "you can create meals that include small amounts of different things. In the winter you can grow 15 or 20 kinds of things for salads, so you can have a different salad every day and it's completely fresh. Winter gardening is a breeze here: no weeds, no watering.

"Some types of produce don't handle that well in supermarkets: Raspberries, blackberries, figs, blueberries, and green onions are a few examples." He doesn't have to add that these examples are all a few feet away. "At the grocery store they can be rotten or still green. And you can have lots of fresh herbs more easily from the home garden. I only need a pinch of rosemary when I make soup—just try to buy one pinch of rosemary at the store!"



- ☛ Risk of health problems related to pesticide contamination—including cancer and disorders of reproductive, immune, and neurological systems.
- ☛ Failure to benefit from an easy, inexpensive form of exercise that is likely to be sustained into old age.

### Economic Consequences

- ☛ Unused vacant lots are an economic burden on their owners. For a small rental fee, these could become sites for market-gardening cooperatives. This use could increase property values and keep more food dollars within the local economy.

### Quality-of-Life Consequences

- ☛ Better landscape design and more gardens create aesthetically pleasing neighborhoods.

Local organizations—both community based and governmental—need to coordinate efforts to improve urban landscaping and community gardening. One of the most important tools in this effort can be a centralized educational organization to help neighborhood groups. Such an organization can:

- ☛ Provide hands-on experience to guide groups in the growing of food for sale or donation.
- ☛ Help neighborhood groups learn to grow high-quality fruits, vegetables, and herbs.
- ☛ Provide environmental education in soil improvement, composting, less toxic pest and disease control methods, habitat enhancement, and wise water use.

- ☛ Provide a resource network of people and groups to share horticultural knowledge and experience.

There is increasing evidence that if more resources were put into cooperative relations among urbanscapers and into existing community gardening organizations, enhanced land-use instruction sites might be established in all neighborhoods. For relatively modest costs, the various urbanscapers could train community gardeners as volunteer teachers of the various subjects. Through festivals, open houses, and workshops, the knowledge of land use would be reintroduced to urban communities, and America might once again be a place where horticulture and its many benefits thrive at everyone's home, business, or institution.

*Bob Randall is director of Urban Harvest, a community garden organization based in Houston, Texas. Randall can be reached at Urban Harvest, P.O. Box 980460, Houston, TX 77098-0460, or by calling (713) 668-2094.*

*Further information about community gardening programs is available from the American Community Gardening Association (ACGA), 325 Walnut Street, Philadelphia, PA 19106; (215) 625-8280. The ACGA is sponsoring a training program for community organizations called "From the Roots Up," in which one year of intensive training is provided to five citywide organizations whose goal is to help communities establish gardens. For further information about this program, write to Karen Payne, Program Coordinator, ACGA/From the Roots Up, P.O. Box 813, Occidental, CA 95465, or call (707) 874-3915. The application deadline for the program is December 31, 1995.*

In a south corner of the front yard, Randall experiments with filtered shade for pawpaws, gingers, and loquats. Pawpaws seem to do best here with only morning sun, and gingers need deep shade. The loquat produces winter fruit and needs protection from both frost and radiation. There are elderberries for wildlife and turmeric for the Randall family's curry. Randall laments that so many gardeners are unfamiliar with the more exotic edibles that can be grown in Houston's benign climate; he's now looking into a canna, *Canna edulis*, whose bulbs are said to be edible.

Such curiosity is a commodity Randall is eager to spread. In another time, horticultural knowledge passed easily from generation to generation, but today you can go through life without ever touching the land. "So how do you distribute this information?" Randall asks rhetorically. "How do you inspire people to do it?" While working on his doctorate on an island in the Philippines, he observed that word spread fast about any idea that was a success. "In a big city, it doesn't work that way."

In this case, the educational model seems to be working. Programs in schools have expanded so much that the Urban Harvest staff can no longer supervise individual



LESLIE BALDWIN

*A plant has to be more than pretty to win Randall's heart. 'Texas Star' hibiscus is a knockout and also attracts pollinators.*

gardeners: Now they convene teachers for training before the spade work begins. Urban Harvest aggressively promotes "market gardens"—a '90s twist on the co-ops spawned in the '60s. Growers cultivate enough organic produce for people who "subscribe," bringing in income as well as food. Some market gardeners produce enough to sell to restaurants, too.

Committed to organic methods, his staff at Urban Harvest had no trouble helping an Asian restaurateur who requires, for religious reasons, "produce on which no bugs have been killed." The community garden network has grown fast as seniors' clubs, civic associations, schools, and churches have joined in. One inner-city garden with a \$200 budget produced \$3,200 in food last year, based on a value of 50 cents per serving.

"Urban Harvest is trying to put an outstanding educational garden in every neighborhood, with one or two well-trained volunteers in each one," Randall says. "All of these things get the word around. If we spread it enough, growing food may become as popular as growing lawns."

*Mike Peters is editor of Gardening Newsletter of the Texas Gulf Coast.*

# Palm Beach Premiere

*A year of hard work, skeptical vendors,  
a nasty storm. Otherwise, putting on  
their first flower show was a snap.*

B Y M A R K B R O W N E

**I**f ever an area seemed primed for a regional horticultural society, it was south Florida. South from Vero Beach on the Atlantic Coast and from Naples on the Gulf of Mexico, it's highly populated with retirees who have unlimited time to garden and often ample money for plants and equipment. Ready to serve them are perhaps more nurseries than anywhere else in the country—some 600 in Palm Beach County alone. But the potential customers, having come to the state from farther up the coast, or the Midwest, need to learn a whole new slate of plants. They need to learn to garden on sand, and year-round.

Enter the Horticulture Society of South Florida, founded in the spring of 1994 with headquarters in West Palm Beach and dedicated to educating gardeners in America's subtropics. The society, which quickly expanded in purpose, was originally formed to launch a garden show for the area. Show organizers wanted to send a loud and clear signal that the event was being sponsored by local people who wouldn't fold up their tents and run when the show closed. And they knew they would have an uphill battle.

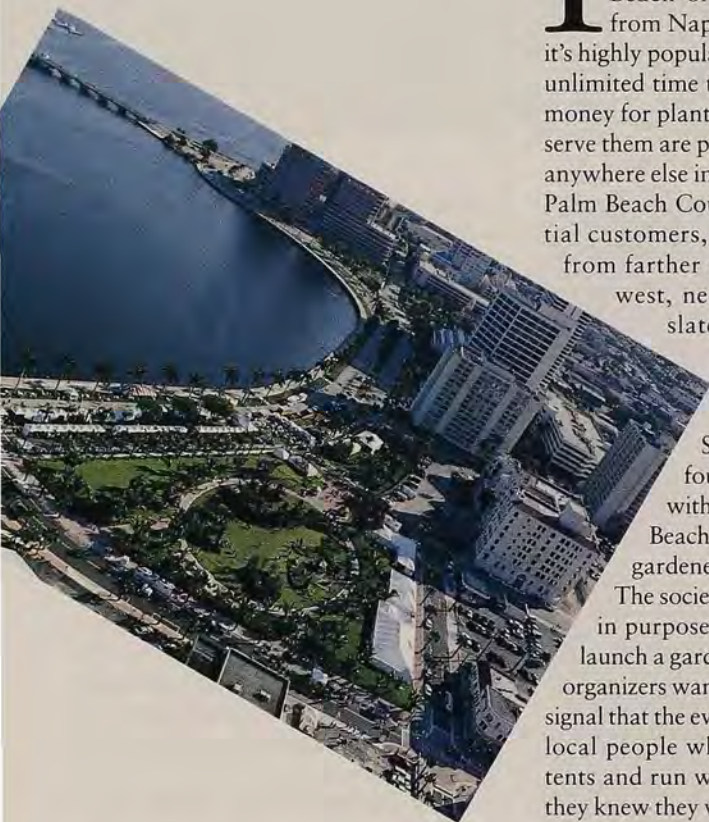
In 1992, Palm Beach had been the site of one of two Chelsea America Flower Shows. The New York-based sponsors of the show spent lavishly on pre-show publicity and, in many subtle and not-so-subtle ways, attempted to link their events to the extravaganza sponsored annually by the Royal Horticultural Society (RHS) in London. But before the shows opened, the RHS distrib-

uted letters denying the Americans' claims. The events themselves were a crushing disappointment to those who attended, and Chelsea America management left the Palm Beach area with many bills unpaid.

Leaders of the new society were painfully aware that still-smarting contractors, exhibitors, and donors would need some heavy incentives before they would risk being burned twice. Organizers would have to convince the community that this show would be better managed and have more support from local businesses and the media. Plans to stage a 1994 show in support of Mounts Botanical Garden in West Palm Beach sputtered and died, but four participants in that effort picked up the pieces and forged ahead.

One of them was Sherman Adler, a former marketing executive with the CBS television network who had recently moved from the New York area to Hobe Sound north of Palm Beach. An avid gardener since his twenties when he was a bachelor rose-grower near Garrison, New York, he was typical of many Florida transplants who were overwhelmed by the new array of plants and the endless growing season. He enrolled in a Master Gardener class and was fired with enthusiasm for helping other struggling horticulturists.

With south Florida's slower pace, he had time on his hands. He became an active supporter of efforts to revitalize the heart of his adopted city, offering his marketing skills to Nancy Graham, West Palm Beach's mayor. Her city, like most mid-sized cities around the country, faced some daunting realities: In its downtown, businesses no longer flourished, but crime did. The pop-



*The new public amphitheater in the heart of West Palm Beach's waterfront was the site of the South Florida Tropical Flower Show.*

ulation centers were firmly in the suburbs. A new library complete with state-of-the-art fountain began to touch up the scars, and a new multimillion-dollar arts and entertainment center had helped draw people back downtown in recent years—but not enough of them to encourage a flourishing marketplace.

During Graham's administration the city embarked on a \$9 million revitalization effort, which included the spectacular New Year's Eve 1993 implosion of an abandoned Holiday Inn building, and the construction on that site of a public amphitheater. Many taxpayers in West Palm Beach grumble that the word "amphitheater" is a bit grandiose for the \$3 million, five-acre parklike area, whose main features are a series of sidewalks and planted berms. Nevertheless, it's a beautiful location, fronting the Intra-coastal Waterway.

When Adler and other society founders told the mayor that they needed a home, she immediately saw how a horticultural society headquarters would fit into the planners' grand design. The city had recently rescued a 1925 Mediterranean Revival house designed by a noted local architect for West Palm Beach's first city manager, Karl Riddle. The Riddle House had been moved from a condemned neighborhood to what was intended as the West Palm Beach arts area. The city agreed to rent it to the society for \$10 a year. Wynne S. Ballinger, the society board chairman, was thrilled with its "good bones" and immediately set about adapting it to its new purpose.

And for the South Florida Tropical Flower Show, scheduled for eight months later in February 1995, the city offered its new amphitheater, reasoning that a flower show could draw into downtown the suburban residents who might frequent area shops and restaurants.

Explains Graham: "We were trying to encourage a series of different activities in that area, and the show fit beautifully into our concept."

"The amphitheater was brand new," adds Adler, "and nobody knew quite how to use it other than predictable entertainment like rock concerts. The mayor was a visionary who saw it the way I did—filled with flowers and people." Plans were made to marry the flower show with Art on Clematis, an arts-and-crafts show to be held downtown, street-fair fashion. Clematis isn't the subject of the art, but the name of the street on which the show is held; the amphitheater is between Fern and Datura

streets, with the horticulture society headquarters two and a half blocks away on Fern. There definitely seemed to be some kind of horticultural kismet at work.

Herb Zweig, an internationally renowned graphic designer and artist who lives in the Palm Beach area, designed a poster for the show, and the bright red heliconia began appearing in downtown storefronts and in local newspapers. The publisher of the *Palm Beach Daily News* was persuaded to distribute a 36-page supplement that served readers as a practical gardening guide, served the society by publicizing the show, and served the publisher by selling advertising.

While the south Florida society was trying to raise awareness of its show, central Florida's master of marketing, Walt Disney World, was busily cranking out tie-ins to its wildly successful animated movie "The Lion King," including topiary figures of its characters. Wouldn't it be wonderful to make the topiaries a cornerstone of the Palm Beach show? organizers thought. At first it seemed that Katy Moss Warner, Disney's head horticulturist, was far too busy to make the arrangements. But further conversation revealed that Warner, like Adler, had once lived and gardened in Garrison, New York. The coincidence kept negotiations rolling, and a deal was struck. The show would be "The Lion King" topiaries' first public appearance.

The participation of Disney helped persuade some initially skeptical exhibitors to sign on, according to Delray Beach landscape designer Mike Zubak. Those who had exhibited at Chelsea America, in particular, wanted to remain noncommittal and wait to see how the first show went. Don Williams, nursery division manager for Rood Landscape in Tequesta, admits that he was one of them. "But I was impressed with what the organizers said, and the way they went about getting the word out."

It was only weeks before the show that enough landscapers, landscape architects, and growers had signed on so layout of the exhibit area could take place. Its centerpiece would be a series of gardens planted temporarily in the center of the amphitheater's walkway-surrounded perimeter. The 11 gardens ranged from casual and homey to tropical and exotic. Rood Landscape



PHOTOS COURTESY OF THE HORTICULTURE SOCIETY OF SOUTH FLORIDA



*The horticulture society is headquartered in this Mediterranean Revival house, top, rescued from demolition. An eye-catching heliconia logo, above, helped publicize the society's first show.*

## LET'S PUT ON A SHOW!

Those old movies made it look easy. But if you want your big show to look good, here are some important steps suggested by organizers of the South Florida Tropical Flower Show:

☛ **Clarify the idea.** What are the goals of the event—entertainment, education, or is it important to make a profit to fund additional activities, such as a newsletter or permanent displays? How big should the show be? What will be the best time of year to hold it, when it won't conflict with similar events or when it can piggyback with others?

☛ **Set up committees.** In West Palm Beach, some organizers recruited volunteers, some worked with area merchants and city officials, and others arranged the judging tents.

☛ **Location, location, location.** Just as with investing in a home, this is key. You'll of course need a site with lots of parking and with a desirable address that will draw visitors. A downtown location such as the one this society used is ideal because city officials will usually help out in order to draw upscale visitors to shops and restaurants in need of customers.

☛ **Find sponsors.** If you enlist the support of your city or county early in the process, this will be made easier. Make sure the information you present is clear, specific, and confident, not "We would kind of like to put on a garden show," but "We are planning an event with the help of [prominent person] on [date] and are seeking your help. Can we work together on this?"

☛ **Solicit help from merchants.** Not only will they bring their own plants and decorate the tents, but they can often lead you to others who may make the show bigger or better. It may take finding the right insiders to get the ball rolling with some of the local nursery people, suppliers, and landscapers. But in horticulture, willing hands and voices are not too difficult to find.

☛ **Be patient.** If your event is a major one like the South Florida Tropical Flower Show, pace yourself and plan well ahead. Organizers of that show worked hard for nearly a year before opening day.

—Mark Browne

it would be one of those days, with a heavy cloud cover followed by strong winds, bouts of rain—and vanished crowds. Many of the Art on Clematis booths, set up on east-west side streets, closed as the artists fought to protect their work. At the Tropical Flower Show, volunteers scrambled to keep things righted and in position. Rood employees worried about five 20-foot-tall *Phoenix canariensis* palms that were its exhibit's focal point.

Parking, a minor problem other days, was more inconvenient Saturday when city officials reserved a lot near the show for census takers. The nearest parking, even for the handicapped, was two blocks away.

Still, people showed up—although there would be only half as many as on Friday—and event organizers struggled to maintain calm and keep the show going. By mid-afternoon, the wind had reached 55 miles an hour, and at least one coconut palm came down. Society representatives decided to close one of the tents, where wind threatened to pull the canvas from its frame.

On Sunday, with the wind no more than a bitter memory, the show once again opened to packed crowds and ran the rest of the day as a happy mob scene. Total attendance was estimated at 20,000, and most of the merchants promised to return in 1996. "We were really pleased with our involvement in the show," says Henegan. "I'm comfortable that we came out of the show with a reinforced presence. We made lots of great contacts." Rood's Williams says his firm—which has been in business in south Florida for 50 years—got \$100,000 worth of business as a result of being in the show. And Zubak, who says he exhibited to support the society, promote native plants, and "show off" work that is normally walled off in private gardens, sold everything in his display from palm trees to rocks and recouped an \$8,000 investment in materials. "A lot of people who held off last year are signing up for this year," says Zubak.

Some 400 volunteers, each wearing a large red-and-white button insisting "Ask Me!," provided easy information and assistance. One feature that was popular with crowds was the Market Place, a long, back-to-back line of tents rented to vendors of plants and garden-related items. School children served as "plant valets," offering to tote purchases in their little red wagons, and business appeared brisk. Eleven plant societies exhibited their specialties so that there was something for everyone, from

took almost a week to bring in more than \$100,000 worth of material to create an elegant subtropical garden display.

The local press ran occasional features, especially on the Disney contributions, aimed at the weekend sight-seeing crowds. But as both participants and visitors to Chelsea America had learned, the pre-show fanfare could easily be just so much glitter. On the Friday that the show opened, merchants and sponsors waited anxiously to see how the public would respond. Bill and Carolyn Henegan, of Henegan's Nursery and Landscape in West Palm Beach, were among those who didn't know what to expect, although the high visibility of Disney representatives was a confidence builder. "It was obvious that [the organizers] had put a lot into the show," Bill Henegan says.

The weather was perfect and the citizens of south Florida were rewardingly curious. Some 7,000 people poured through the gates the first day. "The crowds were amazing," says Henegan. "We really didn't expect it."

Before the show, the Henegans' major concern had been the weather, since south Florida's sudden shifts are notorious. It was apparent from daybreak on Saturday that



COURTESY OF THE HORTICULTURE SOCIETY OF SOUTH FLORIDA



*Rood Landscape took a week to set up its Mediterranean garden exhibit, which included five 20-foot Canary Island date palms, opposite. Topiaries created by Disney World horticulturists, above, were a big hit with the public, and Disney's participation persuaded some initially reluctant local exhibitors to sign up.*

palms to roses, orchids to herbs.

Twenty-eight judges from across the United States presided over a flower show in nine classes of horticulture and floral design. The show adhered to rules set by the Federated Garden Clubs of America, giving real standing to the show's winners. The American Horticultural Society's H. Marc Cathey judged the tropical garden exhibits and gave the Society's show award to "Pan's Garden" by Sanchez and Maddux, Inc., of Stuart, Florida. A native garden completely enclosed by stucco walls, it held a table and chairs, small pool, and brick terrace. Its goal was to show that a beautiful, lush garden could be created using only easy-care, native plants.

Mayor Graham gave her own award to an exhibit by Jesse Durko's Nursery and Botanical Designs, Inc., which was installed in a city park when the show ended. "I think the show was phenomenal," says Graham. "We have a good partnership with the society. They understand that by our working together they're helping themselves and helping the city, too."

Disappointing to me as a professional horticulturist was the New Plant tent, which displayed more than 80 types of plants and shrubs, but had little that seemed exciting and different. Derek Burch, a horticultural consultant to the nursery industry who put together the exhibit, explained that his goal was to emphasize plants that are new, but not so new that they aren't

available. The important target audiences for the society, he notes, are people who are new to gardening, and gardeners who are new to Florida. "We did have some items that aren't in the trade, and people found that frustrating," Burch says. Plants that struck the fancy of other visitors included *Rhododendron* 'Tropic Glow', a hybrid developed from rhododendrons collected in New Guinea and bred to tolerate Florida heat; several anthuriums, including *Anthurium* 'Crystal Hope' with silver-veined leaves and A. 'Kohara Double' with two spathe at each inflorescence; and *Aglaonema* 'Manila Pride', a tropical Asian plant with pink petioles and variegated leaves.

Other complaints that I heard related to the food area, touted as "a unique food court and cafe on the water," but which turned out to be plastic chairs and tables set up on a blocked-off street serviced by unremarkable street vendors. And some people felt the ticket price of \$9 was too steep. Advance tickets had been available for \$6, but organizers agree that not enough people were aware of—or took advantage of—that option.

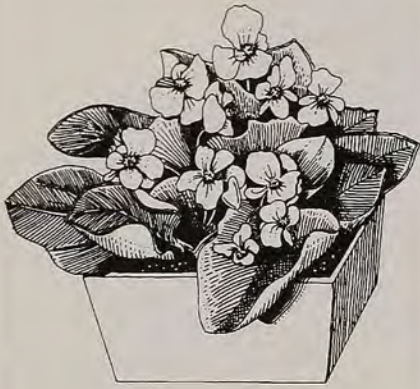
Next year nurseries will offer \$2 discount coupons toward the admission price. The food court will be larger with better access, tables will have umbrellas, and food will be inexpensive but more varied. Lectures and slide presentations, which were hard to hear and see in a tent last year, will move inside the nearby Children's Museum.

The show did not make money in 1995, although those who know this game say that's to be expected with the first event. "We had to buy \$40,000 worth of props, like gazebos," says Adler. "We would rather build the quality and the educational component, and leave a good taste in people's mouths. And the society has so little overhead, we can afford to do that."

The society's only paid employee is a secretary. The salary of a new director, Townsley Schwab, was privately underwritten. Plans are going ahead for other society activities at its headquarters: a library on subtropical and tropical gardening, a video room, and under the guidance of board member Kit Pannill, a group of small display gardens that demonstrate solutions to common challenges such as shade and salt spray.

The date for this year's show has been moved to three weeks later, February 23-25, with a preview and fund-raiser on Thursday, February 22. Cold snaps should be less likely, and plants will have had more time to flower. "We listened to NASA [National Aeronautics and Space Administration] and the weather bureau last year," says Adler. "From now on we're listening only to the nurserymen."

*Mark Browne is director of landscaping for a regional shopping mall and a free-lance writer specializing in gardening and environmental topics.*



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