

HOW TO PROTECT YOUR PLANTS FROM WINTER INJURY

THE AMERICAN GARDENER

A Publication of the American Horticultural Society

November/December 1999 \$4.95

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CALIFORNIA WILDFLOWERS Theodore Payne's legacy
TREE HUNTERS Tall tales from America's woods
GINGER LILIES Exotic, fragrant, and adaptable





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Anuenue Gardens

Lovers of travel and gardens will soon have a new and exotic venue to visit the objects of their admiration. The Worldlife Preservation Foundation, a non-profit organization based in Hawai'i, is set to break ground on a 200 acre site on the picturesque eastern shore of the island of O'ahu. Anuenue Gardens will be the largest and most innovative private garden in the islands. As well as being a center for the propagation and preservation of many rare and exotic floral species, the gardens will also play host to WPF's exotic and rare animal programs, as well. More than 1,000 birds, reptiles, primates, and small mammals will live in spacious habitats scaped with vines, shrubs, trees, and flowers from their regions of origin.

These gardens of extraordinary beauty are being created as we look back at how we humans have managed the gifts of our world and what we should do differently as a new millennium dawns. As January 1-2001 approaches, we are deciding—in large numbers—that we must learn more about the needs of this living planet and teach each other how to nurture and care for our earth and all its diverse and incredibly beautiful inhabitants.

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Anuenue (pronounced a-new-eh-new-eh) is the Hawaiian word for rainbow, where every color we can see is displayed in brilliance—if only we will learn to look closely and appreciate. Anuenue Gardens has been designed to be a center of education as well as preservation. It is our goal to reach out and connect nature lovers from one end of our world to the other.

Be sure to visit our website at www.worldlife.com

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Worldlife Preservation Foundation is dedicated to understanding and preserving the natural world. Various research projects are designed to help learn more about the beauty and value of our planet and our future. Anchored in the science of life, we improve the lives of people and animals. Helping those in charge and those who are in charge of their care, we address the mental, physical, emotional, and spiritual needs of many life forms of our world.

Anuenue Gardens is the first of several facilities to be designed and operated by WPF.



A VIEW INTO ANUENUE GARDENS—A PLACE OF HORTICULTURAL, ZOOLOGICAL, AND SPIRITUAL BEAUTY

c o n t e n t s

Volume 78, Number 6

November/December 1999



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- On the cover: Matilija poppy (Romneya coulteri) is one of many native California wildflowers growing on the property of the Theodore Payne Foundation in Sun Valley, California. Photograph by Claire Curran.*

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The American Horticultural Society (AHS) educates and inspires people of all ages to become successful and environmentally responsible gardeners by advancing the art and science of horticulture.

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an inside look

Watching our four-year-old granddaughter, Sarah Anchors Cathey, learning to count is a most affirming experience for a “Social Security-plus” person. With all the new technological advancements we have, children are still using their fingers and toes to grasp the addition of numbers—Sarah’s calculation of her digits comes to a comforting 20.

Like children, gardeners and nature lovers often retain a fascination with numbers and statistics. They find joy in learning what is the smallest, tallest, broadest, hardiest, and oldest. In this issue, Guy Sternberg gives us an inside look at what inspires people to identify and publicize America’s champion trees, which are truly living national treasures.

Looking back through the years to the early decades of this century, Karan Davis Cutler tells us about another giant of the plant world, Theodore Payne. This expatriated Englishman fell in love with California wildflowers and devoted his life to growing and popularizing them. To this day, the non-profit foundation that bears his name is carrying on his legacy by propagating native wildflowers and teaching people their importance in gardens and in the wild.

Numbers also figure prominently in David Egan’s article about the evolution of prairie nurseries from the environmental ferment of the early 1970s to today. From small nurseries catering to die-hard regional plant enthusiasts, some nurseries that specialize in prairie plants have evolved into major companies supplying millions of prairie plants to clients throughout North America and overseas.

With tropical and subtropical plants, the important numbers for gardeners are often USDA hardiness and AHS heat zones. Nursery owner Tom Wood shares his love of ginger lilies (*Hedychium* spp.). These colorfully-flowered plants can be grown outdoors year-round mainly in USDA Zones 7 to 11 and AHS Zones 12 to 8, but need to be treated as tender perennials or planted in containers elsewhere in North America.

The topic of our Focus section is one of concern to all gardeners: Preventing winter injury to plants. Unpredictable weather conditions in the last several years have caused gardeners to re-evaluate the hardiness and heat tolerance of all their plants. We examine winter injury problems region by region and suggest ways to reduce or prevent damage.

Finally, to mark the 200th anniversary of the death of George Washington, we’re taking a look back at the ornamental gardens the First Farmer developed at Mount Vernon and how they have been restored today. While Washington apparently grew only agricultural crops on the land now known as River Farm—the American Horticultural Society’s headquarters—we believe he would be proud of the gardens that now grace our grounds.

Learning to translate all these numbers into useful knowledge and information will be one of the major challenges of the next millennium. If you need an interested and able student, please get in touch. We are training one the old-fashioned way—fingers and toes first. Ever in green,



H. Marc Cathey

—H. Marc Cathey, *AHS President Emeritus*



members' forum

PUZZLING PERSPECTIVE

I have visited Thuya Gardens in Maine many, many times as we go to Northeast Harbor on our sailboat every summer. I looked and looked at the photograph on page 46 of "Acadian Adventure" in the July/August issue, then I looked some more. Something just didn't seem right. Then I figured it out: You flipped the negative. From where the photograph was taken, the apple tree should be on the right-hand border. I'm sure I was not the only one who was puzzled.

Thuya Gardens never disappoints me. The flower combinations are often surprising, but it's always lovely and stimulating and gives me lots of ideas for the use of color in the garden. It's a pity you didn't have a photograph of the garden in peak bloom showing the wonderful flow of color.

Mary Ann Olteanu
Wilmington, Vermont

Editor's note: *Oops! We did indeed inadvertently flip the photograph of Thuya Gardens.*

BEES DESERVE BETTER

I got a laugh reading Joseph Scalia's "Offshoots" article in the July/August issue, but as the caretaker of two hives of bees, I was disappointed by the article's overall portrayal of bees and their ways. Our native bees and even the domesticated European honeybees have virtually disappeared from the wild, so the author should consider himself lucky to have bees in his yard at all. Many species of bees and wasps increase flower and fruit production, and most are not aggressive unless provoked.

I was particularly disturbed by the description of indiscriminate use of bug spray. Most pesticides are highly toxic to bees and many other beneficial insects. Gardeners should do their best to protect these organisms, not destroy them. I hope none of your readers will follow Scalia's example in viewing bees as enemies to be destroyed!

Anyone who encounters the situation Scalia describes should step back and visually locate the hive, and then proceed with

slow, steady movements with hand pruners, being careful not to bump or jostle the hive. This is best done before sunrise or after sunset—when the bees have bedded down for the night. If a hive of honeybees needs to be removed, most beekeepers will be more than happy to take it. Better yet, honeybees can be moved to a hive box, where the honey can be harvested for home use. Most bee books explain how to keep bees in the city without disturbing the neighbors, and beekeeping is very compatible with gardening.

I suspect Scalia was embroidering the truth somewhat for humorous effect. For the bees' sake, I hope so.

Melanie Hunt
Nashville, Indiana

Editor's note: *We hoped our readers would get a chuckle out of Scalia's tongue-in-cheek description of his encounter with a recalcitrant rose bush inhabited by what he viewed as hostile bees. It was certainly not our intent to promote the indiscriminate use of pesticides.*

To follow up on a point made in Ms. Hunt's letter, anyone who finds an unwanted honeybee colony in the garden should contact his or her local Extension service. It will likely maintain a list of local beekeepers who would remove the hive for little or no cost.

Also, anyone who is allergic to insect stings should, obviously, not attempt to prune out or move an active hive.

BOTANY 101

I enjoyed the September/October issue of *The American Gardener*, especially Colston Burrell's article on late-season anemones. I would, however, like some more information on plant anatomy: When discussing the structure of anemone flowers, Burrell states "they are composed of five or more colorful sepals," as are many members of Ranunculaceae. To be more botanically precise, are these not tepals rather than sepals? According to *Botany for Gardeners* (by Brian Capon, Timber Press, 1990),

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tulips and clematis are among those plants, like anemones, which have perianths with only one whorl of modified leaves called tepals, not sepals.

*William Latimer
Overland Park, Kansas*

C. Colston Burrell responds: *I am glad you enjoyed the Anemone article. On your point concerning the proper name of the floral structures of anemones, I must hold to my original designation of the structures as petallike sepals. The term tepals is used to refer to flowers with petallike structures that are not clearly distinguished as either petals or sepals. Plants with this characteristic include tulips, alliums, and some lilies. When petals are absent, as in anemones, clematis, and many other Ranunculaceae, then it is the sepals that are colorful and resemble petals.*

WILD GARDENERS...

I subscribed to *Wild Garden* and was sorry to hear that the magazine has ceased publication. While I am delighted to know that the American Horticultural Society will be

picking up the remainder of the subscriptions, I am already an AHS member. I do not know how much time I have left on my *Wild Garden* subscription, but can that subscription just be added to my current AHS membership? It seems a waste to be getting two copies of *The American Gardener*—although, of course, I can always give the extra copies to friends!

By the way, I have always enjoyed your magazine, but in the July/August issue I was particularly pleased to see the article on Ron Gass and Mountain States Wholesale Nursery. Ron has done some excellent work and has helped show people in the Southwest that their gardens don't need to be—and shouldn't be—like gardens in Virginia or Washington State to be pretty. Keep up the good work.

*Mary Anne Pickens
Columbus, Texas*

P.S. I was the 1997 president of the Native Plant Society of Texas, so I am particularly interested in native plants. I think it is so important that we all use what is native in our area along with other easy-to-grow, adaptable plants.

...ON THE AMERICAN GARDENER

When *Wild Garden* appeared on the market, I thought it was the right time for such a publication and that it could be a hit. Like many subscribers, I'm disappointed to learn of its demise.

About the time I discovered *Wild Garden* at the newsstand, I also found *The American Gardener*, which I've read and purchased several times. Now I'm looking forward to its arrival in my mailbox on a regular schedule! Thank you to both publishers for coming up with this pleasant solution to the problem of subscription fulfillment.

*Anne B. Wagner
Portsmouth, Rhode Island*

Editor's note: *We have heard from a number of former Wild Garden subscribers, including quite a few who, like Ms. Pickens, were already American Horticultural Society members. Some of these members slipped through the computer program designed to catch duplicate memberships and received two copies of our July/August issue.*

All AHS members who were also Wild Garden subscribers have had their AHS memberships extended by the balance of their Wild Garden subscriptions. Members who continue to get two copies of The American Gardener should contact our membership department at (800) 777-7931 ext. 119 so we can resolve the problem.

Corrections

In the article "Ferns of the Northwest" in the July/August issue of *The American Gardener*, we incorrectly stated that the Rhododendron Species Botanical Garden at Weyerhaeuser Corporate Headquarters in Federal Way, Washington, is open only to members of the Hardy Fern Foundation. In fact, this spectacular garden is open to all visitors; its hours are 10 a.m. to 4 p.m. from March to May (closed Thursday) and 11 a.m. to 4 p.m. June to February (closed Thursday and Friday).

Bill Sheldon, author of "The Greening of Kansas City" (September/October), lives in Gardner, Kansas.

Write Us!

Do you want to voice an opinion or share some gardening information? We'd like to hear from you. Letters to the editor should be addressed to Editor, *The American Gardener*, 7931 East Boulevard Drive, Alexandria, VA 22308-1300, or you can e-mail us at editor@ahs.org. Letters we print may be edited for length and clarity.



news from ahs

INAUGURAL H. MARC CATHEY AWARD

The first H. Marc Cathey Award and Medal will be presented at AHS's 2000 Annual Conference in Houston, Texas, in March. Formerly known as the Scientific Award, it is given every other year to an individual who has demonstrated excellence in horticultural research. The AHS Board of Directors renamed the award to recognize the achievements of H. Marc Cathey, currently AHS's President Emeritus and the inspiration behind the AHS Plant Heat Zone Map, which was introduced in 1997.

Cathey, a renowned plant researcher, served as president of AHS from 1974 to 1978 and again from 1993 to 1997. From 1956 to 1980, Cathey conducted research at the United States Department of Agriculture in Beltsville, Maryland, focusing on the relationship of environmental factors such as light, temperature, and exposure to pollution on a wide range of plants. He was also fourth director of the U.S. National Arboretum in Washington, D.C.; the first D.C. Kiplinger Chair Holder at Ohio State University; and national chair for florist and nursery review at the USDA.

Nominations are being accepted now for the inaugural H. Marc Cathey Award and Medal. For details on how to make a nomination, call (800) 777-7931 ext. 120, or visit our Web site at www.ahs.org. The deadline for nominations is December 15, 1999.

NATIONAL ORNAMENTAL PLANT GERmplasm CENTER

A cooperative agreement signed in July between the USDA and Ohio State University in Columbus sets the stage for the development of the Ornamental Plant Germplasm Center (OPGC), the first gene bank specifically designed to preserve the germplasm—genetic information in the form of seeds, bulbs, cuttings, and individual cells—for herbaceous ornamental plants.

The OPGC, which will be established on the Ohio State campus, will be part of the USDA's National Plant Germplasm System (NPGS), a network of gene banks and seed



Bob Moser (left) of Ohio State University and Dennis Kirven (right), executive director of the Ohio Florists' Association, unveil a sign in July 1999 to inaugurate the creation of the Ornamental Plant Germplasm Center at OSU.

repositories initiated in 1946. Floriculture industry officials say the center fills a void in the national system for safeguarding food, fiber, and ornamental crops from disease epidemics and loss of genetic diversity. "Until last year, the NPGS hasn't had the resources to pay sufficient attention to herbaceous ornamental germplasm," says Peter Bretting, national program leader for Plant Germplasm and Genomes for the USDA's Agricultural Research Service. "We're moving into an area of agriculture which historically has been under-invested."

Because plant breeders often lack extensive storage facilities for genetic material, older or less commercially viable genes are sometimes discarded. The OPGC ensures that the germplasm of wild or heirloom plants—which may in the future provide genes resistant to disease or adapted to changing climatic conditions—won't be irrevocably lost at the expense of breeding plants with more desirable colors or better fragrance. "It's quite likely the varieties that will be stored here will contain the genetic keys to advance medicines, create insect and disease resistance, and provide other economically important traits," says Bob Moser, vice president for agricultural administration and executive dean of the College of Food, Agricultural, and Environmental Sciences at OSU.

In October, James L. Corfield, chairman-elect of the American Horticultural Society's board of directors, was appointed interim director of the OPGC. Corfield has more than

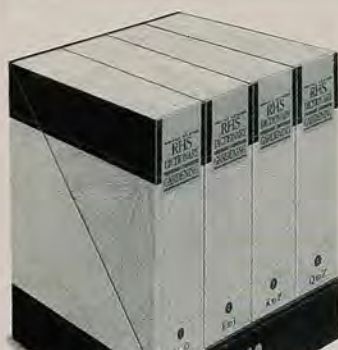
20 years of experience in the horticulture industry, most recently as director of the Seeds Business Group at Vaughan's Seed Company, Downer's Grove, Illinois.

Corfield will oversee the process of upgrading and converting existing facilities, hiring research staff, and putting together short- and long-range business plans. He will also spearhead the recruiting process for a permanent director. "This facility will give breeders all over the world access to genes they might not otherwise be able to work with," says Corfield, "which means that in the long term it will provide tremendous benefits both to the horticulture industry and to home gardeners."

An initial government appropriation of \$200,000 in 1999 helped establish the OPGC. Additional funding is expected to

Judges Wanted for 2000 Flower Show

The 2000 flower show season is right around the corner. Recognizing excellence in horticulture is part of AHS's mission, and each year our representatives judge entries at flower shows across the country. If you are interested in being a judge at a show in your area and would like more information, contact Sue Montgomery at (800) 777-7931 ext. 118.



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NOXIOUS WEED LIST AMENDED

The USDA's Animal and Plant Health Inspection Service, which regulates the entry and spread of non-indigenous plants and animals in the United States, has added two more species to its noxious weed list: wetland nightshade (*Solanum tampicense*) and caulerpa (*Caulerpa taxifolia*). Plants on this list are considered to be destructive to the environment and their import or sale in the United States is prohibited.

Wetland nightshade, native to Central America, has invaded many parts of southern Florida's wetlands and poses a potential threat to the ecosystem of the Everglades. The stems of this sprawling perennial, which can reach 15 feet long, are covered with prickles, as are its leaves. Plants mesh together as they grow, forming a blanket that can smother understory plants as well as climb tree trunks.

Caulerpa, a seaweed originally from the Pacific Ocean, is sold for use in public and home aquariums. An accidental release of the plant from an aquarium in Monaco in the mid-1980s reportedly resulted in its proliferation in the Mediterranean Sea. While it has so far not been a problem in North America, the USDA has placed this plant on its noxious weed list as a pre-emptive measure.

2000 PERENNIAL OF THE YEAR

The Perennial Plant Association's plant for the year 2000 is *Scabiosa columbaria* 'Butterfly Blue'. This cultivar grows one to two feet high, produces lavender-blue flowers from mid- to late summer, and attracts butterflies to the garden. 'Butterfly Blue' is hardy from Zones 3 to 8 and heat tolerant in AHS Zones 9 to 4. Two mail-order sources are Kurt Blumel, Inc., in Baldwin, Maryland (www.blumel.com), and Busse Gardens in Cokato, Minnesota (800) 544-3192. 🍀



Scabiosa columbaria 'Butterfly Blue'

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A General in the Garden



Sheep graze contentedly in a walled section next to the vegetable-filled Lower Garden at Mount Vernon.

by Mark C. Mollan

Few Americans are aware that Washington was an avid “tiller of the soil” with much more than just a passing interest in plants. In fact, had anyone asked Washington his occupation, he would have proudly answered, “I am a farmer.” He often referred to his Mount Vernon estate in Alexandria, Virginia, as the “Mansion House Farm” and believed that farm work “may be more conducive than any other to the happiness of mankind.” In addition to Mount Vernon, Washington owned several nearby farms, including one on the site of River Farm—modern-day headquarters of the American Horticultural Society.

GENTLEMAN FARMER

Between his long tours of duty as a public servant, Washington enjoyed spending almost all of his private time overseeing his farms or tinkering in the gardens at Mount Vernon. “[T]he life of a Husbandman,” he wrote to a friend in 1788, “of all others is the most delectable.”

Washington was, in fact, a progressive farmer who invited new ideas and methods for cultivation on his 8,000 acres of land. In 1761, when he decided to turn Mount Vernon—which had been a tobacco plantation—into a diversified farming enterprise, he wrote: “Experiments must be made, and the practice (of such of them as are useful) must be introduced by Gentlemen who have leisure and ability and wherewithal to hazard something.” The largest portions of Mount Vernon were devoted to wheat—the biggest cash crop—corn, and pasturage.

Washington’s innovative spirit and interest in agriculture spilled over into horticulture, as developments in the smaller gardens at Mount Vernon provided a cornerstone for his evolving farming enterprise. While he had a staff of gardeners, Washington frequently reserved for himself—when he had the luxury of time—the pleasures of designing his landscape and gardens, grafting saplings, collecting seeds, and propagating new cuttings.

“Washington wanted his gardens to be impressive,” says Dean Norton, horticultural

This year marks the 200th anniversary of the death of George Washington, so we offer a tribute to this American patriot—not as Commander of the Continental Army in America’s fight for freedom from Great Britain, first president of the United States, or a founding father of our country—but as a gardener.

"[T]he life of a Husbandman of all others is the most delectable."



turist for the modern-day Mount Vernon estate. "So he hired gardeners who were competent in all phases of agriculture and entrusted them to care for his gardens in the best manner possible."

Ever receptive to new gardening ideas, Washington revised the Mount Vernon landscape in 1785 after reading the writings of Batty Langley, English author of *New Principles of Gardening*, published in 1728. Washington retained the landscape's basic geometric symmetry, but he introduced features with more aesthetically pleasing and flowing shapes approximating those found in nature. Serpentine paths were installed on the west end, leading between the old front gates and the mansion. A new bell-shaped expanse of lawn called the Bowling Green was created in grand view of the mansion. At Washington's direction, American holly, white ash, Canada hemlock, and tulip poplar trees were then planted—and still stand today—along the paths flanking the Bowling Green.

THE UPPER AND LOWER GARDENS

Beyond the pebbled roadways thrives the heart of Washington's landscape: two symmetrical, candle-shaped gardens. To the south, the vegetable garden, called the Lower Garden—complete with cold-frames, cisterns, and gardeners tool shed—supplied food for the table. On the other side of the Green, the Upper Garden—which developed later—provided a fragrant setting for a leisurely stroll.

The Upper Garden was originally created as an overflow garden of sorts when the Lower Garden, filled with espaliered and free-standing fruit trees along the oyster shell walkways and vegetable beds, began running out of space. It was initially planted with new varieties of fruits and vegetables sent to



Washington by fellow gardeners, but by the 1790s visitors such as architect and engineer Benjamin Henry Latrobe were referring to it as a flower garden "laid out in squares and boxed with great precision."

Although little mention of the Upper Garden exists in Washington's own writings, visitors to Mount Vernon often wrote of the beauty and solace it offered. In July 1799, the visiting Reverend John E. Latta described the garden as "very handsomely laid out in squares and flower knots" and holding "a great variety of trees, flowers, and plants of foreign growth collected from almost every part of the world."

In 1985, the Upper Garden was archaeologically surveyed, researched, and restored by the Mount Vernon staff to reflect how it might have looked at the time of Washington's death. Although Washington and his farm managers kept records on the agricultural developments of Mount Vernon and the surrounding Washington farms, specific plants on these properties were only sporadically mentioned. Apart from a single sketch that shows only the Upper Garden's

The curving paths of the Upper Garden are flanked by a colorful variety of flowering bulbs in spring, above. The small building shown here was used as a school room in Washington's time. The brick-and-glass greenhouse, left, was a main attraction in Washington's garden. Constructed in 1787, it housed tropical plants such as lemon trees and aloes, which were curiosities to many in the 18th century.

outline, no original designs or content listings for the garden were found to exist. "It was a huge puzzle," admits Norton. "We visited other restored 18th-century gardens, and for over a year reviewed all we could find from existing records." In the end, says Norton, "The historical writings of visitors to Mount Vernon wound up being crucial to the restoration."

TROPICAL LUXURIES

Along the north wall of the Upper Garden stands the the 20-by-60-square-foot greenhouse, which was "the crown jewel of the Mount Vernon gardens," says Norton. Built in 1787, Washington based the greenhouse's design on that of a similar structure owned by Margaret Carrollton of Mount Clare in Baltimore, Maryland.

"It was extremely rare to have had a greenhouse in that day and age," Norton explains. "It was a way for Washington to show off his success—and to delight visitors, who'd probably never seen the likes of banana or citrus plants in Virginia." Warmed by a flue system in the floor, Washington

was able to keep a wide variety of tropical plants in the greenhouse year round.

Soon after its completion, Mrs. Carrollton's agent Otho Williams delivered the inaugural plantings for the greenhouse, which, by his account, included several lemon and orange trees and "...One fine balm scented Shrub; Two potts of aloes, and some tufts of potted marjoram." Other gifts for the greenhouse included oleanders from General Moultrie of South Carolina, Washington's comrade-in-arms from the Revolutionary War, and sago palms from the West Indies, perhaps from friends during a trip to Barbados, his only sojourn outside of the United States. One Mount Vernon guest commented that the greenhouse was "...a great source of pleasure. Plants from every part of the world seem to flourish in the neatly finished apartment, & from the arrangement of the whole, I conclude that it is managed by a skilful hand."

18TH-CENTURY PLANT TRIALS

Over the east wall between the garden and the house is the so-called botanic garden, where Washington tried new varieties of vegetables, planted seeds from friends, and experimented with green fertilizers. Successful ventures here often found their way into the fruit garden and nursery, or were planted as

cash crops at Mount Vernon or one of the other farms. "The most valuable and scarcer kinds of plants...may receive nourishment in my little garden," Washington wrote.

Among the "scarcer" plants Washington received into his care in 1785 were 200 varieties of seed from China, gifts from his local physician, Dr. Craik. Unfortunately, one year later, Washington noted in his diary that "None of the plants which were sowed with the seeds from China...were to be seen." Still, there were some successes at the botanic garden: Most notably, alfalfa and oats were grown there, and after Washington discovered how they could enrich the soil, both were quickly sown in the fields.

"George Washington loved agriculture foremost," says Norton. "He truly believed that one of the reasons this country was great was due to its abilities in agriculture. But the great floral array represented at Mount Vernon alongside the agricultural cash crops—flower, fruit and vegetable gardens, the botanical garden, the nursery, the greenhouse—shows us his gardening world was complete. And it speaks volumes about George Washington's enthusiasm and understanding of horticulture." ♣

Mark C. Mollan is a free-lance writer living in Leesburg, Virginia.

Visitor Information

Mount Vernon, located 16 miles south of Washington, D.C., is open year round. For more information, call (703) 780-2000, or visit www.mountvernon.org.

Sources

GEORGE WASHINGTON: PIONEER FARMER by Alan and Donna Jean Fusonie, Mount Vernon Ladies' Association, Alexandria, Virginia, 1998. \$5.95.

WASHINGTON'S GARDENS AT MOUNT VERNON: LANDSCAPE OF THE INNER MAN by Mac Griswold, photographs by Roger Foley, Houghton Mifflin, Boston, Massachusetts, 1999. \$40.

GEORGE WASHINGTON'S MOUNT VERNON by Wendell Garrett, Monacelli Press, New York, New York, 1999. \$65.

GEORGE WASHINGTON'S MOUNT VERNON: AT HOME IN REVOLUTIONARY AMERICA by Robert F. Dalzell and Lee Baldwin Dalzell, Oxford University Press, New York, New York, 1998. \$30.



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winter plant injury



Frost heaving. Bark splitting. Root rot. Twig dieback. Leaf scorch. These and other perils of cold weather are lurking just around the corner as fall gives way to winter in your garden. Every region of the country, from the frigid Northeast to the mild Southwest, experiences its own winter travails. An examination of plant responses to each region's winter extremes suggests precautions for avoiding, as well as remedies for repairing, winter injury in your garden.

regional winters

by Tonda Phalen

In *The Opinionated Gardener*, Geoffrey Charlesworth poses the question: "What do gardeners do in winter?" His own answer: "They accumulate fat." Actually, Charlesworth's observation is a bit overstated. Though your chores may be fewer,

they are no less critical. By providing your plants appropriate protection from winter's hazards, you are more likely to be pleased with your garden's shape—regardless of your own—come spring.

The term "winter injury" describes any tissue damage, including death, that occurs to plants exposed to harsh winter weather. Winter injuries generally fall into three groups: temperature-related damage caused by the plant's inability to properly acclimate to normal winter weather in a particular region; damage from physical forces such as frost heaving and branches

broken by heavy snow, ice, or wind; and indirect damage from human activities such as salt used to de-ice roads and walkways (see box on page 16).

The severity of winter damage ranges from minor to devastating. Flower buds are most susceptible to frost damage, but this simply means a loss or reduction of flowers and fruit for that year. Plants that suffer bark splitting caused by a sudden drop in temperature or sunscald may not be killed outright but are far more susceptible to future invasion by insects and diseases. When the roots of frost-heaved perennials are exposed to drying winds and rapid fluctuations in air temperature, the plants usually die.

THE RIGHT PLANT

Richard Bir, Extension specialist in nursery crops at North Carolina State University, advises, "Part of being a good gardener is knowing how to choose good, hardy plants." In general, plants native to your region or exotic plants from areas of the world that have similar climates are most suitable. The USDA Plant Hardiness Zone Map—based on average low temperatures—is a starting point for selecting plants suited to winters in your geographic area.

But winter survival involves much more than simply enduring exposure to low temperatures. How rapidly temperatures drop and how much they fluctuate; exposure to drying winds; snow cover, rainfall, and ice accumulation all influence a plant's adaptability to a site. "The essence of horticulture is moving plants until you get them into a spot they like," says Peter Del Tredici, director of living collections at the Arnold Arboretum in Jamaica Plain, Massachusetts. "What gets attributed to winter injury often is just caused by poor site selection for a plant."

Above all, it is important to remember that healthy plants will better survive harsh

The weight of ice that built up after a February storm in Champaign, Illinois, split this tree down the middle.

conditions. Summer drought, disease, insect damage, and poor cultural practices in general all contribute to winter injury. “We see a plant die one year and attribute it to injury it received in the winter,” Del Tredici explains, “but it is more often caused by cumulative damage over the years.” Del Tredici also believes that gardeners should reconsider how they place plants—particularly trees. “Our whole aesthetic of open-grown ‘specimen’ trees sets them up for winter injury. In the forest, trees protect each other.”

In addition, gardeners are often tempted to “push the envelope” on hardiness, to include borderline-hardy plants in their gardens. “Zone denial is just part of being a horticulturist,” says Nina Bassuk, director of urban horticulture at Cornell University. Microclimates within a site may extend your plant selection options to include plants slightly beyond the hardiness zone of your region, but it’s still a gamble.

Even appropriately hardy, healthy, and well-sited plants can suffer winter damage, no matter where you garden. A look at winter injury to plants by region suggests some solutions for preventing, minimizing, and repairing the most common damage.

THE NORTHEAST

Reeser Manley, assistant professor of horticulture at the University of Maine in Orono and director of the Lyle E. Littlefield Ornamental Trial Garden conducts research on root damage caused by cycles of freezing and thawing—a real problem in New England. “We may be seeing more death of trees due to root damage than we realize,” says Manley. “Much of the branch dieback

found in the summer is delayed damage due to winter root injury.”

According to Manley, “Young plants are the most susceptible, leading researchers to reconsider traditional advice to plant in the fall. Instead, plant in the spring to allow roots to become better established before they have to deal with winter weather.” Root damage is most likely to occur during periods of extreme cold without snow cover.

Root injury is also a serious problem with container plantings, which are insulated by a small volume of soil. For containers that stay outdoors all winter, Bassuk suggests using only extremely hardy plants, such as junipers, Siberian pea-tree (*Caragana arborescens*), and mugo pine (*Pinus mugo*). Containers can also be buried in the ground in fall to protect plant roots.

Summer drought also influences the degree of winter damage, because plants approach the colder months with less than their normal supply of water. Woody plants absorb most of the water they store during late summer and early fall. As a plant begins acclimating to cold weather, its ability to absorb water decreases. Newly established plantings are particularly susceptible.

THE SOUTHEAST

Because the Southeast encompasses a broad range of USDA Plant Hardiness Zones—from 5 to 10—gardeners there experience a wide range of winter injuries. Much of the damage in this region occurs when cold weather hits before a plant’s growth has sufficiently stopped. The process of acclimation (see page 18) is initiated by shortening day length and con-

tinues with increasing exposure to sub-freezing temperatures. Because much of the South enjoys fewer extremely cold days in winter, acclimation is often incomplete when cold weather does arrive.

Woody plants that continue to put out new growth well into late autumn often suffer tip dieback in winter. To reduce this problem, Bir advises against “pruning and fertilizing too late into fall [which] encourages growth when the plant should be trying to shut down.” Geraldine Laufer, spokeswoman for the Atlanta Botanical Garden, suggests cutting back shrubs, herbaceous perennials, and grasses in spring—rather than fall—to prevent the stimulation of late growth.

Accumulations of ice can increase the branch weight of trees by 30 times or more, resulting in broken limbs. Multi-stemmed evergreens, such as arborvitae, junipers, and yews are especially vulnerable. Prevent ice damage by tying twine to the base of the trunk and winding spirally upward to the top and back down to secure the branches to each other. Deciduous trees with poor branching habits—such as Bradford pears and Norway maples—are also susceptible to ice damage. Broken limbs should be pruned immediately; bent branches may straighten on their own after the ice melts. Never try to remove ice; this can cause more injury.

In mild areas such as southern Florida, light frosts that would do little damage further north can be devastating to vegetation unaccustomed to such temperatures, causing lawns to brown and plants to drop leaves. Don Evans, director of horticulture



Winter damage on woody plants is sometimes not apparent until later in the growing season, but its effects often leave survivors irreparably disfigured. Far left: The foliage on the top half of this arborvitae (*Thuja* spp.) was killed by prolonged exposure to drying winds. Left: The permanent fissure in the bark of this birch (*Betula* spp.) is probably the result of damage to plant cells in the trunk after a sudden drop in temperature.

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at Fairchild Tropical Garden in Miami, Florida, says gardeners can protect particularly tender plants by misting them throughout nights with a fine spray of water when light frosts are expected.

THE MIDWEST

In the Midwest, occasional warm spells in the winter that signal plants to begin early de-acclimation—or breaking dormancy—cause widespread injuries when cold weather returns. "Most winter damage occurs in late February and early March in the Chicago area," says Doris Taylor, plant information specialist at the Morton Arboretum in Lisle, Illinois.

Jim Locklear, director of the Nebraska Statewide Arboretum in Lincoln, reports, "Some springs see one out of four plants with damage due to early de-acclimation." For the most part, the resulting damage is manifested as reduced flowering or winter "burn" on new foliage, but newly established plants may be killed. Plants susceptible to early de-acclimation—such as saucer magnolia (*Magnolia x soulangiana*)—can benefit from a northern or eastern exposure, where their early-season development tends to be slightly delayed.

THE FAR NORTH

"The best preventive technique in our area is prayer for snow," says Jeff Gillman, assistant professor of horticultural science at the University of Minnesota in St. Paul. "Snow cover acts as an insulator against extreme cold," explains Gillman. He also notes that some plants "just don't do well here because it is too cold for too long." Boxwood (*Buxus* spp.) and Japanese holly (*Ilex crenata*), standard foundation plants in much of the Northeast and Midwest, survive only in limited microclimates, according to Gillman. He recommends Japanese rose (*Rosa rugosa*) or *Daphne burkwoodii* 'Carol Mackie' as hardier alternatives.

Most roses are difficult to grow in the Far North, unless their bud unions are protected from frost. One way to do this is to loosely mound soil at least a foot high around and between the bases of the canes after the ground freezes. Then build a chicken-wire cage around the rose and loosely fill it with straw or oak leaves. Make sure to remove all the winter attire before new growth starts in spring.

Extreme cold in combination with insufficient snow cover often mean some borderline-hardy plants will incur fatal heartwood damage—commonly called blackheart—which results when water inside the plant freezes, causing the cell walls to rupture, thus blocking movement of nu-

Salt Injuries

Salt damage to plants can occur in any area where salting compounds are used to melt snow or ice. The needles of affected evergreens turn brown; the leaves of deciduous trees and shrubs display marginal scorch when they emerge in spring. Where plants suffer continued exposure to salt, a feathery, distorted growth pattern called witches' broom may develop from buds of branches that have died back. Continued uptake of heavy salt concentrations from the soil restricts root absorption of nutrients, water, and oxygen—sometimes killing plants.

To reduce salt damage, flush soil subject to salty runoff with several inches of water and repeat three days later. This will leach much of the salt from the soil. Rinse foliage and branches as soon as possible when salt spray occurs, and again in early spring. Prevent or minimize damage by using sand, pea gravel, or kitty litter instead of salt. In areas where plants are constantly exposed to salt runoff or sea spray, Nina Bassuk of Cornell University suggests selecting salt-tolerant plants such as *Rosa rugosa*, barberry (*Berberis* spp.), beach plum (*Prunus maritima*), summersweet (*Clethra* spp.), blue spruce (*Picea pungens*), Austrian pine (*Pinus nigra*), and bayberry (*Myrica pensylvanica*). —T.P.

trients and water. The damage, which appears as browning of the wood inside the branch or trunk, may be apparent immediately or may appear much later—even in the summer—when damaged cells can no longer move enough nutrients and water to portions of the plant above the damage.

ROCKY MOUNTAINS

In the Rocky Mountains, lack of precipitation, strong winds, high altitude, inconsistent snow cover, low humidity, and intense sunlight can create extremely harsh winter conditions. "We suffer drought conditions in winter," says Harriett McMillan, horticultural information specialist at Denver Botanic Gardens in Colorado. "Winter watering is a necessity." McMillan recommends watering at least once a month if there is insufficient precipitation and if the ground is not completely frozen.

Wind and drought often desiccate evergreens, turning foliage brown or even killing plants. McMillan says that anti-transpi-

rants—spray-on mixtures that coat leaves with a waxy film, thus reducing water loss—may help, but that preventive watering and screening with burlap on the southern, southwestern, or windward side of evergreens offer more effective protection. Avoid immediate pruning of browned branches; surviving buds may produce new foliage when growth resumes in spring.

Sunscald and bark splitting affect deciduous plants under conditions similar to those causing evergreen desiccation. Young plantings and smooth-barked trees and shrubs such as maples, apples, aspens, lindens, mountain ashes, and azaleas are most vulnerable. Damage, which typically appears on the southern or southwestern side of plants, is characterized by elongated, sunken, dried, or split areas of bark. The best way to avoid such problems is to shade sensitive bark by retaining lower branches or by using screens or plastic tree guards.

Once such damage occurs, there is little you can do but prevent further injury. Remove dead bark with a sharp knife, apply a fungicide, and provide protection in subsequent winters.

Snow load and wind also cause injury. “Even in April we can get two feet of heavy, wet snow that flattens bulbous plants and breaks tree branches,” reports Ava Salman, marketing and catalog manager at High Country Gardens nursery in Santa Fe, New Mexico. “And if the snow doesn’t do it, wind will flatten everything.” She recommends removing snow from trees and shrubs with a broom before it freezes over, and planting only short, late-winter flowering bulbs. Screens can be used to help prevent wind damage.

Wind-toppled trees and shrubs can be rescued if you act quickly and the ground isn’t frozen solid. Clean out the original planting hole, fill it with water, and let the

water absorb. Gently replace the plant without dragging or rolling it. Backfill the hole immediately, firming the soil after each shovelful and watering at intervals. Mulch over the planting hole, then stake and cable the tree or shrub. If plants are frost-heaved from frozen ground, pack the entire exposed root system and branches with wet straw, leaves, or peat moss, then cover with a heavy tarpaulin or burlap. Keep the roots moist until the ground thaws enough to replant.

WEST AND SOUTHWEST

Gardens in the West and at lower elevations in the Southwest typically experience mild winters. “There are very few plants that won’t make it in this climate; lilac and peonies don’t do well, but that’s because of a lack of cold weather,” says Don Mahoney, horticulture manager at Strybing Arboretum and Botanical Gardens in San Francisco. “The worst that happens is occasional bud death from light freezes,” adds Mahoney, who recommends a protective covering called AgroFabric to prevent damage to prize tender plants when the temperature does dip below freezing.

Chris Martin, associate professor of urban horticulture at Arizona State University in Tempe, protects very tender tropicals with cloches and row covers. “Frosts and freezes are rare here,” he says. “Covering a plant is the only prevention we use during our short cold events.” Martin says that most people just let nature take its course: “In the Southwest, cold snaps act as growth control to many of our subtropicals—like lantana, bougainvillea, and bird-of-paradise (*Strelitzia* spp.)—doing no more than giving them a severe pruning.”

PACIFIC NORTHWEST

Because large bodies of water provide a moderating effect on the climate, gardens near the Puget Sound, Lake Washington, and along the Pacific coastline enjoy much warmer temperatures in winter than inland areas in the Pacific Northwest. Richard Hartlage, director of the Elisabeth C. Miller Botanical Garden in Seattle says this maritime effect allows coastal gardeners to experiment with many plants that are not hardy inland.

Gardens further inland are subject to freeze-and-thaw cycles that can result in all types



A screen of burlap protects rhododendrons from the drying effects of wind in this garden in Bend, Oregon.

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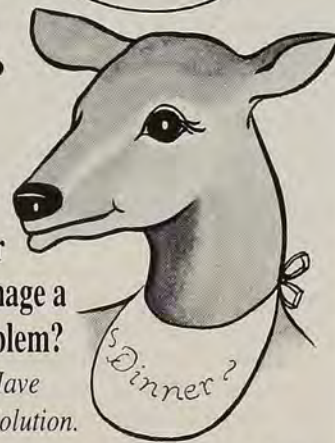
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Resources

CARE AND PROTECTION OF YOUR PLANTS THROUGH WINTER, AHS Gardeners Information Service Bulletin. (800) 777-7931 ext. 131. \$1.

THE GARDEN IN WINTER by Rosemary Verey, Timber Press, Portland, Oregon, 1988. \$24.95.

GROWING PERENNIALS IN COLD CLIMATES by Mike Heger and John Whitman, Contemporary Publishing Group, Lincolnwood, Illinois, 1998. \$49.95.

GROWING ROSES IN COLD CLIMATES by Jerry Olson and John Whitman, Contemporary Publishing Group, Lincolnwood, Illinois, 1998. \$39.95.

THE WINTER GARDEN: PLANNING AND PLANTING FOR THE SOUTHEAST by Peter Loewer and Larry Mellichamp, Stackpole Books, Mechanicsburg, Pennsylvania, 1997. \$39.95.

WINTER ORNAMENTALS: FOR THE MARITIME NORTHWEST GARDENER by Daniel J. Hinkley, Sasquatch Books, Seattle, Washington, 1993. \$9.95.

USDA PLANT HARDINESS ZONE MAP. American Nursery and Landscape Association, (202) 789-2900. \$10.95.

of winter injury ranging from scorching and browning of leaves to bark splitting and heartwood damage. While mulches can moderate these cycles, they may exacerbate another problem prevalent in Pacific Northwest winters: fungal diseases such as root rot that thrive on excessive moisture. Hartlage advises gardeners "to select plants that will grow well in wet conditions," such as *Corydalis flexuosa* 'Blue Panda', a shade loving herbaceous perennial ground cover.

As for plants that don't do well in the winter, Hartlage suggests that people be realistic and treat marginally hardy species as annuals. But with all the plants available in North America, he notes, gardeners "can get anything they want, whether it is appropriate for their area or not."

Tonda Phalen is a free-lance writer living in Alexandria, Virginia.

acclimation

by Harold Pellett

For a plant to survive winter conditions in any given region, it not only must acclimate to withstand the coldest temperatures of the winter, it must initiate the process and acclimate rapidly enough to tolerate any unseasonably cold weather that may occur in early winter. In order to survive, plants must also retain sufficient hardiness during warm periods in late winter or early spring to endure freezing conditions that may follow.

There is a strong correlation between cessation of growth and the initiation of the cold acclimation process. Most of our hardiest plants cease growth and initiate the acclimation process in response to decreasing day lengths in late summer. This can happen even if temperatures are still warm and favorable for growth. However, different plants have different critical day lengths that initiate acclimation. Some require much shorter day lengths than others. Even in the same species of plants, there are big differences in critical day lengths.

Plants that have a broad native range of distribution from the northern to southern latitude differ greatly in this regard. The original source of the plant—its provenance—is very important in influencing its timing of acclimation and, therefore, its ability to tolerate winters in any given location. In general, plants from northern latitudes or from high elevations start acclimation under a longer day length than the same species from a more southern or lower elevation. However, plants that are native to a maritime climate may not acclimate as soon.

Plants that begin the process in response to day length harden—accumulate certain sugars and proteins in their cells, preventing the formation of ice crystals within the cells—to a certain level and then do not harden much further until cold temperatures trigger the next stage. Following some freezing temperatures, these plants

then gain additional hardiness very rapidly, and, with continual cold weather, reach their maximum hardiness potential. Red osier dogwood (*Cornus stolonifera*), one of the hardiest plants, can withstand temperatures of -31.3 degrees Fahrenheit. With very hardy plants, maximum hardiness is maintained until higher temperatures trigger the de-acclimation process, which occurs gradually so that freezing temperatures in the spring do not kill them. For less hardy plants that are not sensitive to day length, the cold acclimation process is not initiated until cold temperatures occur.

Most gardeners rely on the USDA Plant Hardiness Zone Map when selecting plants likely to be hardy in their regions. Hardiness ratings are usually based on field observations of a plant's ability to survive in different zones. Cold hardiness ratings of plants propagated vegetatively can provide a good indication of success if the ratings were developed following widespread observation. Plants from different seed sources can differ greatly in their timing of acclimation, however, and also in their total capacity to harden to withstand minimum temperatures.

It is important to keep in mind that different tissues on the same plant have varying degrees of hardiness. Thus record low temperatures at different times of the winter can cause different types of injury symptoms. For example, root tissues have less capacity to harden than stem tissues. Overwintering flower buds cannot harden to the same level as stem tissue or vegetative buds. Thus plants such as forsythia may survive winters without injury but will often not flower above the snowline.

Xylem tissues—which transport water within plants—harden sooner than phloem tissues—which carry nutrients—but are less hardy in mid-winter; both tissues are slightly less hardy in mid-winter than vegetative buds. An early hard freeze can kill the bark tissues, while the xylem or vegetative buds may not be injured. A severe mid-winter freeze may kill xylem tissues without injuring the vegetative buds if the tissue temperature drops below the hardiness level of the xylem tissues but does not quite reach the hardiness level of the buds. In such a situation, the injured plant may initially leaf out normally in the spring but when hot dry weather arrives, the new growth will wilt and die rapidly since the plant cannot supply sufficient water to maintain the new succulent growth. ■

Harold Pellett is a professor in horticulture at the University of Minnesota and executive director of the Landscape Plant Development Center.



offshoots

A GARDEN RESTORED

by Jan Herron

Last year was the kind of year we garden for. We putter along, dealing with snails and mildew and the neighbor's dog, and then—if we're lucky—every 10 years or so, we get a season like no other. We personally waited 11 years, but we don't count the first one because it was spent hacking ivy and disposing of the old car parts, dead sneakers, and dog toys the garden contained.

When my husband and I bought our property on California's central coast, what we really purchased was a yard. The house is small and situated close to the street, leaving the rest of the quarter acre to ramble off under a stand of fine old trees. The lot was landscaped in the early '60s by a gentleman with a lively imagination and a job that kept him on the road. He came home with his pockets full of tree seedlings and his pickup loaded with rocks—some interesting, some beautiful, some just large. On the quarter acre he planted the trees, and with the rocks he laid paths, built walls and raised flowerbeds, and constructed a fountain and a pond. He also paved some of the paths with little concrete tubes; we eventually learned they were used insulation scrounged from an oil refinery. He planted dramatic clumps of Dutch iris and built picket fences and, at the time of his death, was working on a barbecue pit and "tiki hut." We got the impression that if he died at 110 the garden would still have been a work in progress.

This was a garden that required sustained loving care to survive. After its original owner died, successive tenants moved in and out of the property, leaving parts of their cars behind, and the ivy sneaked in over the high fences. The car parts were infested by black widows, and the ivy was a haven for slugs and snails. The garden's restoration began when we moved in, with the removal of most of the trash and some of the ivy.

Eleven years later, the restoration continues. We have dug an elegant flagstone path out from under a foot of leaf mold—after grubbing out the ivy that had rooted in it. Tearing away blankets of ivy uncovered a strange little structure that was perhaps going to be a summerhouse. Pulling up ivy in another area revealed a small doghouse. Along one boundary we removed and replaced a

redwood fence, felled by the weight of the ivy there, which could only be removed with a backhoe. The most mystifying—and enchanting—find was a pile of rocks, which, when freed from its cloak of ivy, was revealed to be a fountain. We've never located the water supply, and the sycamore beside it has grown into such a giant that water from the rock pool at the foot of the fountain would now have to flow uphill over the sycamore roots to reach its eventual destination in the lily pond. So we have settled for filling both ponds with a hose. Our cats sun themselves on the stonework, mosquito fish live in the rock pool and goldfish in the lily pond. Someday we might install a recirculating pump.

A few years ago the daughter of the eccentric landscaper dropped by to see how her father's garden was doing. She stepped through the wooden gate, surveyed the flowering borders, green lawns, and rampant nasturtiums and—where countless other visitors have exclaimed, "What a lot of work!"—she said, "I see a lot of love."

Last year the love was augmented by an extremely long rainy season, courtesy of El Niño. Removal of the old redwood fence opened up space for the perennial border, and trimming a couple of trees brought sunlight to some shady areas. Late leafing of the sycamore in the spring—thanks again to El Niño—further increased the availability of sunlight to the yard.

And then the miracle happened. Our garden—which has always been an expanse of green with a flower here and there—burst into lush, triumphant bloom. From the springtime crocuses and primroses through foxgloves and hollyhocks to fuchsia and bougainvillea, the flowering never stopped. Western spicebush and naked ladies, which were part of the original landscaping, emerged from under the ivy

and blossomed for the first time in 11 years.

We may never see another such season, but we would not be gardeners if we were not optimists. My biggest chore these days is cutting back the perennials, but we also continue the weeding, watering, and composting—and patrolling the borders of the remaining patches of ivy. We have a sentimental attachment to the ivy now and have no plans to exterminate it. And who knows? Maybe in another 10 years the miracle will happen again. 🍀

Jan Herron is a free-lance writer in Arroyo Grande, California.





gardeners

information service

I have an ornamental citrus tree (*C. reticulata* 'Satsuma') in a three-gallon container. Two years ago it bloomed in February, but this past winter it didn't flower. Sticky, clear sap appeared to ooze from its leaves, creating a sticky mess on the floor. I couldn't see any sign of insects or disease. What was happening to my tree, and how can I get it to bloom again this winter?

—J.E., Silver Spring, Maryland

Although you didn't see any insects, the sticky mess you describe sounds a lot like a substance called honeydew, the excrement of

piercing and sucking insects of the order Homoptera, which includes scales, mealybugs, aphids, and whiteflies. These pests are small and difficult to see, especially in the early stages of their life cycles, but the appearance of honeydew is often a tip-off to their presence. If you see ants around the plant, you more than likely have sucking insects, since ants relish honeydew. Infested leaves may also host a sooty mold that feeds on honeydew.

Homopterans can damage a plant by piercing its leaves and sucking sap from it, eventually causing it to lose vigor—and perhaps fail to flower. Severe infestations can even kill a plant. Colonies of scales and mealybugs appear as cottony deposits on foliage. Aphids tend to be larger and can be found clustered on plant stems and under leaves. Adult whiteflies are tiny flying insects, but they resemble scales and mealybugs early in their life cycles.

Treat your plant with an insecticidal soap or horticultural oil—available at most garden centers or through mail-order—to get rid of the pests. One mail-order source is Gardens Alive! 5100 Schenley Place, Lawrenceburg, IN 47025; (812) 537-8650. Always follow manufacturer's directions for the use of any insecticides. Insect predators can also be used to treat outdoor plants (see "Natural Born Killers" in the March/April 1998 issue of *The American Gardener* for more on beneficial insects).

Since new growth is most susceptible to pests and disease, you should also reduce the application of nitrogen fertilizer—use only enough to keep the plant healthy. It is best to use a slow-release

organic fertilizer containing only moderate nitrogen, such as fish emulsion or liquid seaweed.

Years ago I fell in love with the China doll plant and have tried to grow this houseplant—with marginal success. My plant is no longer full of foliage, but recently its branches seem to be filling out more. How do I maintain and grow this plant?

—L.T., via e-mail

Radermachera sinica, also known as China doll, radar plant and Asian bellflower, is actually a tropical evergreen tree that is native to China and southeastern Asia. Grown indoors as a houseplant, it must be regularly pruned to prevent it from becoming leggy. If you have not been pruning the plant, try doing so and see if that solves the problem. Pinching out new growth will also help promote fuller, bushier growth. The plant is usually easy to grow, but proper watering is critical—keep the potting medium moist, but be careful not to under- or overwater. Yellow, brittle leaves indicate underwatering; blackish tips on green leaves indicate overwatering. China doll requires rich, well-drained soil, bright light, and a minimum temperature of 50 degrees F. It is one of the few houseplants that will tolerate dry air, so misting is not necessary. Repot in the spring and propagate by stem cuttings in the summer.

Is there a difference between *Symplocarpus foetidus* and *Lysichiton americanus*? Or is one simply an older botanical name for the other?

—C.R., Mission Hills, California

According to the *Royal Horticultural Society Dictionary*, *Symplocarpus foetidus* and *Lysichiton americanus* are different species in the Arum family (Araceae) with similar characteristics, but *L. americanus* is usually somewhat larger. Their flowers are typical of those in the arum family—a clublike spike called a spathe surrounded by a specialized leaf called a spadix. Both are commonly known as skunk cabbage, for the musky smell of their foliage.

S. foetidus, also known as polecat weed or fetid pothos, is the only species in its genus. Native to northeastern North America and northeastern Asia, it is a rhizomatous, herbaceous perennial with large, dark green foliage that appears after it flowers in late winter to early spring. The spathe—which is borne at ground level among thick bracts—is dull yellow-green, heavily mottled and flecked liver-red, and reaches a height of about six inches. The spadix is short-stalked and usually dark.

L. americanus, one of two species in its genus, is native to western North America. Also a rhizomatous, herbaceous perennial, it produces leaves with or after it flowers. Its spathe grows about 15 inches high and the spadix is long-stalked and yellow. ●

—William May, *Gardeners Information Service*

For answers to your gardening questions, call Gardeners Information Service at (800) 777-7931 ext. 131 between 10 a.m. and 4 p.m. Eastern time, or e-mail us anytime at gis@ahs.org.



mail-order explorer

GARDEN PERENNIALS

by Christina M. Scott

A business doesn't always need a fancy name and a large selection of trendy plants to be successful. Sometimes all it takes is a commitment to growing high-quality plants and providing an equally high level of customer service. Such is the story of Garden Perennials, a nursery in Wayne, Nebraska.

When Gail Korn opened the nursery in northeastern Nebraska 17 years ago, she had no idea that it would grow into a booming mail-order business. "Perennials were not as popular then as they are now," she explains. "I just thought I could be a local source for ready-to-bloom perennials." A former English teacher, Korn has no formal training in horticulture, just a knack for design and an eye for what goes on in her garden. "I pay attention to what I see," she says. "I let the plants teach me."

PRACTICAL PHILOSOPHY

In her catalog, Korn writes, "We don't grow plants to live indoors." Garden Perennials' policy of not coddling plants generally makes for easier transplanting. All plants are grown outdoors and stay in the field year round. "I grow whatever is pretty and does well," Korn says. "The plants must be able to take whatever Nebraska weather dishes out." That includes drought and bitter cold.

Korn's customers laud her real-world plant knowledge. "Gail really knows her stuff," says Celeste Anderson, who tends her half-acre garden in Washoe Valley, Nevada. Because of her high-desert location, Anderson appreciates the fact that all of the nursery's plants are well acclimated to winter cold.

Most of Korn's customers garden in the northern states, but many southern gardeners find that plants from Garden Perennials also do well for them. Ann Pasley of Thomaston, Georgia, has been buying from the nursery for three years and says her purchases have flourished in her garden; she adds, "They are all very generous in size."

DAYLILY MANIA

Though she grows several hundred different perennials, Korn's specialty is the daylily (*Hemerocallis* spp.)—she currently grows 840 varieties on her three-acre nursery, which

has been designated an official daylily display garden by the American Hemerocallis Society. Half of her 50-page 1999 catalog is devoted to daylilies. Korn estimates that 40 percent of her sales are for daylilies.

Besides catering to confirmed daylily lovers, Garden Perennials has also made new ones. Mary Keast of Oakland, Iowa, first bought mail-order daylilies from the nursery five years ago for a volunteer town project and purchased one plant for herself. Later that spring she had a chance to visit the nursery. "It was amazing," Keast says of her first view of the nursery's flower fields. "The color on the hill was just breathtaking." From that point on, Keast was hooked. Her garden now contains 260 daylily varieties; it was also recently named an American Hemerocallis Society display garden.

When Korn isn't tending daylilies in the garden, she can often be found tending them in cyberspace. Many of Korn's customers discover Garden Perennials through the American Hemerocallis Society's chat room on the Internet, where Korn offers information on daylilies. "Gail is not just a grower—she's a gardener," says Karen Burgoyne, a landscape consultant in Denison, Texas, who grows over 900 daylily cultivars in her garden. "And she's very willing to share her knowledge." Burgoyne admits to going online often for Korn's tips on suitable plants to grow with her daylilies.

A perennial that Korn likes as a backdrop for daylilies is *Veronicastrum virginicum*, which grows to four feet tall and produces spikes of ivory blooms in midsummer. She also likes *Penstemon*

To get a catalog, send \$1 to Garden Perennials, Route 1, Wayne, NE 68787. Tours of the nursery can be arranged with a week's notice. Call (402) 375-3615 or e-mail gkorn@bloomnet.com for more information.

digitalis 'Husker Red', which bears burgundy foliage that matures to green.

Asked to name her favorite daylily, Korn demurs—she likes them all. "I suppose if I were really smart, I'd think of some really hard-to-find specialty plant that I could say, 'Hey, you'll only get it here', but that's just not me," she says. "My goal is to grow plants that will look good in my garden." 🌸



Various daylilies in summer bloom on a hill at Garden Perennials.

Christina M. Scott is former assistant editor of *The American Gardener*. Mary Yee, managing editor, contributed to this article.



urban gardener

HYPERTUFA GARDEN PLANTERS

story and photographs by Judy Hominick

Tenacity can sometimes reap rewards for a gardener. That's how a material now used in many ornamental landscapes was created. In the early decades of this century, avid English alpine and rock gardeners searched long and hard for the perfect container in which to grow their temperamental plants. True alpine plants, like saxifrages (*Saxafraga* spp.) or alpine forget-me-nots (*Myosotis alpestris*), are native to mountains in temperate, subtropical, and tropical regions and grow above the tree line—often in rocky crevices—in perfectly draining soil and in close proximity to stones.

Through trial and error, the English alpinists discovered that stone kitchen sinks and livestock water troughs made from a soft rock called tufa were ideal for growing these plants. But these containers were becoming scarce by the 1930s, when determined alpine plant enthusiasts began experimenting with ways to replicate the stone vessels. It was found that a combination of cement, sand, and peat moss created a material with many characteristics of tufa. Dubbed hypertufa, it resembles tufa and provides ample porosity; it is also inexpensive, lightweight, and easy to work into any size or shape to suit almost any garden.

VERSATILE STONE SUBSTITUTE

In *Stonescaping: A Guide to Using Stone in Your Garden* (Garden Way Publishing, 1992), author Jan K. Whitner reports seeing hypertufa containers in natural stone gardens during a visit to England. "The containers seem as ancient as the stone and rock that surround them, and they lend a time-worn distinction to the gardens they inhabit," Whitner writes.

I first became interested in hypertufa for use in my Japanese-style garden. Japanese stone lanterns are very expensive, so my husband and I decided to make one with hypertufa. Pleased with the results, we went on to make planters of various shapes and sizes. We've placed some on the natural rocks around our pond, and one, with horseshoe handles, sits in a shady area.



This hypertufa trough, made by the author, is planted with sweet alyssum, Corsican mint, variegated thyme, dianthus, and artemisia.

Making a hypertufa planter isn't difficult and the materials are available at most home building supply stores, but the planter must be allowed to cure for about six weeks before you can use it. I made the trough shown below in about two hours, using a plastic storage container measuring 10-by-14-by-6 inches for a mold. Cat litter trays and sturdy cardboard boxes also make good molds. Whitner recommends reinforcing containers larger than 22-by-17-by-6 inches with hardware cloth or fibermesh. (See the instructions on the facing page to make your own planter.)

PLANTING BASICS

The soil for plants in a hypertufa planter should be porous. *The American Horticultural Society A-Z Encyclopedia of Garden Plants* suggests a mixture of 2 parts sterilized loam, 2 parts peat, 1 part sharp sand or grit, one-third part coarse grit, and some slow-release balanced fertilizer. You can substitute decomposed bark, garden compost, or leaf mold for the peat moss. If you are growing acid-loving plants, be sure the soil is lime-free and include some granite or sandstone chips. To grow plants that like alkaline soil, include limestone chips.

A wide range of plants that grow in well-drained soil—including those that are not alpinists—can be used in a hypertufa container. Planters situated in full sun can be filled with silvery-leaved *Artemisia schmidtiana* 'Nana', which grows six inches high and is attractive paired with low-growing species of dianthus. Moss pink (*Phlox subulata*) and almost any stonecrop (*Sedum* spp.) will spread into a dense mass in a planter, their trailing stems tumbling over the container's edge. Culinary plants such as thyme and rosemary are also suitable choices.

In shady locations, try small, cushion-forming species of saxifrages, baby's tears or Irish moss (*Soleirolia soleirolia*), and peacock moss (*Selaginella uncinata*)—actually a mosslike perennial also known as rainbow fern. True mosses will be right at home growing directly on the exterior of a hypertufa planter, giving it an "aged" appearance. You can encourage the growth of moss by brushing buttermilk on the planter's surface. 🍌

Judy Hominick is a free-lance writer living in Dallas, Texas.

Making a Hypertufa Planter

Here's how I make hypertufa planters for my garden. Be sure to wear rubber gloves when mixing and working with hypertufa. The following recipe is from Jan K. Whitner's *Stonescaping: A Guide to Using Stone in Your Garden*.

WHAT YOU'LL NEED:

1 part Portland cement (no gravel)
1 part fine sand (i.e., mason sand)
2 parts peat moss (milled, with chunks and sticks removed)
cement coloring (optional)

Supplies and equipment: mold, plastic sheet, rubber gloves, mixing buckets, chisel, wire brush

1. Cover the inside of the mold with a plastic sheet.

2. In a large bucket, combine the peat moss and sand. Add the concrete—and dry cement coloring, if you're using it—and mix well. (If you're using liquid coloring, add it after the mixture is wet.) Use only enough water to bind the peat moss, sand, and concrete. The resulting mixture should be thick, not soupy.



3. Spread 1½ inches of the mixture on the bottom of the plastic-covered mold, making sure to tamp down to remove air pockets. Then spread 2 inches of the mixture on the sides of the mold. You can make drainage holes on the bottom now—or drill holes when the planter is completely dried.



4. Let the planter dry until it is semi-hard—for 24 to 48 hours, depending on its size. You should not be able to leave an imprint on it with your finger, but you should still be able to scrape the surface with a fingernail. Carefully remove the hypertufa from the mold and pull off the plastic sheet.

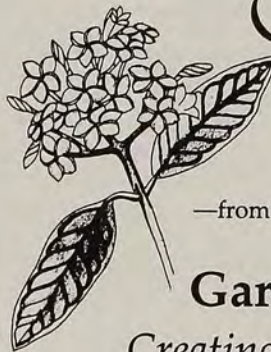
5. To give the planter a natural look, use a chisel or other blunt tool to remove hard edges. Then scour the entire surface with a wire brush. Wrap the planter in a sheet of plastic and let it cure for at least four weeks in a location away from extreme heat or cold.



6. At the end of this period, set the planter outdoors for several weeks to finish curing, hosing it occasionally to neutralize cement chemicals. The planter is now ready for use. —J.H.

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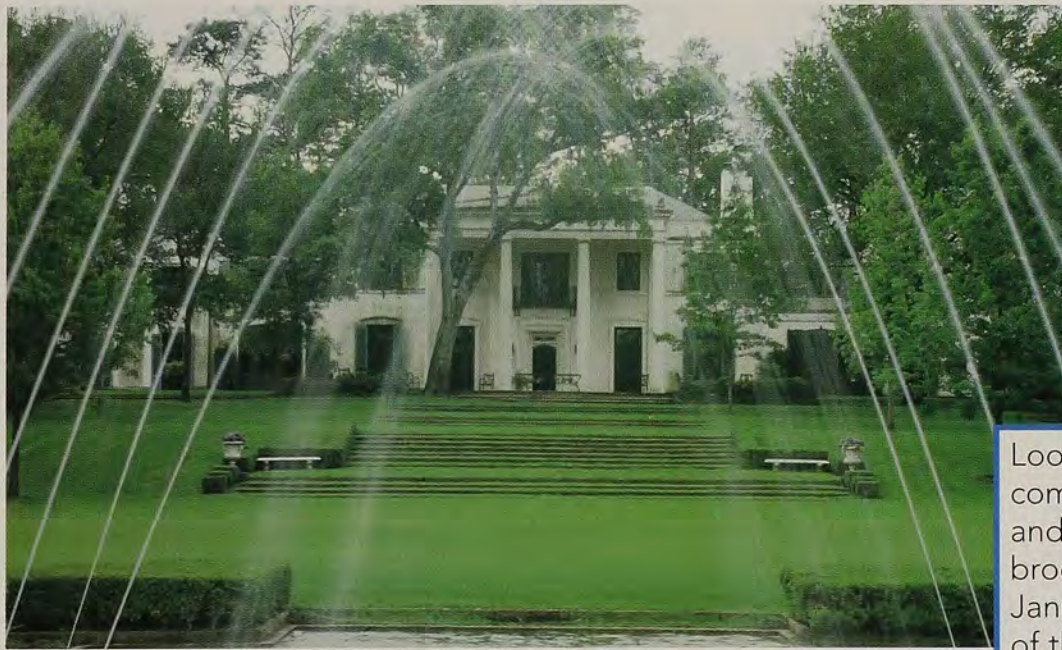


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☆ AHS CONFERENCE HIGHLIGHTS ☆

AHS member price: \$425 (includes activities for March 16–18; March 15 optional tour an additional \$145)

WEDNESDAY, MARCH 15

OPTIONAL Tour of Austin

- ★ Lady Bird Johnson Wildflower Center
- ★ Private Gardens in Austin

(This trip will be approximately 3 hours by bus each way from Houston. Onboard lectures, movies and refreshments will be provided.) Separate fee is \$145.

Itinerary:

Continental Breakfast at the Omni Houston (7:00 a.m. to 7:45 a.m.)
Bus departs from the Omni at 8:00 a.m.
Lunch at the Lady Bird Johnson Wildflower Center in Austin
Bus will return to the Omni at 7:30 pm

THURSDAY, MARCH 16

Lecture

Diane Relf, Professor of Horticulture at Virginia Polytechnic Institute and State University, will speak about the psychology and social value of plants and the role of horticulture in human health and well-being. Dr. Relf is the recipient of the AHS Horticultural Therapy Award.

Lecture

H. Marc Cathey, President Emeritus of AHS, will lead a panel discussion on the AHS “Smart Garden” concept. Learn how “Smart Gardening” will turn consumers into stewards of the earth in the next millennium.

Afternoon Tours in Houston

- ★ Rienzi
- ★ Bayou Bend
- ★ Private Gardens in River Oaks

FRIDAY, MARCH 17

Lecture

Michael Dirr, Professor of Horticulture at the University of Georgia and award-winning author, will discuss his Plant Introduction Program that will feature the latest and greatest in plants. Dr. Dirr is the recipient of the AHS Teaching Award.

Lecture

Bill Welch, Professor of Horticulture at Texas A&M University, and Bill Adams, Harris County Agricultural Extension Service at Texas A&M University, will showcase Southern gardens at their best.

Afternoon Tours in Houston

- ★ Mercer Botanical Garden

- ★ Downtown Houston Public Gardens
- ★ Private Gardens in Museum District

SATURDAY, MARCH 18

Lecture

Richard Craig, Professor of Plant Breeding and J. Franklin Styer Professor of Horticultural Botany at the Pennsylvania State University, will present Penn State’s research on pest resistance in ornamental plants and the new world of genetics. Dr. Craig is the recipient of the AHS Luther Burbank Award.

Afternoon Tours

- 10:30 a.m. to 4:00 p.m.
Box Lunch on Bus
- ★ Peckerwood Garden
 - ★ Yucca Do Nurseries
 - ★ Private Gardens

Evening Formal Reception and Closing Banquet

The American Horticultural Society has approval for NCSGC Landscape Critics Refresher Course Certification in recognition of education and garden components of this conference.

Theodore Payne's Legacy

The foundation that bears this Englishman's name carries on his work of teaching people to love California native plants.

By Karan Davis Cutler
Photography by Claire Curran

Cliff maidens. Fairy lanterns. Milkmaids. Pussy-ears. Summer's darlings. Suncups. Pretty faces. Tidy tips. You only have to hear the names to fall in love with California wildflowers.

The record doesn't indicate whether Theodore Payne, an Englishman born in 1872, first fell in love with their names or with the plants themselves, but fall in love he did. Arriving in Los Angeles in 1893—after a week's visit at the Chicago World's Fair—he went to work as estate gardener for actress Helena Modjeska, who lived on a ranch in the Santa Ana Mountains. Soon he was seduced, not by Hollywood, but by the native flowers growing nearby. "Wherever you looked or stepped, there were acres of purple owl's clover,

yellow tidy tips and golden poppies," he later remembered. He began collecting seeds of indigenous species "more or less as a hobby," but what began as a hobby became a passion, then turned into a mission.

For the next 70 years, Payne worked as a horticulturist, landscape designer, nurseryman, and champion of his adopted state and its native plants. "Our greatest asset," he wrote, "is California itself. We should preserve our native landscapes, our wild flowers, our landmarks and everything pertaining to the history and romance of this great and glorious country."

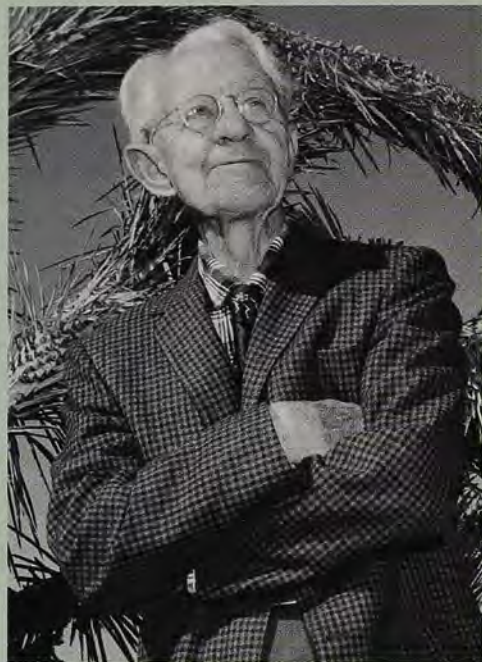
In 1963, shortly before his death, Payne estimated that he had



Below: Payne (on right) in front of his store, circa 1903. Opposite: Hybrid penstemon on the foundation's property.



The Transplanted Seedsman



Payne in the California desert in 1961.

Germain Fruit Company in its seed and plant department. In 1903, he went into business for himself in Los Angeles, where he offered a “complete line of vegetable seeds, flower seeds, and some farm seeds. Of tree, shrub, and palm seeds, I had the most complete stock...in the country.”

Payne realized early on that California’s spectacular wildflowers were disappearing. “I made up my mind that I would try to do something to awaken a great interest in the native flora,” he wrote. When no one wanted to buy the wildflower seeds he collected, he sowed vacant lots in Hollywood and Pasadena with California poppies, tidy tips, lupines, and more. Public interest was immediate. It was, he remembered, “the beginning of wild flower planting.”

Sowing vacant lots with wildflowers led to designing “wild” gardens and landscapes—both public and private—and to writing and lecturing about native plants. And, eventually, to his nursery and seed company specializing in native plants and wildflower seeds. When he first began talking about preserving wildflowers, he recalled, “people thought I was crazy.” But, he went on, pointing out that since hundreds of thousands of people now visited the wildflower areas he established, “Perhaps I was not so crazy after all.”

—K.D.C.

In an unpublished document in 1960, Theodore Payne wrote, “As a child I was passionately fond of flowers.” In fact, his was more than a passionate fondness, as Payne was a seedsman before he was 10, collecting flower seeds and packaging them for friends. “It became generally understood while I was still quite young, that when I grew up I would be a horticulturist.”

A three-year indentured apprenticeship at a Sussex, England, nursery—with a salary of \$1.25 per week—gave Payne a hands-on introduction to all aspects of horticulture. Among his duties was exhibiting at flower shows, which involved 18-hour days capped by a three-mile walk home from the train station.

After immigrating to California in 1893, Payne worked briefly as an estate gardener, then at the

Opposite, top: Elizabeth Schwartz, director of the Theodore Payne Foundation, points out a feature of interest to a group during a foundation workshop. **Opposite, bottom:** Baby blue eyes (*Nemophila menziesii*) a California native that can be easily grown in other parts of the country.

introduced more than 450 California species into general use. Many of these plants had been exported decades earlier and were widely cultivated abroad, but they were dismissed as weeds by Golden State gardeners of the early 1900s. Payne aimed to change that attitude—and he did. Today, the non-profit Theodore Payne Foundation (TPF) honors his work by continuing it.

A narrow, deeply rutted dirt road just off Tuxford Street, which passes through a modest residential neighborhood, leads to the foundation’s low-key headquarters on 23 acres in La Tuna Canyon. Large, white-trunk California sycamores (*Platanus race-*

mosa), one of Payne’s favorite trees, shade the picnic area next to the modest office building, a converted one-story wood-and-stone house. The mailing address is Sun Valley, a small town northeast of Los Angeles, about 15 miles from the Pacific Ocean as the crow flies.

Keeping the Dream Alive

The foundation, as Executive Director Elizabeth Schwartz explains, was formed with Payne’s approval in 1960 by a group of his friends and wildflower enthusiasts; it moved to its La Tuna Canyon location—which was donated by Payne’s good friend Eddie Merrill, a nursery owner in Los Angeles—in 1966.

Making California native species known and available to the public is a primary goal of the foundation, whose mission statement pledges “To acquire and share knowledge of California native flora; to preserve California’s natural habitats; to encourage propagation and use of native plants.” These goals give the foundation’s staff plenty to do, especially since more plant species—an estimated 6,000—are considered native to California than to any other state. Of that number, more than a third are endemic—native only in California—and 1,750 are listed as endangered, rare, or uncommon.

“The use of native plants by home gardeners increases every year,” Schwartz says, adding that the drought that preceded El Niño two years ago stirred interest in plants that don’t need supplemental water to survive. “There are so many advantages to growing native species. You get to know the natural cycles—here, it’s wet in the winter and dry in the summer, so many natives go dormant and resent being watered in July and August. Native plants provide food and shelter for wildlife, they have good resistance to pests and diseases, they’re adapted to our soils and topography, and they’re beautiful.”

Focus on Education

To encourage more Californians to learn about and grow the state’s native flora, Schwartz oversees the foundation’s ambitious education program, which currently includes a free wildflower hotline, a native plant garden, a variety of seminars and classes, a limited publishing program, and a research library. “Educational programs have a high priority with me,” Schwartz says.

The foundation may be best known for its wildflower hotline, now in its 18th year,



which supplies up-to-the-minute information about what's blooming where in southern California. Nearly 25,000 people phoned in 1998, and the hotline is credited with helping turn wildflower gazing into a popular activity. For a small fee, people can subscribe to a weekly fax or e-mail service that gives greater details about where to see native plants.

Another popular educational tool is Flowerhill, a five-acre garden on the foundation's property planted with more than 75 native wildflowers and shrubs. Set on a steep, southwestern slope, the garden is at its colorful best from March through May. Many people make it a point to see Flowerhill on Poppy Day, the foundation's annual open house held in April (scheduled for April 8 in 2000). In addition to gaping at hundreds of California poppies (*Eschscholzia californica*), elegant clarkias (*C. unguiculata*), showy penstemon (*P. spectabilis*), California everlastings (*Gnaphalium californicum*), and other brilliantly hued wildflowers, visitors can view special exhibits, attend lectures and demonstrations, and tour the rest of the site, which has been left wild and contains more than 200 native species.

Monthly seminars and classes sponsored by the foundation are designed to help gardeners incorporate native plants into their landscape. "Erosion and fire control are always hot topics here," Schwartz says. The staff also leads tours of the grounds for school children, garden clubs, and other groups by special arrangement.

In addition to putting out a quarterly newsletter and seed and plant lists, the foundation published *Gardener's Guide to California Wildflowers* in 1991. That book, other TPF imprints, and a sizable collection of botanical and horticultural titles are available for sale by mail or at the shop located in the headquarters. Visitors to the foundation can also use the research library, which contains books and periodicals with a focus on California natives.

Conservation by Propagation

All this, as Schwartz puts it, "is to get the word out." But this isn't all. The foundation is also among the world's premier suppliers of plants and seeds for California species. Its inventory changes from one year to the next but typically contains between 500 and 600 species ranging from annuals and herbaceous perennials to bulbs, cacti, succulents, grasses, vines, and woody plants. Although the foundation purchases some





of the plants and seeds it sells, most are collected and packaged or propagated by the foundation.

The diversity of offerings is breathtaking, everything from tidy tips (*Layia platyglossa* subsp. *campestris*), a six-inch tall annual flower, to *Sequoiadendron giganteum*, the 300-plus-foot giant sequoia. In addition to these household names, visitors will discover plants that rarely are sold elsewhere, such as deerweed (*Lotus scoparius*), a two-foot shrub with greenish branches and yellow flowers tinged with red, and the white-flowered chaparral clematis (*Clematis lasiantha*).

Plant propagation from seeds and cuttings takes place on-site in the 50-by-50-foot propagation houses, which are covered with shade cloth and sided with wire mesh to prevent rabbits and deer from grazing. Once plants have developed good roots, they are repotted and moved to a shaded terraced area where they are hand-watered—daily in summer, three times a week in winter—potted-up as needed, and cared for until they're large enough to be sold. For some species, such as Rocky Mountain piñon pine (*Pinus edulis*) and single-leaf piñon (*P. monophylla*), it's at least a two-year journey.

The last stop is the nursery yard, where plants are grouped by type and cultural requirements (for example, perennials for sun, ground covers, chaparral shrubs, grasses, riparian plants). There are choice cultivars available as well as species and subspecies. "We always have waiting lists for some plants," Schwartz says, "such as 'Dara's Choice' salvia (*S. sonomensis*) and *Arctostaphylos* 'John Dourley', a low-growing manzanita cultivar with gray-green leaves and pink flowers. Both are drought resistant and excellent ground covers for slopes."

Although eye-catching natives surround the nursery area—two yellow-flowered examples are bladderpod (*Isomeris arborea*), a shrub with white-coated, or glaucous, foliage and unusual inflated pods, and blue palo verde (*Parkinsonia florida*), a 20-foot desert tree that carries on photosynthesis in both its leaves and its blue-green bark—the nursery itself is drab compared with typical

Clockwise from top left: Volunteer Ed Peterson collects seed in the seedroom; the creamy flowers of California native *Yucca whipplei*; a worker in a foundation greenhouse holds a pot of coral bells (*Heuchera* sp.); and native prickly phlox (*Leptodactylon californicum*).

AHS Member Spotlight: Elizabeth Schwartz



In 1993, after 15 years climbing the ladder at a Los Angeles legal firm specializing in corporate law, Elizabeth Schwartz decided to abandon law for horticulture. “Basically I just became uninterested in what I was doing in my legal career and decided there were other things in life that were more important,” she says.

At the time, Schwartz didn’t know what shape her new career would take; she simply wanted to spend more time outdoors. Her gardening experience was limited mostly to growing vegetables, but she started taking horticulture courses at the University of California at Los Angeles.

Another step she took was to join the American Horticultural Society. “I wanted to expand my

horizons and become connected to the larger horticultural world,” she says. Membership in the Society, Schwartz says, provided her with a broad perspective on gardening in North America. “I found it valuable to learn what and who is going on in the horticultural world, and I wanted to see what kind of careers might be open to me.” Subsequently, she also joined regional plant groups such as the California Native Plant Society and the Southern California Horticultural Society.

In 1996 she began working at UCLA’s Mildred E. Mathias Botanical Garden, where she learned a variety of skills hands-on, such as propagating plants and maintaining plant record databases, that have served her well at the foundation.

Her first contact with the TPF was as a customer in the 1980s. “I live on a hillside and was looking for drought-tolerant native plants,” she recalls. Schwartz says she applied for the executive director position at TPF because it was a non-profit organization dedicated to educating people about the beauty and value of California native plants. “I felt it was an opportunity for me to both grow in my horticultural work and to do something that I cared about,” she says.

In her first year at the foundation, Schwartz’s main focus has been ensuring the foundation’s educational component remains strong. “Like AHS, our organization caters in large part to home gardeners,” she says, “and it’s through that part of our audience that we’re helping to preserve and protect native plants.”

—David J. Ellis, Editor

Opposite top: Western or California redbud (*Cercis occidentalis*) produces crimson-pink flowers in the spring. Opposite bottom: The fully armed prickly poppy (*Argemone munita*) grows naturally from southern California to New Mexico.

commercial garden centers. There are no flats of giant frilled petunias or hanging pots of over-fertilized fuchsias dripping with flowers. “Educating gardeners to purchase plants that aren’t in full bloom is difficult, but it’s part of our job,” Schwartz notes.

Seeds and plants are sold throughout the year, but the foundation’s big plant sale takes place in the fall, the optimum time to plant native species in California. Hundreds of customers flock to Sun Valley for this annual event, eager to snap up botanical treasures at bargain prices. Prices average \$7 for a one-gallon container. That’s up from the one dollar that Theodore

Payne charged for most gallon containers in 1956, but it’s still a steal considering the plants’ pedigrees.

Helping Hands

The fall sale is only one of the foundation’s activities that wouldn’t be possible without the help of its dedicated member volunteers. With a staff of only five full-time and one part-time employees—and a shoe-string annual budget of \$250,000—Schwartz depends on this small but faithful group of unpaid helpers. They propagate, weed, water, plant, help in the office and with the hotline, lead tours, and work in the nursery where, Schwartz says, “They can talk gardener-to-gardener with our customers. It’s a wonderful service.”

The foundation’s seed program is also indebted to volunteers, especially to Ed Peterson, a 94-year-old with eyes the color of the annual baby blue-eyes (*Nemophila menziesii*), one of more than 250 California plants the seeds of which Peterson collects each year. A 1930 UCLA botany graduate and former landscape supervisor at Los Angeles City College, Peterson’s interest in native California species began as a student and brought him into contact with Theodore Payne in the 1950s. He was one of the organizing members of the foundation.

While Payne’s influence can be felt strongly in the seed room—his brass scales and apothecary spoons are still used to measure seed lots—it was Peterson who established the foundation’s seed program. He began collecting seeds of indigenous plants in 1964 and never looked back. Thirty-five years later, he’s not only collected hundreds of California species, he’s also trained dozens of others, including Dustin Alcalá, the foundation’s nursery production manager, to share and carry on his work.

Carrying on for Peterson won’t be easy, however. He not only volunteers one day a week at the foundation, but he is also the definitive source for information about where plants can be found, when they bloom, and more. Between May and November, he’s on the road almost every week, sometimes camping overnight when he travels long distances. Most seeds are gathered on national forest land or roadsides. “We make sure we have permits, and we always follow a conservation ethic when we collect,” Peterson says. “We leave plenty of seeds for next year, and always leave some seed on each plant to ensure genetic diversity.”



A Bit of California Anywhere

The experts at the Theodore Payne Foundation recommend these Golden State natives—a rainbow mix of annual and tender perennial species—for growing in containers anywhere in North America.

Clarkia amoena (farewell-to-spring),
pink to lavender

Collinsia heterophylla (Chinese houses),
white with lilac/rose

Eschscholzia californica (California
poppy), orange

Layia platyglossa subsp. *campestris*
(tidy tips), yellow and cream

Nemophila menziesii (baby blue-eyes),
azure

Phacelia campanularia (desert blue-
bells), dark blue



California poppy (*Eschscholzia californica*), the state's quintessential wildflower.

Once seeds are collected, they're cleaned and then winnowed with increasingly fine brass sieves or with a specially built electric winnowing machine that blows off the chaff. Peterson keeps handwritten records of each seed lot—species name, where and when the seeds were collected, collector's name—and keys the information to a California atlas and a calendar used for timing seed collection.

Seed lots are stored carefully, either in envelopes in the deep, narrow drawers of the tall oak cabinets or in sealed jelly jars in one of the two donated refrigerators. "Viability varies," Peterson explains. "The seeds of some stream-side willows are viable for only a few days, and we don't collect those. Others last for years. Recently we successfully sprouted lupine seeds that Theodore Payne collected 75 years ago."

A few species require special handling. The seeds of the spectacular six-foot Matilija poppy (*Romneya coulteri*), which bears nine-inch flowers with white crepe-paperlike petals and a yellow center, must

Resources

Although California residents will obviously get the most direct benefit from the Theodore Payne Foundation's programs, anyone can become a foundation member and donations are gladly accepted to support the foundation's educational programs. Members receive a quarterly newsletter and discounts on regular educational programs and tours.

For more information, write to The Theodore Payne Foundation, 10459 Tuxford Street, Sun Valley, CA 91352; phone (818) 768-1802; email info@theodorepayne.org. You can also learn more about the foundation and California's native plants at the TPF Web site: www.theodorepayne.org.

be fire-treated. "We just fill a flat with seeds and pine needles and set it on fire," Peterson says. "Very carefully," Elizabeth Schwartz adds, ever mindful of insurance premiums.

The foundation still sells wildflower seed mixtures devised by Theodore Payne more than 80 years ago—surely the first version of the wildflower mixes that are so popular today. Some combinations are strictly for color—such as the Golden Mixture (Payne #3) and Rainbow mixture (Payne #1)—but others are formulated for special conditions or needs, such as drought resistance, hillside planting, and attracting wildlife.

There's even an easy-to-grow mixture for children. The key to the future for saving native plants is teaching the next generation what Theodore Payne knew, that Mother Nature had been especially kind to California, "Lavishing upon her such an endless variety of beautiful flowers. When you learn to know these flowers..., they greet you like old friends."

Bird's eyes. Butter-and-eggs. Chinese houses. Fivespots. Golden stars. Shepherd's purse. Whispering bells. You only have to hear the names... 🍀

Karan Davis Cutler, the author of Burpee—The Complete Vegetable & Herb Gardener (Macmillan, 1997), has just completed The New England Gardener's Book of Lists (Taylor).

The Evolution of Prairie Nurseries

The demand for prairie plants is causing midwestern nurseries to re-evaluate the way they do business.

By Dave Egan



In the summer of 1985,

I went with John Dickelman—author of the classic book, *Natural Landscaping*—to visit Prairie Nursery, near West-

field, Wisconsin. At that time, Prairie Nursery's owners Neil Diboll and

Brian Bader had been in business for just three years and were still struggling to

turn the half-acre prairie garden they had purchased from Bob and Bea Smith into a prof-

itable enterprise. They were running the nursery out of a \$3,000 mobile home, where they also lived

in a style typical of a college dormitory. Their free, black-and-white, 17-page catalog provided brief de-

scriptions of 70 prairie forbs—broad-leaved herbaceous plants—and nine prairie grasses. Some species, such

as downy phlox (*Phlox pilosa*), smooth penstemon (*Penstemon digitalis*), and white

prairie clover (*Dalea candida*), were labeled as “new” that year. • Today, Neil

Diboll is the sole owner of Prairie Nursery, and the mobile home has been re-

vamped and incorporated into a permanent office structure that bustles with

A steeply sloped site is prepared for seeding with prairie plants at Prairie Restorations nursery in Princeton, Minnesota.

activity—secretaries answering phone calls from around the country, consultants developing landscape plans, and nursery managers preparing spreadsheets and work orders. The catalog is still free, but now customers can choose to have the 50-page, full-color version mailed to them or view it on the nursery's Web site. Prairie Nursery now plants 300 acres and offers 117 prairie forbs and woodland wildflowers plus 19 prairie grasses and sedges. Diboll is a mainstay of the gardening lecture circuit, showing slides of prairie plants to admiring audiences around North America and overseas. To say the least, the changes at the nursery have been dramatic.

And Prairie Nursery's evolution is not an isolated example, according to other prairie nursery owners in the Midwest. In 1985, few Americans knew what a prairie was and fewer still would have thought prairie plants could become part of their home landscape. Now prairie nurseries are at the epicenter of a national revival of interest in native plants, striving to meet the demands of a public that wants to bring a sense of "wildness" back to the American garden. Legislators are picking up on this public sentiment and starting to mandate greater use of native species in federal and local revegetation projects. "What I find fascinating is that people are starting to spend money to restore the environment!" Diboll says.

Business is Booming

Talk to just about anyone involved in the prairie nursery business these days and they will tell you things have never looked better. Existing nurseries are expanding, new nurseries are starting up throughout the upper Midwest, and consumer demand continues to soar.

Ron Bowen, who has owned and operated Prairie Restorations, Inc., in Princeton, Minnesota, since the late 1970s sees it this way: "First, the volume of work is way up, which is probably a function of a good economy plus a growing interest in native plants. This increased demand is coming from commercial and corporate entities, homeowners, and the government sector. Second, the success of nurseries like ours has encouraged many new producers to start nurseries within the last five years, and together we have begun to really increase production. Third, we are improving our understanding of how to grow various plants, clean seeds more efficiently, and improve the overall quality. Our seed mixes are better than they were and the overall di-

versity continues to increase."

Marie Urice, nursery manager at The Ion Exchange nursery in Harpers Ferry, Iowa—where 1998 sales tripled from the previous year—is exuberant about the positive ramifications for nurseries and their customers. "Quality and quantity are up, prices are down. I think that's good for everyone!" she exclaims.

Unlike 15 years ago, gardeners today can choose from a wide selection. Nurseries have steadily increased their offerings of forbs and, in recent years, have begun to grow a wider variety of native grass and sedge species. In addition, nearly every nursery offers diverse seed mixes that consider site conditions and desired appearance—short grass prairie for dry soils, for example. Other standard mixes are available to attract butterflies and birds, or for special situations such as planting over septic fields.

Changing Business Practices

However, as Steve Apfelbaum, president of Taylor Creek Nursery and Applied Ecological Services of Brodhead, Wisconsin, points out, "Clients want more than supply—they want service and the technical underpinning necessary to ensure a successful project."

Alan Wade, a second-generation nurseryman and the guiding light behind Prairie Moon Nursery in Winona, Minnesota, is already facing the challenges of meeting this new consumer demand. Wade has altered his initial strategy of producing nearly all his seeds and plants on site and is now relying increasingly on stock from other growers. This, he believes, will allow the staff at Prairie Moon Nursery to maintain its commitment to "taking care of customers" and concentrate on designing the custom seed mixes for which the nursery is well known.

Wade can make this change because of the emergence of one large production facility, Agrecol, Inc., and the development of a network of smaller consignment growers. Agrecol, a subsidiary of W.T. Rogers Company in Madison, Wisconsin, is a well-financed operation that includes two acres of overhead-irrigated, climate-controlled greenhouse space, and more than 500 acres of monoculture-style production plantings. In 1998, Agrecol grew more than three million plants and produced more than 13,000 pounds of viable seed, far outpacing most other nurseries growing prairie plants. Steve Banovetz, Agrecol's operations director, says the goal for 1999 is "to

Sources

The following is a selection of nurseries offering prairie plants. For a more extensive list, send a self-addressed, stamped envelope to Prairie Plant Sources, *The American Gardener*, 7931 East Boulevard Drive, Alexandria, VA 22308.

THE ION EXCHANGE, 1878 Old Mission Drive, Harpers Ferry, IA 52146. (319) 535-7231. www.ionexchange.com. Catalog free.

OAK PRAIRIE FARM, W4642 Highway 33, Pardeeville, WI 53954. (800) 894-3884. www.oakprairiefarm.com.

PRAIRIE MOON NURSERY, Route 3, Box 163, Winona, MN 55987. (507) 452-1362. www.prairiemoonnursery.com. Catalog free.

PRAIRIE NURSERY, P.O. Box 306, Westfield, WI 53964. (800) 476-9453. www.prairienursery.com. Catalog free.

PRAIRIE RESTORATIONS, INC., P.O. Box 327, Princeton, MN 55371. (612) 389-4342. www.prairieresto.com.

PRAIRIE RIDGE NURSERY/CRM ECOSYSTEMS, INC., 9738 Overland Road, Mt. Horeb, WI 53572. (608) 437-5245. Catalog free.

S&S WILDFLOWERS, W4401 Highway 33, Pardeeville, WI 53954. (608) 429-3188. Catalog free.

TAYLOR CREEK NURSERY/APPLIED ECOLOGICAL SERVICES, INC., 17921 Smith Road, P.O. Box 256, Brodhead, WI 53520. (608) 897-8641; www.appliedeco.com.

Resources

ECOLOGICAL RESTORATION. A quarterly journal covering landscape restoration throughout North America, including prairie-related topics such as designing prairie seed mixes and the effects of grazing and burning regimes. Write to 1207 Seminole Highway, Madison, WI 53711.

THE PRAIRIE GARDEN: 70 NATIVE PLANTS YOU CAN GROW IN TOWN OR COUNTRY by Robert and Beatrice Smith, University of Wisconsin Press, Madison, Wisconsin, 1980. \$15.95.

THE PRAIRIE READER. A quarterly newsletter that exclusively covers issues related to prairies. Write to P.O. Box 8227, St. Paul, MN 55108.



Left: At Agrecol, Inc., a wholesale producer of prairie plants and seeds, a potential customer evaluates the plants in one of the company's greenhouses. Below: Using plants from various prairie nurseries, photographer David Cavagnaro created this meadow at his home in Decorah, Iowa.



produce five million plants and 35,000 pounds of seed.” Agrecol, which operates largely as a wholesaler, counts such well-established firms as Prairie Nursery, Prairie Moon Nursery, and Prairie Ridge Nursery among its distributors.

At the other end of the spectrum are smaller growers, many of whom are just starting out and anxiously awaiting their first years of substantial field production. These growers typically have a few acres of land, some kind of agricultural or nursery experience, and are looking to find their niche in the business.

One such nursery is S&S Wildflowers, located near Pardeeville, Wisconsin. Patrick Stollfus, who previously worked for Prairie Nursery, operates the nursery with his wife, Carrie, and his parents, Chuck and Pat Stollfus. They have about 10 acres in production, plus a sizable hoop greenhouse. Stollfus says the nursery sells 60 to 70 percent of its seed to other nurseries, such as Prairie Moon. The remaining seed and some plants are sold to “perennial gardeners who are looking for something different.”

There is some fear among smaller operations—both established and newly formed—that they may be hurt by the emergence of a few large growers, such as Agrecol, who can supply vast quantities of cheap seed. “I am concerned about the impact of price drops on small producers. We need the diversity they bring, both in terms of the species they grow and the local genotypes they propagate,” says Taylor Creek’s Apfelbaum. “However, I am also optimistic that larger producers can work with smaller producers if this becomes the case.”

While admitting that consolidation of production might signal the demise of some small producers, Diboll points out that the reverse could also be true. “It may, in fact, benefit them,” he says, “because they could buy a product cheaper than they could grow it.” Stollfus acknowledges that consignment growers like himself must remain flexible and be ready to grow species in high demand or low supply.

Restorations Fuel Demand

While gardeners and landscape designers have broadened support for prairie plants; the real push for greater production has come from large-scale projects funded by federal and state governments and corporations.

Many corporations in the Midwest have adopted prairies as part of their general landscape scheme. In the mid-1990s, for example, Prairie Moon Nursery supplied

seed for the Sears corporate headquarters outside Chicago, and Prairie Nursery planted seed at Promega Corporation's Biopharmaceutical Technology Center in Madison, Wisconsin. Other restoration-oriented projects on property owned by The Nature Conservancy and smaller land preservation organizations have also had an effect on the quantity and type of plant species now under cultivation.

Perhaps the largest influence outside the home landscaping market, however, has come from federal and state governments. Marie Urice of The Ion Exchange makes this point perfectly clear, "Government activities have a huge impact on our business—representing as much as 50 percent of our sales. Along with Conservation Reserve plantings in Iowa, we have the Living Roadway Trust Fund, which receives and distributes hundreds of thousands of dollars for planting prairies on roadsides. I don't know where we'd be without those programs."

Sentiments like hers echo throughout the industry as more landowners and farmers take advantage of cost-sharing programs that pay them to plant otherwise unused or low-yield agricultural areas in non-crop plants, under the federally funded Conservation Reserve Program (CRP), established in 1986.

While early CRP guidelines for prairie restorations allowed the use of cultivars of prairie plants—which can often be purchased from suppliers outside the Midwest—rather than regionally native genotypes, Prairie Moon's Wade says that in recent years some landowners have shown a willingness to bypass minimal restoration requirements. "We've had many landowners who were buying diverse seed mixes even though the government's cost-sharing portion was a small part of the total cost. Some of these people were farmers, while others were people who had purchased retirement acreage in the country." These typically large plantings have helped fuel the increasing demand for prairie species.

Ecology versus Business

Growth, however, has proven challenging to some of the original social and ecological values that launched the prairie nursery movement. Joyce Powers, who in 1974 started Prairie Ridge Nursery on a 5,000-square-foot garden space at her home near Mt. Horeb, Wisconsin, is not sure prairie nurseries are always headed in the right direction.

Powers recalls the "old days" when she sold her plants and seeds to a small group



of native plant "nuts." Sales to the general public require nurseries to educate people, says Powers, so that they know why, as well as what, they are planting. To that end, she and many other nurseries hold nursery tours and educational events, and many produce catalogs that offer detailed advice about planting and maintaining prairies.

What saddens Powers, however, is the loss of the camaraderie that she experienced in the 1970s and early 1980s, when she would get together with pioneer prairie

nursery owners such as Dot Wade—Alan Wade's mother—of Windrift Nursery in Oregon, Illinois. "There was more sharing then," says Powers. "Today, there is less cooperation and more 'industry secrets'." Di-boll concurs, "The industry is completely different from what it used to be. There are more companies and more competition."

Growth is also making it difficult for some nurseries to maintain the integrity of regional plant genotypes—a cause célèbre for early prairie enthusiasts, such as Wade's parents



Doug and Dot Wade, who were among those who championed preserving regional gene pools for individual plants. Over time, Alan Wade has come to realize the need to compromise to meet the demand from gardeners, who don't always understand or support the ecological rationale for growing locally indigenous plants.

"For home landscapes, if the plant will grow well and be aesthetically pleasing to the customer, we're okay with a species that is slightly misplaced," he says.

Diboll, torn between his roles as an ecologist and a businessman, says, in a moment of angst, "As an ecologist, I don't think having a few, large producers mixing up genotypes is a positive development. But I don't know how you overcome the realities of the business world."

Finding a Balance

The prairie nursery business is maturing, and with maturity come growing pains

both for the industry and for the place of native prairie plants in the American garden. Compromise appears inevitable both in the nursery business and in the garden, but greater choices for customers should continue as nurseries expand to meet the demand.

"There is a lot to be said for reaching out to the home gardener," says Steve Apfelbaum. "You know, sometimes it takes a single, showy flower that people relate to before they will lift their heads, open their eyes, and see the bigger picture. The connections one can draw between a small, symbolic backyard prairie planting and a million acres of tallgrass prairie are not that difficult, if one has vision." ●

Dave Egan is an editor at the University of Wisconsin-Madison Arboretum, site of the world's oldest prairie restoration. He also consults with private and municipal clients about prairie restoration and management.

Above: Nursery proprietor Alan Wade stands among beds of prairie plants at Prairie Moon Nursery in Winona, Minnesota. Opposite, top: In Illinois, the only known wild population of the rare Kankakee mallow (*Iliamna remota*) is on an island in the Kankakee River. Bottom: This prairie on the grounds of the H.B. Fuller Company's headquarters in St. Paul, Minnesota, was designed and planted by Prairie Restorations, Inc, of Princeton, Minnesota.



Ginger Lilies

By Tom Wood

Hardy in milder regions of North America, these tender perennials make great container subjects elsewhere.



The brightly colored inflorescences of ginger lilies (*Hedychium* spp.) are decadently tropical-looking but a number of species and hybrids can be grown with minimal fuss in at least a third of American gardens. North of USDA Zone 7, they must be grown in containers or dug from the ground before frost and stored indoors over winter, but these spectacular plants are worth the effort.

Ginger lilies are herbaceous perennials that grow from stout, fleshy rhizomes. Their lance-shaped leaves emerge alternately on either side of unbranched stems; in most species the foliage is a medium to dark green, sometimes with a waxy sheen. The dramatic terminal inflorescences are composed of dense clusters of tubular flowers gathered in cylindrical racemes shaped somewhat like old-style microphones.

In England, where ginger lilies have been grown since the 1780s, they are commonly known as butterfly gingers or garland flowers. Their botanical name is derived from two Greek words: *hedys*, meaning "sweet," and *chion*, which means "snow." The name refers to the fragrant white ginger lily (*H. coronarium*), the type species by which the genus was originally classified.

The blossoms of *Hedychium coronarium*—a mainstay of Hawaiian leis—exude a fragrance often compared with that of gardenias.



Above: Elongated pink stamens highlight the lacy petals of *H. ellipticum*, which adapts well to gardens in cool, moist maritime regions.

Right: The orange bottlebrush-shaped inflorescences of *H. gardnerianum* 'Tara' create a candelabra effect in this lush garden setting.



Part of the ginger family (Zingiberaceae), the genus consists of some 65 species, most of which are native to the southern Himalayas and associated mountain ranges that extend into China, Burma, and Thailand. These subtropical species grow in cool, moist highlands up to 10,000 feet above sea level. A tropical subset of the genus inhabits the Malay Peninsula, Sumatra, Java, Borneo, and the Philippines. These epiphytic species grow on trees and rocks, obtaining nutrients through aerial roots.

The attractions of the ginger lilies for gardeners in USDA Zones 7 to 11 are many. Foremost are the colorful flowers, which come in pure white and a dazzling array of pinks, reds, oranges, and yellows as well. Breeders have also developed many new bicolored hybrids.

The flowers of some ginger lilies are also very fragrant, particularly in the late afternoon and evening. The scents vary from the rich, gardenialike fragrance of *H. coronarium* to scents reminiscent of citrus, clove, and even coconut.

Having bright flowers and fragrance means ginger lilies attract a variety of polli-

nators. The prominent and often colorful stamens that protrude from most ginger lily flowers are specially adapted for pollination by butterflies and moths, which pick up pollen on their wings as they hover over flowers to sip nectar.

On larger-flowered ginger lilies, two to four flowers open at a time, but as many as 50 can open at once on smaller-flowered species. Each flower usually lasts for just one day, but inflorescences can remain in bloom for three or four weeks. The blooming period for most ginger lilies is from the end of June through September or early October in the South. In fall, pollinated flowers develop into bright orange capsulelike fruits filled with red seeds.

While most ginger lilies grow best in tropical and subtropical climates, they are surprisingly adaptable. For horticultural purposes, they can be divided into three general groups based on the climates to which they are best suited. Those native to high mountain regions do best in moist, temperate, maritime regions such as southern England and parts of the Pacific Northwest. Species native to lower altitudes are

better suited to areas with hot summers, such as the southeastern United States. The epiphytic ginger lilies found in tropical regions of Southeast Asia are suitable only for greenhouses and humid, frost-free areas such as southern Florida.

Mountain Species

Ginger lilies native to the high Himalayas are the least heat tolerant, growing best in AHS Heat Zones 8 to 4. They are all fairly short—usually topping out under three feet—thriving in cool, moist maritime climates such as that in the Northwest. They flower abundantly in midsummer and go dormant before frost in the fall. Most of the species featured here have white lips and pink stamens and are deliciously fragrant.

The one exception to this color scheme is *H. densiflorum*, which has a dense spike of small, orange flowers. There are several cultivars of this graceful, short plant. 'Assam Orange', which originated from northeastern India, is probably the most cold-hardy ginger lily. 'Stephen', has much larger, light orange flowers.

H. acuminatum is a larger plant with



Portable Attractions for the Garden

Ginger lilies are striking container subjects and, for the most part, adapt readily to confinement. A few seem to take to pot culture particularly well, especially lower growing varieties such as *H. densiflorum*, *H. gracile*, *H. villosum* subsp. *tenuiflorum*, *H. 'Golden Glow'*, *H. 'Luna Moth'*, and *H. 'Tropic Bird'*. Plants grown in containers should be divided and repotted at least every two years.



'Luna Moth' is ideal for containers.

All ginger lilies require plenty of light to bloom well, so they should be kept on a sunny patio or deck; indoors they require a greenhouse or south-facing sunroom.

Varieties suited to the Southeast or the Pacific Northwest (see chart, page 45) should be started indoors in March. In a 10-inch pot, plant a large, healthy rhizome one inch deep in a mixture of equal parts organic matter, coarse sand, and perlite.

Once nighttime temperatures stay above 50 degrees Fahrenheit, the pot can be

moved outdoors. Keep the soil consistently moist and fertilize biweekly with a balanced fertilizer throughout the growing season. In fall, the varieties suited to the Northwest will go dormant; those suited to the Southeast will stay green unless exposed to frost. North of USDA Zone 7, ginger lilies should be stored over winter in a dry, cool, frost-free place such as a garage or basement.

Epiphytic ginger lilies can be grown in shallow pots or in large hanging baskets. Since their rhizomes don't store well, these species should be started from fresh bare-root divisions. The growing medium should be a mixture of medium pine bark, coarse sand, and peat moss. These tropical ginger lilies will grow and flower through the winter if given enough light and placed where temperatures remain above 50 degrees.

—T. W.

broad leaves and a lax inflorescence sporting a few large flowers at a time. The two-inch-long white lip broadens out from where it joins the five other spiderlike parts of the flower and has a V-shaped notch at its end.

Fragrant *H. yunnanense* is found around Kunming, China, where it flowers all at once in late June with a cylindrical spike of many white flowers with narrow, recurved white lips and pink stamens.

Perhaps the crowning beauty of the mountain ginger lilies is *H. ellipticum*, which has six-inch-wide oval leaves on a four-foot stem. The inflorescence forms an inverted conical diadem of up to 40 ascending white flowers highlighted by a halo of three-inch pink stamens. The flowers turn cream-yellow in their second day and droop beneath new blossoms like a skirt.

Heat-Loving Ginger Lilies

The next group of ginger lilies come from lower altitudes and are generally larger—some growing up to 10 feet tall. These flourish in the heat of summer in the southeastern states (Zones 7–10; AHS Zones 11–7) and will also grow well in frost-free

subtropical and tropical regions, such as southern California.

Arguably the best-known ginger lily, *H. coronarium*—sometimes called garland flower or white ginger—is the mainstay of the Hawaiian lei-making industry because of its gardenialike fragrance. A five-foot-tall plant, it produces compact cones of up to six pure white flowers. The two-inch-wide flowers, which resemble orchids, open in late summer.

Two closely related ginger lilies—sometimes listed as subspecies of *H. coronarium*—are *H. flavescens* and *H. maximum*. The former has lemon-yellow flowers with a narrower lip than *H. coronarium* and blooms in early fall; the latter, which grows up to eight feet tall, has flowers similar to *H. flavescens*, but its stamens are tinged pink.

The red or scarlet ginger lily (*H. coccineum*) is linked with a number of closely related taxa. These relatives are sometimes listed as separate species, but most botanists consider them botanical varieties of *H. coccineum*. Plants listed as *H. angustifolium*, *H. aurantiacum*, *H. carneum*, and *H. longifolium* are in this category. All have

flowers with small, funnel-shaped lips at the tips of tubular bracts that range from golden orange to cinnabar-red. The stems bear flowers at three to eight feet tall depending on the variety. Probably the most adaptable cultivar is 'Orange Brush', which has six vertical rows of orange flowers on an upright, three- to four-foot plant.

H. greenii, one of the few ginger lilies suitable for deep shade, has oval leaves that are maroon underneath and a short inflorescence with waxy, deep orange flowers. *H. greenii* needs to be well mulched and watered to bloom.

Another oddity is *H. thyriforme*, which has a very dense head of tiny white-lipped flowers from which project a number of pure white stamens. It has shiny leaves with raised veins and blooms in the fall.

A versatile ginger lily adaptable to garden settings in all three climatic zones described earlier is *H. gardnerianum*, known in Hawaii as Kahili ginger. This plant has brilliantly colored, fragrant inflorescences composed of six vertical rows of bright yellow to orange flowers set off by red stamens; as a bonus, two flower spikes sometimes open at the same

Sources

GLASSHOUSE WORKS, P. O. Box 97, Stewart, OH 45778. (800) 837-2142. www.glasshouseworks.com. Catalog \$2.

OUR KID'S TROPICALS, 17229 Phil C. Peters Road, Winter Garden, FL 34787. (407) 877-6883. www.ourkids.tro@aol.com. Catalog \$2.

PLANTS DELIGHTS NURSERY, 9241 Sauls Road, Raleigh, NC 27603. (919) 772-4794. www.plantdel.com. Catalog 10 stamps or a box of chocolates.

STOKES TROPICALS, P. O. Box 9868, New Iberia, LA 70562-9868. (800) 624-9706. www.stokes.tropicals.com. Catalog \$5.

SOUTHERN PERENNIALS & HERBS, 98 Bridges Road, Tylertown, MS 39667. (601) 684-1769. Online catalog only at www.s-p-h.com.

WAYSIDE GARDENS, 1 Garden Lane, Hodges, SC 29695. (800) 845-1124. www.waysidegardens.com. Catalog free.



One of the hardiest and most adaptable ginger lilies, *H. gardnerianum* grows well in moist temperate regions and in the tropics. Often two inflorescences arise from each bract, doubling the effect of the yellow or orange petals and fiery red stamens.

Epiphytes

The last group of ginger lilies are those that grow in trees or rocks in the tropics, obtaining their nutrients through aerial roots. Few are hardy outdoors north of Zone 8. But, since they are adapted to growing with little or no soil, they grow very well in hanging baskets or shallow pots on a porch or in a greenhouse during the winter.

H. villosum subsp. *tenuiflorum* will creep along a shallow pot, sending up many slender, red-banded stems with narrow leaves and red bracts that support fragile white flowers with a most delicious fragrance. It flowers at any time of the year.

H. hasseltii, native to Java, features large flowers with four white, lance-shaped, flower parts and a short, pink stamen suspended above the tight spike on a six-inch tube. This spring-, summer-, and fall-bloomer has a spicy, clovelike fragrance.

Within a few years a host of tropical ginger lily cultivars will be marketed as winter-blooming house plants, but at the moment only one—'Tropic Bird'—is available. Blooming at 18 inches tall, this cultivar has curved flowers that bloom for five days rather than the usual one. The flowers change color each day from white to cream and, eventually, gold, so that different-colored flowers are open on the same spike. This cultivar flowers in July and again in mid-December.

Culture

Butterfly gingers are relatively easy to grow. Their main requirements are a moist but

well-drained soil with lots of organic matter. Healthy rhizomes should be planted one to two inches deep, a week or two before your area's normal frost-free date in spring. Space the rhizomes two to four feet apart depending on the maximum height of the varieties planted; each rhizome should be aligned horizontally in the planting hole, with the old stem scars upright.

Most ginger lilies flower best in a sunny location where they will get some protection from early afternoon sun in midsummer. With the exception of *H. greenei*, plants grown in deep shade will be leggy and flower sparsely. Because their native habitats are generally quite damp, ginger lilies need consistently moist—but not soggy—soils. They will thrive alongside ponds or streams and will survive periodic flooding, but their crowns will rot if they are immersed for a long period of time.

Ginger lilies also crave rich soils and bloom best if they are fertilized every three to four weeks during the growing season. Adding a rich, organic mulch or top-dressing two or three times a year will reduce the need to fertilize, help retain moisture, and provide some protection to species that are borderline hardy in your region.

After frost kills the stems in fall, wait a few weeks until they naturally detach from the rhizome and can be raked or lifted off. For those who live north of Zone 7, dig up the rhizomes in the fall, wash away dirt, and pack them in sawdust, wood shavings, or vermiculite. Over-winter in a cool, dry place.

Propagation is most easily accomplished

time on one bract. The cultivar 'Tara', considered one of the hardiest ginger lilies, has fiery orange flowers and waxy foliage.

Thanks to the efforts of many breeders—myself included—a lot of exciting new hybrid ginger lilies have been introduced in the last decade. Among the taller cultivars (blooming at five to seven feet), perhaps the most dependable is 'Pink V'—also sold as 'Tropical Passion'—which thrives wherever ginger lilies can be grown and blooms from late June through frost with large spikes of one-inch, cream-colored flowers with dark pink centers. Each bract bears five flowers with a light citrus scent. 'Lemon Sherbet' has a large spike of three-inch-wide, yellow, ruffled-lipped flowers with pink stamens. The most popular tall hybrid is 'Elizabeth', featuring deep raspberry-colored blooms and a heady fragrance.

Among the shorter hybrids, 'Pink Flame' flowers at about four feet tall and has fragrant, three-inch-wide white flowers with a bold, flamelike, deep rose marking in the middle of the lip. 'Luna Moth' is a stout, two-foot plant that has shiny leaves and giant white flowers with a spicy clove-like scent. 'Golden Glow' grows in dense clumps of three-foot stems topped with regular spikes of clear orange-gold flowers.

Selecting Ginger Lilies for Your Garden

Using this chart, you can select appropriate ginger lilies for your garden based on where you live in North America and on factors such as height, flower color, bloom time, and presence or absence of fragrant flowers. For ginger lilies suited to growing in containers, see the sidebar on page 43. USDA Plant Hardiness Zones are listed below. For AHS Heat Zones, see page 61. (Key to abbreviations listed under "Climate" below: NW = Pacific Northwest; SE = Southeast; TR = Tropical)

SPECIES/VARIETY	CLIMATE	ZONE	HEIGHT (FT.)	FLOWER COLORS	BLOOM TIME	FRAGRANCE
<i>Hedychium acuminatum</i>	NW	7-9	4	white and pink	July/Aug.	yes
<i>H. coccineum</i> 'Orange Brush'	SE, TR	7-11	4	orange	July-Sept.	none
<i>H. coronarium</i>	SE, TR	7-11	5	white	July-Sept.	yes
<i>H. densiflorum</i> 'Assam Orange'	NW	7-9	2 1/2	orange	July-Aug.	yes
<i>H. densiflorum</i> 'Stephen'	NW	7-9	2	tan	July-Aug.	yes
<i>H. ellipticum</i>	NW	7-9	4	white and pink	June-July	yes
<i>H. flavescens</i>	SE, TR	7-11	5-6	yellow	Sept.-Nov.	yes
<i>H. gardnerianum</i> 'Kahili'	NW, SE, TR	7-11	4-6	yellow and pink	July-Aug.	yes
<i>H. gardnerianum</i> 'Tara'	NW, SE, TR	7-11	5-7	bright orange	June-Sept.	yes
<i>H. gracile</i>	NW, SE	7-9	3	white and pink	July	yes
<i>H. greenii</i>	SE, TR	8-11	4	orange-red	July-Aug.	none
<i>H. hasseltii</i>	SE, TR	8-11	2 1/2	cream and pink	Apr.-Nov.	yes
<i>H. maximum</i>	SE, TR	8-11	6-8	light yellow and pink	July-Sept.	yes
<i>H. thyriforme</i>	SE, TR	7-11	5	white	Sept.-Oct.	none
<i>H. villosum</i> subsp. <i>tenuiflorum</i>	TR	9-11	3	white and pink	anytime	yes
<i>H. yunnanense</i>	NW, SE	7-9	4	white and pink	June-July	yes
<i>H.</i> 'Carnival'	SE, TR	8-11	4	gold and pink	July-Oct.	yes
'Double Eagle'	SE, TR	7-11	5	copper	July-Sept.	none
'Elizabeth'	SE, TR	7-11	6	raspberry	July-Sept.	yes
'Filigree'	SE, TR	8-11	3	white with gold spot	July-Oct.	yes
'Golden Glow'	SE, TR	8-11	3	orange	July-Nov.	none
'Lemon Sherbet'	SE, TR	7-11	6-7	yellow and pink	July-Oct.	none
'Luna Moth'	SE, TR	8-11	2 1/2	white and pink	June-Oct.	yes
'Pink Flame'	SE, TR	7-11	4	white with rose spot	July-Oct.	yes
'Pink Sparks'	SE, TR	7-11	5-6	light pink	Aug.-Sept.	none
'Pink V'	NW, SE, TR	7-11	5-7	cream with rose spot	July-Dec.	yes
'Tropic Bird'	TR	10-11	2	white turning gold	July-Aug., Dec.	yes

by dividing the rhizomes. This is best done in mid-spring, when the new buds are starting to swell. Remove any old or dead parts of the rhizome and cut it into two- to four-inch sections. Before planting outdoors, store the divisions in a cool, dry place for a few days to allow the cut surfaces to heal.

For those with patience, species ginger lilies can also be propagated by planting seeds one-quarter inch deep in a sterile potting medium. Water well and keep above 65 degrees. All seeds should germinate in three to five weeks. Transfer to four-inch pots when the seedlings have four to six leaves. It usually takes 18 months to two years for a plant to flower from seed.

Ginger lilies are generally pest- and disease-free. One sees an occasional grasshopper or corn earworm. Manually remove

these pests or spray with an insecticidal soap.

In older plantings, the major scourge that may appear is mushroom root rot. This fungal disease first becomes apparent when the top few leaves on a stem turn brown and die prematurely. If the rhizome is cut open, the interior will be brown, with white flecks. If this occurs, cut off all infected parts until there is only crisp, light yellowish rhizome. Dust the ends with sulfur and replant in a new location. Plants that are dug and replanted at least every three years rarely have this problem.

Garden Placement

The key to successful gardening with ginger lilies is to select the varieties that are best suited to your climate and location (see the table, above). You could plant several of the

largest kinds as specimens in the middle of a flower border and plant shorter varieties around them. Alternatively, medium-size and small cultivars can be planted along a house foundation with an eastern exposure. Don't forget to plant a few fragrant kinds under your bedroom window so that you can enjoy them in the evening when their scent is strongest.

Ginger lilies can add a touch of the tropics to your backyard. Now that they come in so many different sizes, and their flowers sport so many colors and scents, and bloom across the seasons, there's no end to the spots they can fill. 🍷

A nursery owner in Archer, Florida, Tom Wood specializes in growing and breeding members of the ginger family.

BIG

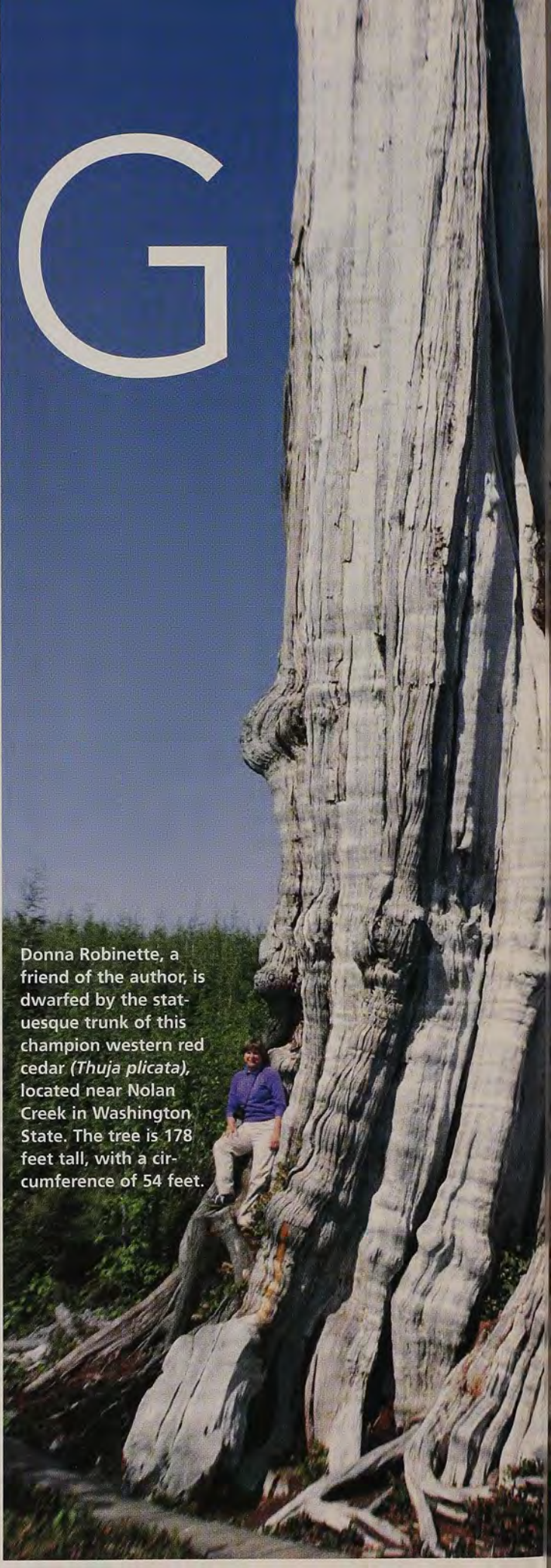
For a few dedicated tree hunters, seeking the big ones is all in a day's job.

In the movie *Butch Cassidy and the Sundance Kid*, the legendary outlaws, portrayed by Robert Redford and Paul Newman, are amazed by the tracking skills and tenacity of the posse that pursues them. Newman's classic line, "Who *are* those guys?" provides comic relief, but many of us who enjoy searching for spectacular trees in our spare time feel much the same sentiment when we hear about the exploits of America's elite tree hunters.

What exactly does a tree hunter do? Well, there are a variety of national, state, and local programs that record, publicize, and try to protect trees possessing one or more special attributes. These trees may be worthy of recognition because of their age or their association with historic events; because of their rarity—for instance, endangered species or trees found growing wild far beyond their presumed natural range; because of their aesthetic qualities—such as the windblown cypress trees at Monterey, California; or for their unmatched height or girth.

Trees that fall into the last category are known as champion trees. In the United States, national champions for hundreds of native tree species are recorded in the *National Register of Big Trees*. American Forests, a non-profit conservation organization based in Washington, D.C., has been publishing the Register since 1940; it is updated every two years. Information on champion trees for individual states is often kept by state registrars.

While the big tree program sponsored by American Forests is restricted to native species growing in the wild, forest ecologist Robert Van Pelt has developed a separate listing of champion trees in Washington State that includes non-natives and ornamental trees. Van Pelt believes it is important to record the potential size limits of non-native species—including those growing in public or private gardens—as well. Showcasing champion ornamental trees can help people avoid planting the right tree in the wrong place, says Van Pelt, and potentially makes every tree an inspiration instead of a nuisance. It also helps

A vertical photograph showing a massive, weathered tree trunk of a western red cedar. The bark is deeply furrowed and greyish. A person in a purple shirt and light-colored pants is sitting on a horizontal branch of the tree to provide a sense of scale. The background shows a clear blue sky and some green foliage at the base of the tree.

Donna Robinette, a friend of the author, is dwarfed by the statuesque trunk of this champion western red cedar (*Thuja plicata*), located near Nolan Creek in Washington State. The tree is 178 feet tall, with a circumference of 54 feet.



TREES

by Guy Sternberg

support the preservation of outstanding landscape trees that are threatened by development.

Van Pelt's listing, published as *Champion Trees of Washington State* by the University of Washington Press (see "Resources," page 49) includes 1,350 individual state or national champion trees representing 869 different taxa.

Size Counts

Most people have seen photographs of the grandest champion of them all: The General Sherman giant sequoia (*Sequoiadendron giganteum*). Growing in California's Sequoia National Park, it is 275 feet tall and 102.6 feet in girth. Its trunk is estimated to weigh some 1,385 tons, based on a computed volume of 52,500 cubic feet. And many of us have also heard about what probably are the oldest living trees, the ancient bristlecone pines (*Pinus aristata*) of Inyo National Forest, California, which have survived for several thousands of years. But there are countless other trees worthy of recognition in their own right.

For example, over the past three decades I have stumbled upon, recognized, and nominated 30 Illinois state big tree champions, and three national champions. That works out to a state champion every year and a national champion every decade, on average.

While all but 12 of the champions I have registered have, over time, been dethroned by larger trees, my efforts have earned me a local reputation as the "Tree Dude." But like the proverbial big fish in a small pond, I am humbled by the accomplishments of some of the greatest tree hunters in the business. These are the men—and at this level of the game they are almost all men—who have "BIGTREE" on their license plates, carry transits and measuring tapes in their cars, and can sniff out a champion-caliber specimen from a mile away.

These tree hunters share a reverence for nature that brings to mind the tree-worshipping druids of Celtic legend. They also have jobs that provide them with nearly constant access to the outdoors, and personalities that drive them to finish any project they embark upon.

Gator Country

Now retired after 37 years as a professor of botany at the University

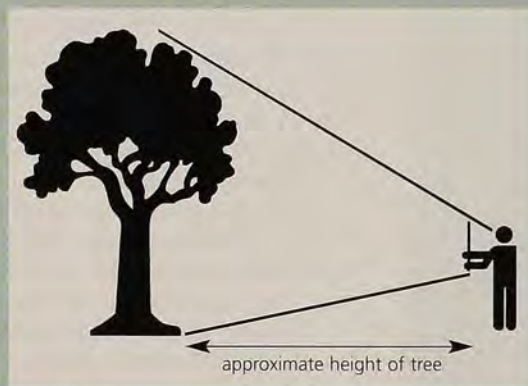
Measuring and Nominating a Big Tree

Anyone can join in the fun of seeking out America's largest trees. If you are interested in pursuing this hobby, here are some tips from American Forests on how to find big trees on your own:

- Research one or more relatively obscure species native to your region and become familiar enough with its general appearance that you can form a mental picture of its habit or foliage. By doing that, your attention will be triggered almost unconsciously when you happen upon one accidentally.
- Check the *National Register of Big Trees* for species that have been champions for a long time. Such trees may have died or lost a limb and thus may be dethroned by a smaller tree.
- Try and find one of the trees for which no champion exists. As of the 1999 edition of the *Register*, some 135 species still had no national champion. Such uncrowned trees include northern bayberry (*Myrica pensylvanica*), smooth dogwood (*Cornus glabrata*), and Biscayne prickly ash (*Zanthoxylum coriaceum*).
- Pay particular attention to short-lived tree species such as willows, cottonwoods, birches, and alders. These trees rarely live longer than 130 years, so their reign as champions is short compared with some other genera.
- Whenever you go out in the woods, take along a tape measure, camera, and notebook in case you come across a tree you think might have championship potential. For tips on how to estimate the height of very tall trees, see below.

To nominate a tree as a champion, you need the following information:

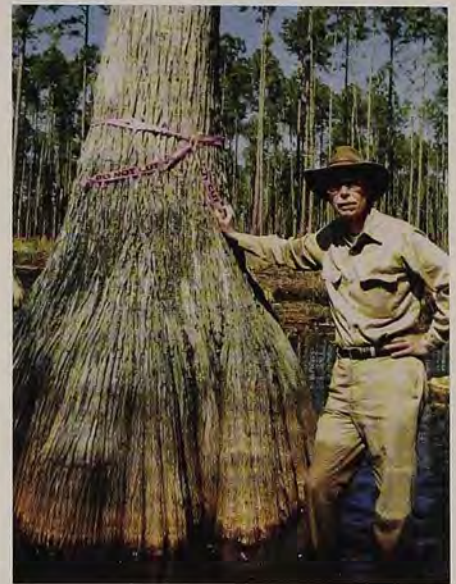
- Full common and botanical name of the tree. Regional tree identification handbooks or taxonomic keys are useful for identification, but you can also ask a local forest service or cooperative Extension office to confirm your tree identity.
- Circumference of the tree at four and a half feet above the ground. If there is a branch at that point, measure the narrowest point below it.
- Vertical height of the tree to the nearest foot. Accurate measurements require professional tools, but a rough estimate of height can be determined by using an old forester's trick, which relies on a straight stick or pole two to four feet long, and a sizable tape measure. Grasp the stick by its base and hold it vertically at arm's length, making sure the length of the stick above your hand is equal to the distance between your hand and your eye. Walk backward away from the tree, staying approximately level with the tree's base (this technique won't work if the tree is at the top or bottom of a hill or depression).



Stop backing up when the stick above your hand appears to be the same length as the tree's height. You should be sighting over your hand to the base of the tree and, without moving anything but your eye, also sighting past the top of the stick to the top of the tree. At the point this alignment occurs, make a mark and measure the distance along the ground to the base of the tree. That will give you a rough estimate of the tree's height.

- Average diameter of the tree's crown in feet.
- Photograph of the tree marked with the date the image was taken.
- Location of the tree.

Send the above information and a description of the tree and your name and address to: *National Register of Big Trees*, P.O. Box 2000, Washington, D.C. 20013.



of Florida in Gainesville, Dan Ward has been interested in biology since his childhood in Indiana. Ward says he began carrying a measuring tape when he was 15, using it to document the biggest trees in Montgomery County, Indiana. He still has the little red notebook in which he recorded those measurements.

But his big-tree hunting activities really started when he moved to Florida, where the subtropical climate supports many fascinating trees not found elsewhere in the United States. Along with a friend, Robert Ing, and many volunteers, he took on the challenge of documenting Florida's many trees. A knowledgeable botanist, Ward has been able to straighten out many of the taxonomic problems that can plague such a program. Some big trees—especially in a state such as Florida that supports so many obscure species—are easily misidentified by landowners or amateur botanists.

Because so many people know about the big tree program, Ward says it has been his "passport" to gain access to private lands so he can measure potential champion trees growing there. "I rely on the good will and sense of pride most landowners feel toward their trees," he says.

Ward and Ing collaborated with the Florida Native Plant Society on the book *Big Trees: The Florida Register* (see "Resources," page 49), which documents about 100 Florida national champions and many more state champions. While many are true giants—such as the 92-foot loblolly bay (*Gordonia lasianthus*) Ward and Robert W. Simons found in the Ocala National Forest in 1963—the champion roughleaf velvetseed (*Guettarda scabra*) is eight feet in height, and three others have a crown spread of less than five feet.



Mountain Man

Ask any knowledgeable woodsman in the Great Smoky Mountains about big trees, and they'll direct you to Will Blozan, the Tree Hunter. This athletic 32-year-old, professional arborist from Black Mountain, North Carolina, can wander in the woods all day without map or compass. He loves being in the forest and studying forest ecology.

Blozan has nominated 32 national champions, many of which he discovered in his favorite stomping grounds, the Great Smoky Mountains National Park. Formerly a biological science technician for the National Park Service, he remains interested in "shedding new light on eastern trees and their characteristics" at every opportunity.

Blozan credits much of his success to his familiarity with forest ecology—knowing where each species grows best and is likely to reach its maximum development. His work with the National Park Service involved mapping old-growth forests, a background that has proven very useful for determining some of the most productive places to hunt big trees. Of course, his physical ability to hike for miles in rugged terrain doesn't hurt, and he always looks for the champions of the small tree species, which others tend to overlook.

Like Ward, Blozan has made some taxonomic corrections for the record. He correctly identified the tree once recognized as the champion red hickory (*Carya*

Tree hunters at work. Opposite page: Knee deep in swamp water, Dan Ward stands next to the national champion pond cypress (*Taxodium ascendens*) in Florida's Goethe State Forest.

Far left: Will Blozan climbs a mighty black cherry (*Prunus serotina*) in the Great Smoky Mountains. Left: Robert Van Pelt gazes up at knotted trunk of the Quinault Lake western red cedar.

ovalis) to be a bitternut hickory (*C. cordiformis*)—then proceeded to make the point moot by nominating new champions for both species. He is a writer, too, with *Stalking the Forest Monarchs: A Guide to Measuring Champion Trees* due to be published next year.

Finding the Biggest of the Big

In contrast with Florida and the Smoky Mountains, there aren't very many native tree species in Washington State. But the ones they have are of the "Omigosh" category. Enter Robert Van Pelt.

Van Pelt, a researcher in forest ecology at the University of Washington in Seattle, grew up in the Midwest but moved to Washington nearly two decades ago. He

Resources

AMERICAN FORESTS. This organization publishes the biannual *National Register of Big Trees*. Contact American Forests, 910 17th Street, N.W., Suite 600, Washington, D.C. 20006; call (202) 955-4500; or visit its Web site at www.amfor.org/frames.shtml?bigtree/bigtree.html.

FAMOUS & HISTORIC TREES. Request information on this program by calling (800) 320-8733 or by visiting the Web site at www.oldtrees.org.

STATE CHAMPION TREES.

Many states maintain records of the largest trees in the state. Check with your department of conservation, department of natural resources, state forestry commission, state university, or state native plant society.

TREE SOCIETIES. These organizations devote their study to particular taxonomic groups and often have helpful information for members. You can visit the Web site of the International Oak Society at www.saintmarys.edu/~rjensen/ios.html.

BIG TREE INTERNET FIELD

TRIP. Take a virtual tour of the biggest, tallest, and oldest trees in the country at www.bio.ilstu.edu/armstrong/bigtreelfieldtrip.htm.

References

BIG TREES: THE FLORIDA REGISTER by Dan Ward, Robert Ing, Florida Native Plant Society, 1997. \$18 plus tax and postage. Write to 10301 Bellwood Avenue, New Port Ritchey, FL 34654.

CHAMPION TREES OF WASHINGTON STATE by Robert Van Pelt, University

of Washington Press, 1996. \$16.95.

FAMOUS TREES OF TEXAS by Texas Forest Service, edited by John A. Haislet, Texas A&M University Press Consortium, 1984. \$10.95.

GIANTS: THE COLOSSAL TREES OF PACIFIC NORTH AMERICA by Audrey Grescoe, photography by Bob Herger, Roberts Rinehart Publishing, Niwot, Colorado, 1997. \$29.95.

MEETINGS WITH REMARKABLE TREES by Thomas Pakenham, Random House, New York, 1998, \$24.95.

Larry Mahan measures the trunk of an eastern cottonwood (*Populus deltoides*) in Macoupin County, Illinois, as his wife, Donna, looks down from her vantage point on the local champion tree. Mahan has measured more than 400 notable trees over the last two years and is documenting his work in a book on the county's biggest trees.



was motivated to pursue raising public appreciation and awareness of special trees by his first sight of a national champion grand fir (*Abies grandis*) near Olympic National Park. The freshly harvested giant was a log, loaded on a huge truck and on its way to market.

In a region where so many trees become so spectacular, they can begin to be taken for granted. Along the Nolan Creek watershed near the logging town of Forks, the tallest of four western red cedars (*Thuja plicata*) considered to be co-champions was discovered on state property while a timber harvest was being marked for sale. That tree was saved, but every inch of the surrounding forest was cut. Worse, one of the tree's major roots was cut so that a boardwalk could be installed around the trunk!

When Van Pelt took over management of the state's big tree program, Washington had a respectable 13 national champions. Now it has more than 50, thanks in large part to Van Pelt's personal efforts. Because he spends so much time in the field, he is difficult to track down.

When I tried to contact him, he was down in redwood country, using laser survey equipment to measure the volume of some huge trees. Van Pelt already has used

such measurements to establish another red cedar near Lake Quinalt as the largest of the four Washington giants in absolute mass.

The men profiled above are just a few of the many dedicated tree lovers who have chalked up dozens of national champion nominations in their lifetimes. Other prominent tree hunters include Frank T. Callahan, owner of an Oregon seed company, who is credited with 38 national champions in the 1999 National Register of Big Trees. The late Paul Thompson helped find and nominate 65 of Michigan's 75 current national champions. And in Virginia, Richard Salzer, along with the team of biology teacher Byron Carmean and Gary Williamson, have nominated 54 of the 62 big trees credited to that state.

Getting Started

While you might not aspire to the exploits of the tree hunters described above, success at a more modest scale is easily within the grasp of anyone willing to learn about trees and spend some time exploring likely places. People like Larry Mahan, for instance.

An elementary school teacher in central Illinois, Mahan seems to have the same kind of tenacity that characterizes all the great tree hunters. He first became interested in trees back in 1947, when he

helped his father dig sassafras roots for tea. But this interest didn't coalesce into a systematic search for big trees until a couple of years ago.

It started in late 1997, when he casually told his friend and former school principal, Lester Cox, about a large and beautiful white oak (*Quercus alba*) growing on his farm. Cox showed him a copy of a list of big trees of Illinois, published by the state forestry division. While driving home that night, Mahan decided to launch a big tree survey of Macoupin County, his home area. He enlisted a small but motivated team of helpers, including Cox, local student Aaron Atwood, and Harry Bloome, a florist whose forays into the countryside delivering flowers gave him the opportunity to become one of Mahan's chief tree spotters.

As Mahan began to find large trees, he published photos and brief accounts in local newspapers. The response was immediate and enthusiastic. Macoupin County landowners began calling to ask if their tree might not be bigger than the one they saw in last week's paper.

In just two years, Mahan has measured more than 400 great trees in Macoupin County while traveling more than 5,000 miles—not counting hiking and canoeing mileage. Several of his trees will become new state champions, and a couple are big enough to challenge current national champions. To inspire others to develop a respect for nature, Mahan plans to compile a book on the big trees of Macoupin County.

The *National Register* recognizes 825 tree species as being native to the United States and eligible for nomination as national champions. Of these, 135 species currently have no national champion, and old champions don't live forever, so the door is wide open for you. In addition, some state listings such as Van Pelt's in Washington record non-native species, and most counties nationwide still await an intensive tree survey such as Mahan conducted in Indiana.

Whether you seek such records to validate your efforts, or simply enjoy sharing a moment of history with a living organism that can dwarf human scales of space and time, hunting trees can be a rewarding, even spiritual experience. 🌳

Guy Sternberg, president of the International Oak Society and co-author of the book Landscaping with Native Trees, researches big, old, and historic trees in his spare time.



Since 1953, the American Horticultural Society Awards Program has recognized individuals and institutions who have made significant contributions to American horticulture. **The Awards Committee is now accepting nominations for 2001.**

Members and friends are invited to nominate deserving candidates. To nominate someone for an AHS award, visit our Web site at www.ahs.org. Or, send us the nominee's name, title, address, telephone number, and achievements along with your own name and information on how you can be reached. For a list of previous award winners or more information on the awards program call (800) 777-7931 ext. 120. Nominations must be received by December 15, 1999.

*You are invited to nominate candidates for the annual
American Horticultural Society
Great American Gardeners Awards*

Award Categories

Liberty Hyde Bailey Award. The Society's highest award. The individual must reside on the North American continent and have made significant contributions in at least three of the following areas of horticultural activity: teaching, research, writing, plant exploration, administration, art, business, and leadership.

Luther Burbank Award. Recognizes extraordinary achievement in the field of plant breeding.

Commercial Award. Given to an individual and/or institution committed to the highest standards of excellence in the field of commercial horticulture.

G. B. Gunlogson Award. Given to an individual for the creative use of new technology in home gardening.

H. Marc Cathey Award. Recognizes an individual who has enriched horticulture through outstanding and notable research.

Horticultural Communication Award. Recognizes effective communication using media and research techniques for the purpose of expanding horticultural awareness.

Horticultural Therapy Award. Recognizes significant contributions to the field of horticultural therapy.

Horticultural Writing Award. Given to a person whose excellence in writing has made a significant contribution to horticulture.

Landscape Design Award. Acknowledges an individual whose work had expanded the awareness of horticulture in landscape architecture.

Local Horticulture Award. Given to an individual or group who has contributed to the improvement of horticulture in the host city for the Society's Annual Meeting.

Meritorious Service Award. Awarded to a member or friend of the Society to recognize outstanding and exemplary service in support of the Society's goals, services, and activities.

Frances Jones Poetker Award. Given for significant contributions to the appreciation of creative floral designs in publications, on the platform, and to the public.

Professional Award. Given to the director of an arboretum or botanical garden whose career achievements represent a significant contribution to horticulture.

Catherine H. Sweeney Award. Given for extraordinary and dedicated efforts in the field of horticulture.

Teaching Award. Recognizes an individual whose ability to share his or her knowledge of horticulture has contributed to a better public understanding of plants and their impact on man.

Urban Beautification Award. Given to an individual and/or an institution for significant contributions to urban horticulture.





book reviews

- 🌱 *biology of flowers*
- 🌱 *garden restoration*
- 🌱 *native landscaping*

THE ROSE'S KISS: A NATURAL HISTORY OF FLOWERS.

Peter Bernhardt. Island Press, Washington, D.C., 1999. 267 pages. 5¾" × 8½". Publisher's price, hardcover: \$24.95. AHS price: \$17.50.

If you missed Botany 101 in college because you thought it would be too dull or technical, here's your chance to make it up. *The Rose's Kiss* makes the study of flowers—and a plant's reproductive organs—both clear and completely enjoyable. Bernhardt cuts through what he calls the "fortress of jargon" perpetuated by the scientific elite to bring readers a thorough yet manageable investigation into the science of flowers.

Each chapter of this entertaining book is like a mini-lab exercise, taking the reader through a step-by-step examination of floral anatomy. A professor of biology at St. Louis University and a research associate at the Missouri Botanical Garden and the Royal Botanic Gardens of Sydney, Australia, Bernhardt—whose speciality is floral biology—eloquently and imaginatively compares complex botanical structures to everyday household items that an average reader can relate to: He cleverly compares flowers to pizzas, chromosomes to frankfurters, pollen grains to bakery buns, and pollen grain walls to Teflon. By the end of the book, you'll be plucking petals, dissecting carpels, counting sepals, and spying on bumblebees in order to understand the form, function, and evolution of plant sexual organs.

Written for nature lovers and gardeners who want to better understand the plants

they grow and admire, this book covers both the ordinary and the exotic. Bernhardt uses familiar examples—such as roses, squashes, and peas—to illustrate a myriad of topics, as well as sun orchids (*Thelymitra* spp.) from southern Australia, ghost flowers (*Mohavea confertiflora*) from Arizona, screw pine (*Pandanus* spp.) from the South Pacific, and guavas (*Eugenia* spp.) from South America. He also tackles complicated topics such as the hormonal and environmental cues for flowering, reproductive strategies, evolution, pollen morphology, genetics, and bud development—all with the ease and grace of an experienced educator and true plant enthusiast.

The Rose's Kiss contains plenty of literary references to plants—particularly roses—to establish the importance of flowers in the annals of human experience. Though the book does not contain bold color photographs of beautiful exotic flowers, it is well illustrated with detailed black-and-white drawings and photographs of feathery stigmas, nectar glands, fused carpels, ichneumon wasps, and fritillary butterflies. Also included are a glossary of flower terms and an extensive index that lists, among other things, all of the botanists, beetles, birds, bees, and bats mentioned in the book. If all of this isn't enough, the author throws in an annotated bibliography to further satisfy your curiosity about the amazing world of flowers.

In the beginning of the book, Bernhardt laments that botany, one of the oldest branches of science, is, unfortunately, in danger of disappearing from classrooms due to its unpopularity with modern college students. Perhaps *The Rose's Kiss* will

inspire a renaissance of interest in this neglected field.

If you have ever stood in your garden on a warm summer evening and wondered why some flowers have only stamens while others have only carpels, or why insects pollinate some flowers and not others, *The Rose's Kiss* is a valuable source of accessible and comprehensible answers.

—Barbara S. Arter

Barbara S. Arter teaches biology and botany at the University of Maine at Augusta.

THE NEW TRADITIONAL GARDEN: A PRACTICAL GUIDE TO CREATING AND RESTORING AUTHENTIC AMERICAN GARDENS FOR HOMES OF ALL AGES.

Michael Weishan. Ballantine Books, New York, 1999. 400 pages. 7½" × 9½". Publisher's price, hardcover: \$35. AHS price: \$24.50.

As this century draws to a close, more gardeners than ever have become interested in discovering their horticultural heritage. The rising demand for information on the preservation, restoration, and rejuvenation of our cultivated landscape makes this book—written by Weishan, a garden designer and editor of the quarterly magazine *Traditional Gardening*—a timely addition to gardening literature.

The book is subtitled *A Practical Guide to Creating and Restoring Authentic American Gardens for Homes of All Ages*, but be forewarned: This is not strictly a how-to guide. The book is not organized by time period—as one might expect from the title—but presents a series of topics based upon design principles. This kind of framework makes the book easy to skim or read in its entirety, but it may cause some frustration for the reader looking specifically, for example, for information on how to design a garden to complement his or her arts-and-crafts-style bungalow. As the author states in the introduction, "This book is not all-inclusive—a single work on such a vast subject could never be."

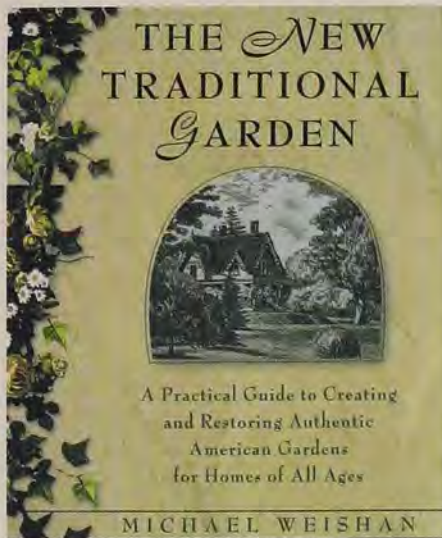
The table of contents gives a concise summary of the information discussed in each chapter, which will help guide the reader. The first chapter of the book gives a very abbreviated history of how gardens evolved in North America, pointing out their European ancestry and how they were adapted to suit conditions in the New World. The emphasis on American 19th-century designers is refreshing. The latter half of the chapter focuses on the on-going

THE ROSE'S KISS



A Natural History of Flowers

Peter Bernhardt



debate of the desirability of authentic restoration versus the creation of gardens in the “style of” a particular period based upon sketchy archaeological remnants—as exemplified by the gardens of modern-day Colonial Williamsburg.

The second chapter of the book, “Unity,” begins addressing the principles of design. At first glance the chapter may seem disjointed—it jumps from history to the first of many plant lists to principles of layout—but after reading it in entirety, it flows in a logical manner. The points in the chapter are supported by numerous illustrations—mostly historic reproductions or modern renderings in the style of the 19th century.

The remaining chapters follow this format, each citing a garden as an example to illustrate the points being made. The detailed illustrations range from fence styles to topiary to designs for paving and edging. The seventh chapter has excellent step-by-step instructions for the layout of Victorian garden beds, while the eighth chapter illustrates the proper way to construct a beehive. The text not only covers ornamental plants, but also some fruits and vegetables.

In general, the information in this book is good for all gardeners, although some may find the reading a bit tedious and the interjections of personal projects not terribly relative. The most useful portions of the book, however, are at the end: a compendium of historic plants (which notes when each plant was introduced to American gardens), a list of historic gardens in the United States, and a list of suppliers of period garden materials. These sections alone make the book a worthy addition to the gardening reference shelf of everyone who owns a historic garden or is interested in garden history.

—David T. Scheid

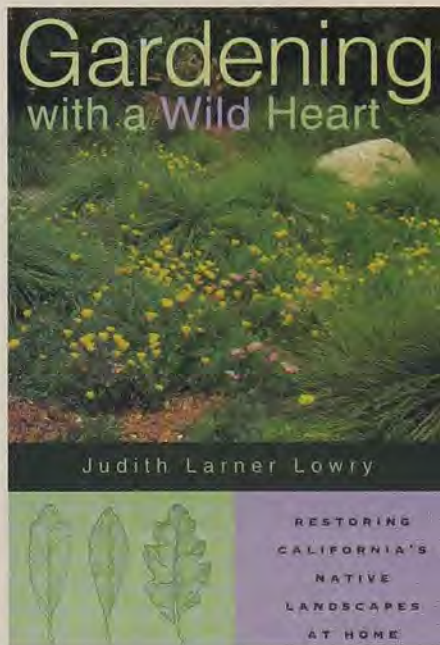
David T. Scheid's interest in historic gardens extends from his own home to the courses he

currently teaches as program head for horticulture at the Northern Virginia Community College in Sterling, Virginia.

GARDENING WITH A WILD HEART: RESTORING CALIFORNIA'S NATIVE LANDSCAPES AT HOME.

Judith Larner Lowry. University of California Press, Berkeley, California, 1999. 6 1/8" x 9 1/4". 280 pages. Publisher's price, hardcover: \$35. AHS price \$24.50.

According to Judith Larner Lowry, home gardeners should do much more than create a natural garden or a habitat for wildlife. A “gentle” (my word) “fanatic” (her word), she advocates returning our yards to the lands they used to be, informing us, for example, that the quality of nectar ingested by a bee or butterfly from a non-native plant may not contain the chemical repellents of a native nectar, which may help protect the insect from its natural predators. At the same time, her book contains no harangues against lawns or pleas to eradicate your existing plantings—just an insightful refer-



ence to them as “tired but reliable.” Recognizing that a home gardener will most likely restore his or her yard in stages, she shows, instead, how to start “tipping the balance” toward local natives. Eventually, as part of the growing process, she hopes your yard will become fully restored.

Gardening With a Wild Heart is by no means a typical “how-to” book, but the author—who has been in the California native plant nursery business for 20 years—does encourage you through her

personal anecdotes to look to your neighborhood flora for inspiration and information. Lowry's examples, while heavily grounded in the flora, fauna, and resources of her own northern California neighborhood, are useful in showing how to start and develop a restoration of your garden no matter where you live. I, for one, was inspired enough after reading the book to scurry to the far corner of a nearby university campus—one of few undisturbed patches of land I know of close by—and also to go to my computer to search online for a used copy of an early book on the flora of my vicinity.

A harmonious gardener, Lowry seems never to fight with her land. She writes of welcoming as a natural sign of health the seedlings that pop up everywhere. Three times foiled by the birds in sowing a wildflower patch, she sows the seeds in small pots instead and later transplants them into the ground. Invasive exotics and weeds are recognized as enemies—she does do some lecturing on this subject—but are handled with persistence, not panic. Without putting down others who might think differently, she reminds us that there are solutions other than herbicides, and that seed-grown species have certain benefits over cultivars.

While general gardening topics such as planning, guidelines for design, planting, and maintenance are addressed, these topics are not addressed in an organized fashion. The heart of the book is a series of essays on California wildflowers and bunchgrasses, as well as ways to collect, propagate, and use them—leaving no doubt as to the author's own continual source of inspiration. Even if the plants she describes are not those in your garden, however, these delightful personal essays shed light on the basic procedures of home restoration gardening. For any wildflower enthusiast—especially a Californian—this part of the book is a real bonus. A detailed index and reading list amplify the book's usefulness.

Gardening with a Wild Heart is not a fast read. The ideas it presents are textured, like the layers of an ecosystem's canopy. The author has discovered that when “we draw certain boundaries around our gardening activities, we cause ourselves to go deeper.” We can simply enjoy reading about the author's personal journey or use her experience as a guide to mapping one of our own. 🍄

—Elizabeth Schwartz

Elizabeth Schwartz is executive director of the Theodore Payne Foundation, a non-profit organization dedicated to preserving the native flora of California.

gardeners' books

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PLANTS AND DESIGN

COTTAGE GARDEN.

Teri Dunn. Friedman Fairfax Publishing, New York, New York, 1999. 72 pages. Publisher's price, paperback: \$12.95. AHS price: \$10.50.

The splendor of the cottage garden is shown in all seasons, from lavish summer borders to austere winter landscapes. Illustrated are signature cottage-style plants, such as fragrant lavender, delicate sweet peas, English wallflowers, and old roses. Details are given on how to define the bounds of a garden and embellish it with suitable fencing, paths, arbors, window boxes, and more.

classic plant combinations

David Stuart



CLASSIC PLANT COMBINATIONS.

David Stuart. Trafalgar Square Publishing, North Pomfret, Vermont, 1999. 160 pages. Publisher's price, hardcover: \$29.95. AHS price: \$21.

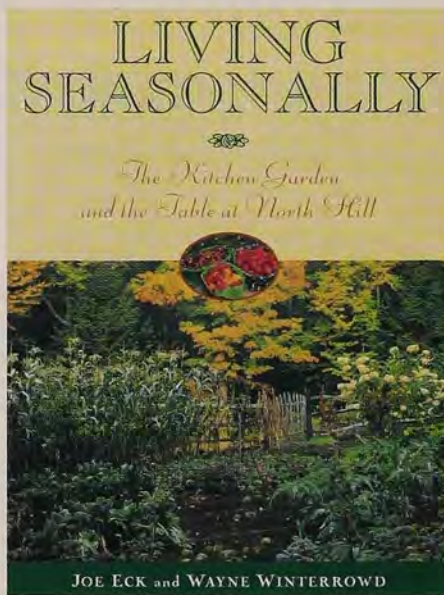
Illustrated with 200 inspirational color

photographs and paintings, the chapters in this book cover various garden styles—such as cottage borders, kitchen gardens, and wildflower meadows—and details plant combinations associated with each. Among the featured combinations are standards such as snowdrops and crocuses—and surprising ones such as purple peas and clematis. Each chapter closes with a profile of a designer who has been influential in defining the style.

SANCTUARY: GARDENING FOR THE SOUL.

Lauri Brunton and Erin Fournier. Friedman Fairfax Publishing, New York, New York, 1999. 144 pages. Publisher's price, hardcover: \$35. AHS price: \$24.50.

Sanctuary gardens provide a refuge from today's fast-paced world. This book captures the essence of a sanctuary garden with full-color photographs and a tapestry of images. It offers many ideas for creating spaces that inspire and renew, while celebrating the various moods of sanctuaries: serene, passionate, or meditative.



LIVING SEASONALLY: THE KITCHEN GARDEN AND THE TABLE AT NORTH HILL.

Joe Eck and Wayne Winterrowd. Henry Holt and Company, Inc., New York, New York, 1999. 197 pages. Publisher's price, hardcover: \$40. AHS price: \$28.

A reflection of Eck and Winterrowd's experiences at their Vermont farm, this book is filled with beautiful color photographs, delicious recipes, and practical advice for anyone interested in living off the land. With a special emphasis on vegetable growing, it concentrates on soil preparation, seed, sowing, pests and diseases, harvesting and preservation, rare vegetables, unusual

varieties and special techniques. Each season is discussed in detail, making this a good gift any time of the year.

Treasured Perennials



GRAHAM STUART THOMAS

TREASURED PERENNIALS.

Graham Stuart Thomas. Sagapress, Inc., Sagaponack, New York, 1999. 180 pages. Publisher's price, hardcover: \$39.95. AHS price: \$28.

Thomas, a world-renowned English horticulturist, details over 200 of his favorite plants, complete with personal commentary and entertaining historical background information. There are even three musical odes to plants, written by the author. Includes more than 180 color photographs.

HERBS

HERBAL REMEDIES: DOZENS OF SAFE, EFFECTIVE TREATMENTS TO GROW AND MAKE.

Kathleen Fisher. Rodale Books, Emmaus, Pennsylvania, 1999. 160 pages. Publisher's price, paperback: \$14.95. AHS price: \$12.

This concise introduction to herbal medicine offers an overview of how to make various herbal formulas—such as infusions, ointments, and tinctures—and describes 32 plants commonly used for treating or preventing a variety of medical conditions. Features reference tables, cautionary sidebars, and 100 line drawings.

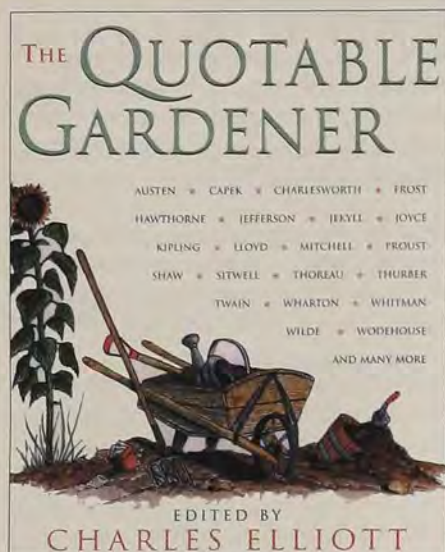
THE HERBAL TEA GARDEN.

Marietta Marshall Marcin. Storey Books, Pownal, Vermont, 1999. 224 pages. Publisher's price, paperback: \$12.95. AHS price: \$12.

Herbal tea lovers will learn how to select, grow, and create their own special brews from 70 herbal tea plants, as well as find out about the history of tea. The book also de-

scribes how to plan and cultivate herb gardens, and how to dry, freeze and store the harvest.

MISCELLANEOUS



THE QUOTABLE GARDENER.

Charles Elliott, editor. *The Lyons Press, New York, New York, 1999. 271 pages. Publisher's price, hardcover: \$20. AHS price: \$14.* Elliott has gathered over 400 quotations on gardening from authors such as Robert Frost, James Joyce, Henry Mitchell, Mark Twain, and others. Included are one-line quotes, stanzas of verse, and full narrative paragraphs on topics such as wisdom, seasons, and enthusiasm. A great gift for the gardeners on your list, who will find this a treasured companion for a long winter night.

THE NEW THREE-YEAR GARDEN JOURNAL.

Louise Carter and Joanne Lawson. *Photography by Allen Rokach. Fulcrum Publishing, Golden, Colorado, 1999. 208 pages. Publisher's price, hardcover: \$29.95. AHS price: \$21.*

This fully revised journal provides space for three years' of writing or designing on bound-in graph paper. There are regional and seasonal recommendations on every aspect of garden management. Includes over 100 color photographs.

A CONTEMPLATION UPON FLOWERS.

Bobby J. Ward. *Timber Press, Portland, Oregon, 1999. 447 pages. Publisher's price, hardcover: \$24.95. AHS price: \$17.50.*

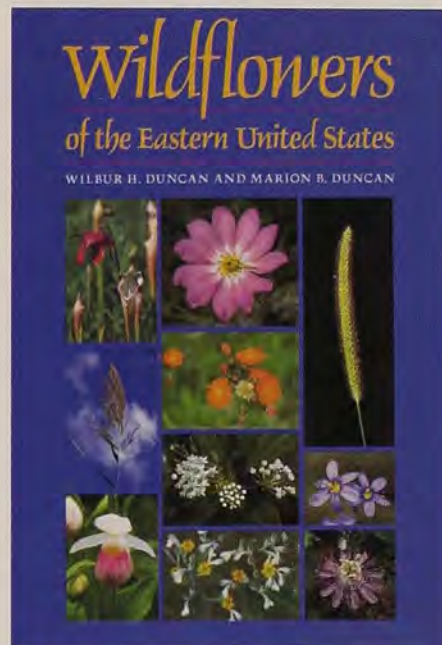
This bedside book contains quotations from poems, novels, plays, and stories about a variety of plants. It also traces the origins of the plants' botanical and common names. Selections fall into four categories: mythological themes, historical significance, religious symbolism, and the use of flowers in poetic associations.

THE BIG BOOK OF BUGS.

Matthew Robertson. *Stewart, Tabori & Chang, New York, New York, 1999. 448 pages. Publisher's price, hardcover: \$29.95. AHS price: \$21.*

This kids' book is full of facts, figures, and stories that answer questions like, "Why do bees make honey?" and "Which bug is the smartest?" A pair of 3-D glasses, included with the book, lets kids view 40 pages of 3-D illustrations, and there are dozens of activities and experiments for kids to try.

GUIDES



WILDFLOWERS OF THE EASTERN UNITED STATES.

Wilbur H. and Marion B. Duncan. *The University of Georgia Press, Athens, Georgia, 1999. 380 pages. Publisher's price, hardcover: \$29.95. AHS price: \$21.*

A guide to more than 1,100 wildflowers, grasses, and grasslike species found throughout the eastern region, organized by plant families within two main sections—dicotyledons and monocotyledons. Over 600 color photographs provide visual aid for plant identification. The book also has a glossary and an illustrated section on distinguishing various plant structures.

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regional happenings

a look at what's happening around the nation

AHS Events

Events sponsored or co-sponsored by AHS are indicated by this **AHS** symbol. An expanded and updated Regional Happenings listing can be viewed on the Society's Web site at www.ahs.org.

MID-ATLANTIC

AHS NOV. 6. *The Native Plant Trend: Good or Bad?* Panel discussion with H. Marc Cathey, Adrian Higgins, and Scot Aker. Friends of River Farm. George Washington's River Farm, Alexandria, Virginia. (800) 777-7931 ext. 110.

NOV. 8. *The New Ecological Garden.* Lecture by Gary Smith. Longwood Gardens, Kennett Square, Pennsylvania. (800) 737-5500.

NOV. 11-13. *Northeast Community Supported Agriculture Conference II.* Organized by Just Food. Tamiment, Pennsylvania. (212) 677-1602.

NOV. 12 & 13. *Topiary: The Art of Green Sculpture.* Lecture and workshop by Joan O'Rourke. Brookside Gardens, Wheaton, Maryland. (301) 962-1451.

NOV. 13-16. *Professional Grounds Management Society Annual Conference*

and Green Industry Expo. Baltimore Convention Center, Baltimore, Maryland. (410) 584-9754.

NOV. 22 & 23. *Arboretum By Moonlight.* Guided hike. U.S. National Arboretum, Washington, D.C. (202) 245-4521.

NOV. 26-JAN. 9. *1999 Winter Flower Show.* Phipps Conservatory and Botanical Gardens, Pittsburgh, Pennsylvania. (412) 622-6915.

DEC. 2. *The Poinsettia: A Rags to Riches Tale.* Lecture by Paul Ecke Jr. U.S. National Arboretum, Washington, D.C. (202) 245-2726.

DEC. 2-4. *Holiday Splendor.* House tour and greens sale. The Pittsburgh Civic Garden Center, Pittsburgh, Pennsylvania. (412) 441-4442.

DEC. 4. *Poinsettia and Craft Demonstration.* The National Capital Area Federation of Garden Clubs. U.S. National Arboretum, Washington, D.C. (202) 245-2726.

DEC. 10-12. *Christmas Open House.* Ladew Topiary Gardens, Monkton, Maryland. (410) 557-9466.

NORTHEAST

NOV. 5-7. *Orchid Show.* Massachusetts Orchid Society. Tower Hill Botanic Garden, Boylston, Massachusetts. (508) 869-6111.

NOV. 6 & 7. *A Harvest of Violets.* Tri-State African violet show and sale. Frelinghuysen Arboretum, Morristown, New Jersey. (973) 326-7600.

NOV. 10. *Composting In The City.* Workshop. Brooklyn Botanic Garden, Brooklyn, New York. (718) 623-7220.

NOV. 26-JAN. 2. *Christmas Holidays at the Newport Mansions.* Preservation Society of Newport County, Newport, Rhode Island. (401) 847-1361.

NOV. 26-JAN. 9. *A Victorian Holiday and Holiday Train Show.* Model train exhibit. New York Botanical Garden, Bronx, New York. (718) 817-8747.

DEC. 4-JAN. 2. *Holly Days at Tower Hill.* Demonstrations, tours, and displays by local garden clubs, florists and designers. Tower Hill Botanic Garden, Boylston,

Massachusetts. (508) 869-6111.

DEC. 8. *Botany for Gardeners.* Lecture by Carol Levine. New York Botanical Garden, Bronx, New York. (718) 817-8747.

NORTH CENTRAL

NOV. 8 & 9. *The Practice of Restoring Native Ecosystems.* Conference. National Arbor Day Foundation. Arbor Day Farm's Lied Conference Center, Nebraska City, Nebraska. (402) 474-5655.

NOV. 20. *The Indiana Native Plant and Wildlife Society's Annual Conference.* Indianapolis Historical Society, Indianapolis, Indiana. (317) 251-7343.

NOV. 25. *Christmas Around the World.* Holiday exhibits and entertainment. Frederik Meijer Gardens, Grand Rapids, Michigan. (616) 957-1580.

DEC. 4 & 5. *Auxiliary Holiday Sale.* Holiday items grown, dried, and hand-crafted by the Arboretum's Auxiliary. Minnesota Landscape Arboretum, Chanhassen, Minnesota. (612) 443-2460.

DEC. 12. *Poinsettia Soiree.* Fundraiser for the Belle Isle Botanical Society. Anna Scripps Whitcomb Conservatory at Belle Isle, Detroit, Michigan. (313) 852-4064.

NORTHWEST

NOV. 13. *Landscaping with Native Shrubs & Trees.* Lecture. Lakewold Gardens, Lakewood, Washington. (253) 589-5604.

NOV. 26-28. *Christmas Open House.* Garland Nursery, Corvallis, Oregon. (541) 753-6601.

DEC. 17. *Luminaria.* Candle-lit garden walk. Yakima Area Arboretum, Yakima, Washington. (509) 248-7337.

SOUTH CENTRAL

NOV. 6 & 7. *Orchid Show.* Botanica: The Wichita Gardens, Wichita, Kansas. (316) 264-0448.

NOV. 8. *Garden in a Bottle.* Terrarium workshop. Missouri Botanical Garden, St. Louis, Missouri. (636) 451-3512.

NOV. 13 & 16. *Deer Neighbors.* Lecture on deer control in garden. Missouri Botanical Garden, St. Louis, Missouri. (636) 451-3512.

NOV. 20. *An Herbal Harvest of Oil Concentrates and Pestos.* Lecture and demonstration. McAshan Herb Gardens at Festival Hill, Round Top, Texas. (409) 249-5283.

DEC. 4. *Carols and Crumpets Herb Festival.* The Tulsa Herb Society. Tulsa Garden Center, Tulsa, Oklahoma. (918) 836-5307.

DEC. 16. *Holiday Arrangement of Fresh Greens and Natural Materials.* Workshop. Missouri Botanical Garden, St. Louis, Missouri. (636) 451-3512.

SOUTHEAST

NOV. 6. *Mount Dora Plant and Garden Fair.* Gilbert Park, Mount Dora, Florida. (352) 357-4116.

NOV. 6 & 7. *Fall Plant Sale & Hibiscus Show.* Mounts Botanical Garden, West Palm Beach, Florida. (561) 233-1749.

NOV. 6 & 7. *Orchidfest.* Show and sale. Atlanta Orchid Society. Atlanta Botanical Garden, Atlanta, Georgia. (404) 876-5859.

NOV. 6 & 7. *Palm Show and Sale.* South

Florida Chapter of the International Palm Society. Fairchild Tropical Gardens, Miami, Florida. (305) 667-1651.

NOV. 8–21. *Mum Festival 1999.* Cypress Gardens, Winter Haven, Florida. (800) 282-2123.

NOV. 13. *Arranging with Dried Flowers: Wreaths, Topiaries and Centerpieces.* Lecture and demonstration. Tryon Palace Historic Sites and Gardens, New Bern, North Carolina. (800) 767-1560.

NOV. 13 & 14. *Bonsai Show.* Riverbanks Zoo and Botanical Garden, Columbia, South Carolina. (803) 779-8717.

NOV. 13 & 14. *Ramble 99.* 59th annual festival of plants, garden accessories, exhibits, and more. Fairchild Tropical Garden, Miami, Florida. (305) 667-1651.

NOV. 13–15. *Fall Plant Fair.* Marie Selby Botanical Gardens, Sarasota, Florida. (941) 366-5731.

NOV. 20. *Horticulture Workshop: Organics.* Mecklenburg Composting Program. Daniel Stowe Botanical Garden, Belmont, North Carolina. (704) 825-4490.

NOV. 20 & 21. *Sarasota–Bradenton Rose Society Show and Sale.* Marie Selby Botanical Gardens, Sarasota, Florida. (941) 366-5731.

NOV. 20 & 21. *13th Annual Garden Festival.* Plant sales, plant clinics, and demonstrations. Heathcote Botanical Gardens, Fort Pierce, Florida. (561) 464-4672.

DEC. 5–MAR. 2000. *Winter Orchids: Splendor Under Glass.* Exhibit. Atlanta Botanical Garden, Atlanta, Georgia. (404) 876-5859.

DEC. 11. *Locating Early 20th Century Plants.* Lecture on the re-creation of an historic garden. Tryon Palace, New Bern, North Carolina. (800) 767-1560.

DEC. 11. *Soils, Preparation, Planting and Management.* Lecture and workshop with Tony Avent. Plant Delights Nursery, Raleigh, North Carolina. (919) 772-4794.

SOUTHWEST

NOV. 12 & 13. *Holiday Gift and Garden Market.* Denver Botanical Gardens, Denver, Colorado. (303) 370-8187.

Prairie House Companions

No animal symbolizes the mythical Old West like the American buffalo, or bison. The teeming herds of these shaggy creatures that once grazed the Great Plains are now history, but thanks to a collaboration among several Smithsonian museums, the National Zoo in Washington, D.C., opened a new American Prairie exhibit this July, giving visitors to the nation's capital a chance to view bison in a naturalistic setting.

Along with a starter herd of two bison calves and a colony of prairie dogs, the 46,000-square-foot exhibit showcases more than 100 plant species native to the American heartland, as well as interpretive displays that tell the prairie's story from both environmental and cultural perspectives. "Grasslands are every bit as endangered in the American West as the rainforest in South America," notes Clinton Fields, executive director of the Friends of the National Zoo. Human activity has destroyed most of the American prairie: Once covering about 40 percent of the United States, only about one percent remains.

Although the bison may be the exhibit's initial draw for visitors, zoo officials are hoping that the exhibit's innovative design will also encourage visitor appreciation of the plants in a prairie ecosystem. The exhibit features a mixture of grasses—"mostly Indian grass and big and little bluestem," says Chris Price, zoo horticulturist. "We don't know which grasses the bison will end up liking the most," she says, "so the plantings may change in the future." Other plants in the ex-



Yellow coneflowers welcome visitors to the prairie exhibit.

hibit include bergamot (*Monarda fistulosa*), yarrow (*Achillea millefolium*), blazing star (*Liatris spicata*), and coneflower (*Ratibida pinnata*). The exhibit's Prairie Plant Discovery Trail enables visitors to learn about the historical medicinal and ceremonial uses of many prairie plants.

The National Zoo, located at 3001 Connecticut Avenue, N.W., in Washington, D.C., is open everyday except Christmas. Admission is free. For more information call (202) 673-4800, or visit the zoo's Web site at www.si.edu/natzoo.

—Margaret T. Baird, Communications Assistant

Formal Debut for Stowe Botanical Garden

Ten years in the making, the Daniel Stowe Botanical Garden in Belmont, North Carolina, marked the completion of its long-awaited, 110-acre first phase with a three-day grand celebration on October 8 through 10. Designed by landscape architect and 2000 AHS award winner Geoffrey L. Rausch, the garden's centerpiece is a 13,500-square-foot Visitor Pavilion surrounded by meadows, woodlands, and formal gardens, including the Four Seasons courtyard, an heirloom Cottage Garden, and the tropical Canal Garden.

Named for the textile magnate and philanthropist who established the original endowment, the privately-operated

garden is expected to cover 450 acres and cost \$150 million when completed—some 20 to 40 years in the future—and is likely to rival world-renowned botanical gardens. Long-range plans call for the construction of conservatories and additional demonstration gardens.

Executive director Mike Bush calls Stowe a “marvelous addition to the Piedmont region” and hopes it will attract at least 100,000 visitors annually. Stowe is located at the North Carolina/South Carolina line, close to two interstate highways. The garden is open year round. Admission is free, but a donation is suggested. For more information call (704) 825-4490 or visit the garden's Web site at www.stowegarden.org.



Stowe's new Visitor Pavilion is flanked by gardens.

New Life for Historic Cemetery Gardens

Most gardeners don't think of graveyards as places to practice their craft, but horticulturist Kevin Kuharic is an exception. On November 18, the Georgia Perennial Plant Society (GPPA) will sponsor Kuharic's lecture at the Atlanta History Center entitled, “Heavenly Gardens: The Resurrection of Rural Garden Cemeteries,” a survey of the history of cemetery gardening.

Kuharic is not only oddly comfortable surrounded by tombs and headstones, he's also managed to carve out a successful graveyard-based career for himself: He and partner Paul Boat co-own Atlanta's Gate City Caretakers, a business that specializes in the restoration and maintenance of historic cemetery gardens. Kuharic traces his fondness for graveyards to his childhood in Indiana, which included visits to the family plot with his grandparents to maintain plantings and religious ornaments. “Often, we had picnics,” he recalls.

After moving to Atlanta in 1988, Kuharic began visiting Oakland, the city's historic municipal cemetery, to combat homesickness. “I felt a sense of belonging, even though my people were not buried there,” he says. He quickly became a tour guide for the cemetery, which was established in 1850 and is listed on the National Register of Historic Places. He was also the first to voluntarily “adopt a plot”—a site where he still loyally gardens today. Taking that idea one step further, Kuharic and Boat opened Gate City Caretakers in 1995, in an effort to re-establish the professional gardening at Oakland that had ended with the stock market crash in 1929.

Kuharic and Boat now maintain about 100 plots and gardens at Oakland and sponsor its Graveyard Gardening Program, as well as consult on work statewide. They are also preparing a large-scale, restorative landscape installation at Oakland. Kuharic is proud of the revival of a “gardening mentality” in the once-neglected cemetery. In place of pavement, he notes, “now there are huge portions sprinkled with gardens.”

For more information on Kuharic's lecture, contact Karen Guzy of GPPA at (770) 955-1303, or e-mail her at guzy@mindspring.com. Gate City's Web site address is gatecitycaretakers.com.

—M.T.B.

NOV. 13 & 14. Southwest Sunset Orchid. Display and sale. Orchid Society of Arizona. Valley Garden Center, Phoenix, Arizona. (480) 496-5762.

NOV. 20. Feeling of Fall Festival. Fall harvest displays and demonstrations. Boyce Thompson Arboretum, Superior, Arizona. (520) 689-2811.

DEC. 3 & 4. Annual Holiday Fair. Albuquerque Garden Center, Albuquerque, New Mexico. (505) 296-6020.

DEC. 3-5. Luminaria Nights. Display. Tucson Botanical Gardens, Tucson, Arizona. (520) 326-9686.

WEST COAST

NOV. 6 & 7. 21st Annual Plant Sale. Rancho Santa Ana Botanic Garden, Claremont, California. (909) 625-8767.

NOV. 11-14. Fall Plant Festival. The Huntington, San Marino, California. (626) 405-2100.

NOV. 12-14. Craftsman Weekend. Lectures and house and garden tours. Pasadena Heritage, Pasadena, California. (626) 441-6333.

NOV. 27-DEC. 4. Christmas at Filoli. Filoli, Woodside, California. (650) 364-8300.

Weekends, DEC. 3-DEC. 19. A Centennial Christmas at Dunsmuir. Dunsmuir Historic Estate, Oakland, California. (510) 615-5555.

DEC. 4 & 5. Candlelight Evenings. Fullerton Arboretum, Fullerton, California. (714) 278-3579.

DEC. 4 & 18. Winter Garden Tours. The Ruth Bancroft Gardens, Walnut Creek, California. (925) 210-9663.

CANADA

NOV. 4-13. The Winter Garden Show at the Royal. The Coliseum at the National Trade Centre, Exhibition Place, Toronto. (416) 393-6400.

NOV. 20 & 21. Greenhouse Growers Association Conference. Ramada Hotel, Saskatoon, Saskatchewan. (306) 966-5586.

DEC. 10-JAN. 2. Festival of Lights. VanDusen Botanical Garden, Vancouver, British Columbia. (604) 878-9274. ♣

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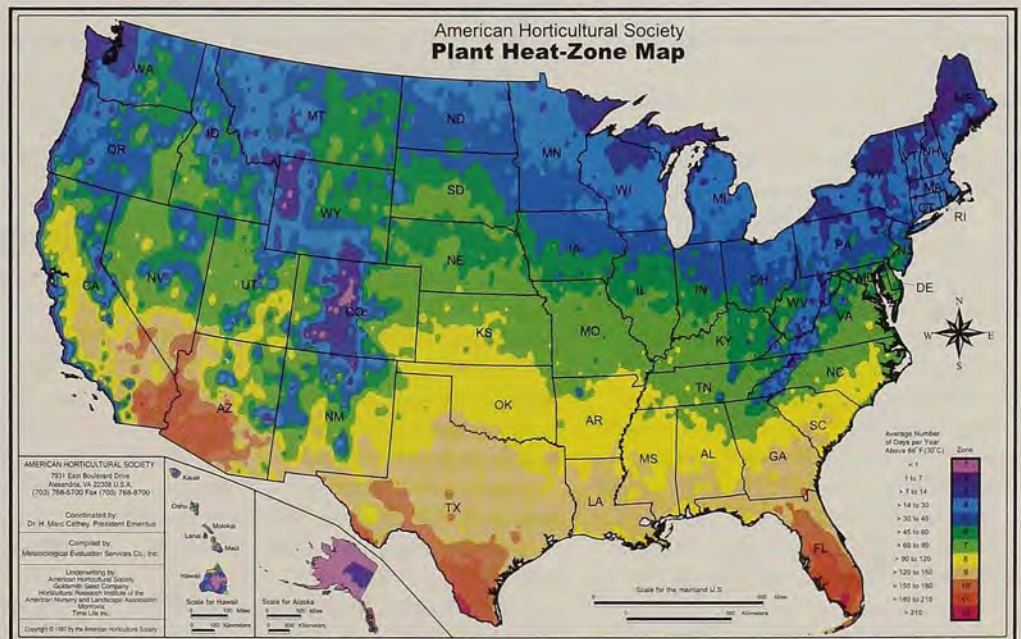
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