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# THE AMERICAN GARDENER

A Publication of the American Horticultural Society

September/October 1999 \$4.95

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spring scent

## SEASONAL SPLENDORS

The appeal of  
mountain ashes

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Sedges in the limelight

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# c o n t e n t s

Volume 78, Number 5

September/October 1999



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by C. Colston Burrell

*These summer- and fall-blooming relatives of spring's windflowers offer color just when the garden needs it.*

### Mountain Ashes

by Lee Reich

*For gardeners in cool regions, mountain ashes add year-round interest—and attract wildlife to boot.*

### Sedges

by Rick Darke

*These sophisticated grass relatives are particularly prized for their foliage, which come in a variety of colors and textures.*

### Fragrant Tulips

by Rand B. Lee

*For dazzling color, these flowering bulbs are indispensable for the spring garden—and many also boast a sweet fragrance.*

### Kansas City Gardens

by Bill Sheldon

*Two up-and-coming public gardens with complementary displays have taken root in this Heartland city.*

*On the cover:* Despite the burden of its name, the 'Prinz Heinrich' cultivar of *Anemone hupehensis* var. *japonica* (sometimes listed as *A. xhybrida* 'Prince Henry') makes a bold statement in the fall garden. Photograph by Alan and Linda Detrick.



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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

During my first years of gardening, I was totally involved in learning to recognize and grow plants that were already in cultivation in the yards of my two families—the Catheys and the McArthurs. At the time, I kept my interest in beautiful colors to myself; in our families, plants were for food, shade, hedging, or cash crops.

Because my father was in the military, we moved 24 times when I was a child, primarily within North and South Carolina. Thus I was exposed to a wide range of geographic regions, from the mountains of Brevard, Linville, Boone, Asheville, and Franklin to the coastline at Virginia Beach, Ocean Drive, Myrtle Beach, and Beaufort. As we moved back and forth, I was surprised to see that even within a 500-mile drive across the Carolinas, distance and elevation caused a radical difference in where plants did well.

One of the biggest surprises was with mountain ash (*Sorbus* spp.). When I saw it growing in the Blue Ridge Mountains near Brevard, this plant had everything going for it—flowers, fruit, fall color, form, and fine foliage. But when I moved back to the flatlands in Davidson, North Carolina, I wondered why mountain ash was not used more in gardens there. Later I learned that the difference of several hundred feet in elevation—which resulted in exposure to higher nighttime temperatures—left mountain ash susceptible to disfiguring diseases such as fire blight.

Members of the mountain ash genus are still unsuited to lowland southern gardens, but many species and selections make good specimen trees in areas that enjoy cool summer nights. In this issue, Lee Reich describes the latest breeding work with mountain ashes, including hybrids created with genera such as *Pyrus*, *Cotoneaster*, and *Aronia*.

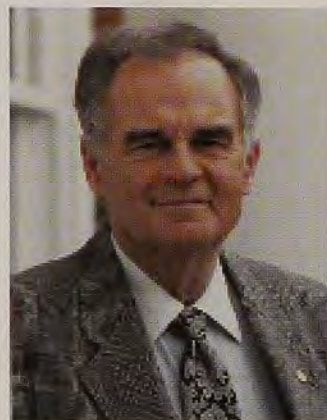
We also celebrate fall with an article on one of the season's unsung perennial heroes—anemones. C. Colston Burrell tells us why these graceful late-summer- and fall-blooming species are as valuable to the fall garden as their vernal counterparts—generally known as windflowers—are to the spring display.

Riding the coattails of the renewed interest in ornamental grasses is another underused plant group—the sedges. Rick Darke offers expert advice on how to integrate these versatile plants into a variety of garden habitats and designs.

Fall is also time to plant bulbs in anticipation of spring. We are sure you will be reaching for your bulb catalogs after reading Rand B. Lee's descriptions of fragrant tulips that will provide double sensory delight in next year's borders.

And, finally, Bill Sheldon relates how the two major botanical gardens in the Kansas City area—Powell Gardens and Overland Park Arboretum and Botanical Garden—have used very different funding sources and philosophies in developing their plant displays.

Here at AHS's River Farm headquarters, our philosophy is to educate and inspire you to become successful and environmentally responsible gardeners. Come and visit us when you have the opportunity. Ever in green,



*H. Marc Cathey*

—H. Marc Cathey, AHS President Emeritus





# members' forum



*Iris versicolor* 'Mysterious Monique'

## 'MYSTERIOUS MONIQUE' APTLY NAMED

The May/June issue of *The American Gardener* arrived in my mailbox the same day that 'Mysterious Monique', which was pictured on the cover of the issue, began blooming for the first time in my garden. 'Mysterious Monique' is as stunning as it is depicted in the photograph taken by Roger Foley. Your note about this flower says that it is a cultivar of *Iris virginica*, "a southern native iris, grows in wetlands from Virginia to Texas." 'Mysterious Monique', however, is actually a cultivar of *Iris versicolor*, which has a much broader range than *I. virginica* in eastern North America—from eastern Canada southwards to Texas, according to some sources. 'Mysterious Monique' was hybridized by Uwe Knoepfadel of Germany and registered with the American Iris Society in 1986 as a cultivar of *I. versicolor*.

I purchased my plant from Joe Pye Weed's Garden in Massachusetts and 'Mysterious Monique' has done very well through our extremely cold Nebraska winters and hot summers.

Gary White  
Lincoln, Nebraska

Editor's note: *Thanks for your letter and for setting the record straight on 'Mysterious Monique'. We also received a letter from the owner of the garden in which the photograph was taken. Apparently when our photographer visited the garden in 1997, the label identifying 'Myterious Monique' linked it to the wrong species. Although the garden owner recognized the error soon after, some of the slides taken by Roger Foley carried forth the mistaken identity.*

As Mr. White noted in his letter, it's important to point out that since 'Mysterious Monique' is derived from *I. versicolor*, it is therefore much hardier than a cultivar of *I. virginica* would be and is suitable for gardens in USDA Zones 3 to 8 and AHS Zones 9 to 1.

Joe Pye Weed's Garden, where Mr. White purchased 'Mysterious Monique', is at 337 Acton Street, Carlisle, MA 01741. Its catalog is available for \$2.

## IRIS SOURCES

In your list of "Sources" for your article "Indulge in Native Irises" by C. Colston Burrell (May/June 1999) you overlooked a good source for irises—Iris City Gardens in Tennessee. They offer *Iris cristata*, *I. foetidissima*, *I. setosa*, *I. versicolor*, and *I. virginica*, as well as a good selection of Japanese irises, water garden irises, and Siberian and bearded irises—some of which are antique varieties.

I enjoyed the article, however, and I look forward to trying some of the mentioned varieties in my own garden.

Christine Uellner  
Salem, Massachusetts

Editor's note: *Iris City Gardens is at 7675 Younger Creek Road, Primm Springs, TN 38476. Call (800) 934-4747 (IRIS) for its free catalog. Its Web site is www.iriscitygardens.com.*

## HELLEBORES REVISITED

The article on hellebores in the January/February issue of *The American Gardener* and the two readers' comments in following issues brought back memories

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and several questions. The simpler question regards *Helleborus orientalis*. This plant is a vigorous grower here in Pennsylvania and self sows, but the flower colors leave much to be desired. I visited George Slate and his garden near Ithaca, New York, many years ago and saw hundreds of seedlings. There was a good white or two, and perhaps a fairly clear pink, but the rest were muddy greenish purple—the same as the seedlings here. The British have been breeding *H. orientalis* and photographs of good-colored flowers have appeared in publications of rock garden societies. Are these better-colored flower forms available commercially?

My other question regards Christmas rose (*H. niger*). This plant grows here and occasionally a self-sown seedling appears, but it produces few flowers, which appear in early March and are often damaged by inclement weather. As a small boy nearly 70 years ago, I remember visiting a garden in Wilmette, Illinois, in late November. There was a row of Christmas roses in full flower. Each plant had a dozen or more flowers held above the foliage. It was a dramatic sight. Are there forms of *H. niger* that flower in the fall rather than early spring? Also, what are the experiences of other gardeners in regard to freedom of flowering and general showiness of this species when in flower? The letter from Carleen Jones hints that *H. niger* has problems.

Norman C. Deno  
State College, Pennsylvania

Editor's note: Before we offer a response to Mr. Deno's letter, we'd like to hear about the experiences of other members who are growing these hellebores.

## ORCHIDS AND ERRORS

I refer to page 56 of the May/June issue of *The American Gardener*, where a brief review of *The Orchid Thief* by Susan Orlean appears. This is the first time I have seen specific mention of Ms. Orlean's unfortunate contention that her facts were checked

by the American Orchid Society (AOS).

While some of the book was fact-checked by me, and other facts were gathered here at AOS, I want to make clear that the many egregious errors of botanical fact that appear in this book were not "passed on" by the AOS as true. The AOS did not fact-check the book in its entirety and in no way endorses or stands behind its assertions as accurate in any way.

Ned Nash

Director of Education & Conservation  
American Orchid Society  
West Palm Beach, Florida

Editor's note: We attempted several times to contact the book's publisher for clarification on this matter, but we have not received a response.

## HARDLY A HAWTHORN

Congratulations on another splendid issue of *The American Gardener* (July/August). The color illustrations are of the highest quality.

I particularly enjoyed the article on Acadia National Park, one of my favorite spots. One correction, however: The plant on page 42 described as a "natural hybrid hawthorn" looks to me more like the American cranberry bush (*Viburnum trilobum*). At any rate, I'm sure it isn't a hawthorn.

William Flemer III  
Princeton Nurseries  
Allentown, New Jersey

The gracefully written article about Acadia National Park brought back fond memories—in particular, the hundreds of water lobelia plants (*L. dortmanna*) growing submerged in one of the ponds. The basal rosettes were easily seen on the sandy bottom while the pale blue flowering stalks waved above the surface.

Please note that the photograph of the "hawthorns" on page 42 depicts a viburnum—possibly *Viburnum trilobum*. Also, black crowberry is not a perennial; it is a dwarf evergreen shrub.

Nickolas Nickon  
Branford, Connecticut

Editor's note: Thanks for pointing out this error. Several other sharp-eyed readers also wrote to inform us that our "hawthorn" is actually the native American cranberry bush (*Viburnum trilobum*). Our fact checkers did question the identity of the plant when we were preparing this article, but we were assured by a National Park Service botanist at Acadia that it was a naturally occurring hybrid hawthorn. Obviously we should have sought a second opinion.

## 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, or you can e-mail us at editor@ahs.org. Letters we print may be edited for length and clarity.





# news from ahs

## WELCOME WILD GARDENERS

We want to extend a hearty welcome to all the readers of *Wild Garden* magazine, which unfortunately ceased publication earlier this year. Through an arrangement with the publishers of *Wild Garden*, former subscribers to that magazine have automatically become members of the American Horticultural Society. They will now receive *The American Gardener* and be eligible for all the other benefits of AHS membership.

Because the American Horticultural Society and the publishers of *Wild Garden* magazine share a concern for issues such as environmentally sound gardening practices, attracting beneficial wildlife to the garden, getting children involved in gardening, and plant conservation, we know former *Wild Garden* readers will find membership in the Society a fulfilling experience. We look forward to the new insights and energy these dedicated gardeners will bring to AHS publications and programs.

## PLANT A ROW UPDATE

Back in May, staff and volunteers of the American Horticultural Society gathered to plant vegetables in the Plant A Row For the Hungry garden at our River Farm headquarters in Alexandria, Virginia. The Plant A Row (PAR) campaign was initiated by the Garden Writers Association of America (GWAA) in 1995 to encourage gardeners to grow extra fruit and vegetables to be donated to community organizations that feed the hungry.

As we went to press on this issue, the tomatoes, peppers, beans, and other vegetables planted at River Farm were beginning to be harvested. AHS has arranged to donate all produce grown in the garden to a local soup kitchen. We urge you to join in this worthy cause and plant an extra row of your own this fall or next spring. If you are already involved in the PAR campaign, we'd like to hear about it.

PAR networks are springing up in cities and neighborhoods across North America, and a stepped-up campaign of public

## 1999 Boston Conference Wrap-Up

AHS members who attended this year's conference in Boston have a new perspective on that venerable city, thanks to tours of an array of public and private gardens and educational sessions hosted by prominent horticulturists, landscape architects, and garden communicators. With the help of a host of volunteers, including members of the Garden Club of America, the National Council of State Garden Clubs, and the Garden Club Federation of Massachusetts, Inc., the four-day conference received rave reviews from all participants.



### Community Gardens

In contrast to the lack of support New York City's community gardens have received from city officials, Boston's community gardens are thriving under the tenure of Boston Mayor Thomas M. Menino, a long-time supporter of urban gardens. AHS conference attendees got to see a shining example of a successful urban garden when they toured the Richard D. Parker Memorial Victory Gardens in the Fenway.

Established during World War II to provide supplemental food for city residents, the Parker gardens—which consist of some 350 plots—were among the few community gardens that survived after the war. AHS members were briefed on the gardens' history by Rosemary Herbert, a reporter for the *Boston Herald* who is chronicling the experience of tending a plot in the garden in her column, "City Digs." "You'll see every kind of gardening here, from very accomplished ornamental plantings to subsistence vegetable gardens," says Herbert. Tour participants also met 75-year-old Jimmy Papalambros, voted Parker's gardener of the year.



Above, Boston's Richard D. Parker Memorial Gardens. Left, AHS member Marie Wright receives honors during AHS's annual conference.

### Member Honored

Many AHS members are regular attendees at AHS meetings and symposia, but at this year's conference long-time member Marie Wright celebrated her 17th annual meeting. For her long-standing support of AHS programs, the AHS Board of Directors made Wright, who lives in Norfolk, Virginia, an honorary member of the AHS President's Council. We look forward to seeing Marie again next year in Houston (March 16 to 18) for "A Celebration of Great American Gardeners."



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**AHS staff members and volunteers plant the PAR garden at River Farm.**

awareness has been launched with the financial support of the Scotts Company of Marysville, Ohio. For more information on how to start a Plant A Row program in your community, visit the GWAA Web site at [www.gwaa.org](http://www.gwaa.org).

### STAY TUNED

This fall, two episodes of public television's popular gardening series, "At Garden's Gate," will feature the horticultural expertise of two well-known members of the AHS family. In one episode, AHS President Emeritus H. Marc Cathey demonstrates how the design of an early American

## Contribute to AHS at Work

You can now contribute to AHS's national educational programs by assigning a portion of your United Way or Combined Federal Campaign donations. To contribute through the United Way, designate your donation to number 9104. Our designated CFC number is 2961.

## AHS Celebration in Houston

Mark your calendar now for next year's "A Celebration of Great American Gardeners," to be held March 16 to 18 in historic Houston, Texas. This three-day event will bring together AHS Board of Directors, members of the AHS President's Council, and AHS members worldwide to honor the recipients of the AHS awards for 2000. Exclusive tours of Houston's best public and private gardens are also scheduled. Registration brochures will be mailed soon; further details are available online at [www.ahs.org](http://www.ahs.org).

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kitchen garden can be reproduced in today's gardens. And William E. Barrick, the immediate past chairman of the AHS Board of Directors and executive director of Callaway Gardens in Pine Mountain, Georgia, joins the show's host, Joe Freeman, in an episode that focuses on plants appropriate for use in shade gardens.

According to the show's producers, WEDU television station in Tampa, Florida, both episodes will air sometime this fall. Because schedules for individual public



AHS President Emeritus H. Marc Cathey with TV personality Joe Freeman, host of "At Garden's Gate," on location.

television outlets differ around the country, keep an eye out for listings of "At Garden's Gate" in your local programming guide.

### GETTING BUGGY

This past May, AHS joined other educational organizations participating in the second annual Bugfest, hosted by the Smithsonian Institution. Held on the Mall in Washington, D.C., this festival is designed to acquaint people with the amazing world of insects and provide an opportunity for visitors to get up close with these creatures. Throughout the daylong event, thousands of visitors strolled through the exhibits and booths and engaged in activities such as racing cockroaches and holding giant millipedes.

At the AHS booth, staff and volunteers answered a wide range of questions about the role of insects in gardening and handed out information on topics such as butterfly gardening and integrated pest management. AHS horticultural intern Alison Frane demonstrated the principles of vermicomposting—how worms can be used to convert vegetable food waste into compost—attracting a steady stream of children eager to look at the wriggling inhabitants of her wormbox. 🐛

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# focus september/october updated rooftops

*In the United States, rooftop gardening often brings to mind vegetables growing in rows high atop inner-city apartment buildings—or perhaps an elegant penthouse retreat with shade trees and outdoor furniture. While these pockets of greenery have long provided urban dwellers with respite from the hustle and bustle of city life, the significant environmental benefits of rooftop gardening are also becoming recognized, thanks in part to European examples that are making their way to America.*



## traditional rooftops

by Tonda Phalen

In an urban setting, where property is at a premium, rooftops are often the only available spaces for gardening. The special challenge of this type of gardening is maximizing the feel of the great outdoors in an often very limited allotment of space.

New York City is especially rich with examples of creative rooftop gardening. The Horticultural Society of New York hosts an-

nual tours of a number of the city's rooftop gardens, which display amazing diversity. Some are very formal, with closely cropped shrubs and demure flower displays. Others take on a wild, cottage-garden look with brightly colored masses of perennials. One garden featured in a recent tour has the makings of an orchard, complete with peaches, apples, cherries, figs, and kiwis.

Another popular stop on the tour is an 18th-floor penthouse apartment on New York's Upper East Side. The views of historic Gracie Mansion—home to New York City's mayors since 1942—and the East River from this garden made it worthy of inclusion in the recent book, *Gardens in the City: New York in Bloom* (see "Resources" on page 14).

Once the home of American songwriter Irving Berlin, this spacious rooftop retreat—which includes two terraces—is now enjoyed by AHS members Edith and Hamilton Kean. Edith is a professional landscape designer for GreenThumb, a non-profit group that oversees New York City's community gardening program. Working with three mature plants inherited with the garden—black pine (*Pinus nigra*), river birch (*Betula nigra*), and Siberian pea (*Caragana arborescens*)—the Keans and their horticulturist, Donald

**Edith and Hamilton Kean's garden in New York City typifies a traditional use of rooftops as recreational space.**



Henley, have created a paradise on the shady northeastern side of the building. The rooftop is lush with plants, including *Stephanandra*, blueberry bushes, *Hydrangea macrophylla* and *H. petiolaris*, limber pine (*Pinus flexilis*), Russian sage (*Perovskia atriplicifolia*), *Fothergilla*, and various grasses, all of which stand up well to rooftop conditions. (See the box on page 12 for other suitable plants.) While the Keans' city garden is larger than many private rooftop gardens, the garden's feeling of lushness and privacy is testament to how the space is used.

A rooftop garden of a very different type can be seen near our nation's capital, where a covered multi-level parking garage was constructed during a \$1 billion renovation project at Reagan National Airport. The parking garage's landscaping was designed by the landscape architecture firm Oehme, Van Sweden & Associates to soften the lines of the garage but not block views of the historic airport from nearby Crystal City.

With over 28,000 plants and trees, the plantings on various levels of the terraced garage provide year-round interest—from the maiden grass (*Miscanthus gracillimus*) silhouetted against the winter sky to the colorful daylilies (*Hemerocallis* spp.) of summer; from the winter-blooming jasmine (*Jasminum nudiflorum*) to the fall foliage of Amur maples (*Acer tataricum* subsp. *ginnala*), Cornelian cherry (*Cornus mas*), and American smoke tree (*Cotinus obovatus*). Use that next layover to take a good look at this cascading work of art.

In western Canada, yet another example of a rooftop garden designed primarily for viewing pleasure graces the Vancouver Public Library in British Columbia. This garden was designed to be viewed from the office and residential towers surrounding it, and few of the library's patrons are aware that the library's rooftop is completely covered with blue fescue (*Festuca ovina* var. *glauca* 'Elijah Blue') and kinnikinnick (*Arctostaphylos uva-ursi*). Landscape designer Cornelia Oberlander incorporated this roof into the building's design for both aesthetic reasons and ease of maintenance. The plants chosen need only a foot's depth of growing medium and require only a raking at winter's end. Automatic irrigation is accomplished with low-intensity spray heads.

While these examples of rooftop gardens are—like most—created primarily for human enjoyment, they also have an important often-overlooked secondary benefit: They provide habitat for wildlife. A variety of plants thriving in urban areas, even on a rooftop, will attract birds, butterflies, and beneficial insects—just as they



**Top:** Vegetation cascades over the edges of a multi-level parking garage at Washington, D.C.'s Reagan National Airport in this unusual terrace garden design by Oehme, Van Sweden & Associates. **Above:** Roofs that have been turned into natural micro-habitats, like this German example, are known as eco-roofs or "extensive" green roofs.

would in the country. With ever-diminishing natural habitats in and around our cities, rooftop gardens can help maintain biodiversity even in the unlikely places.

## eco-roofs

The latest development in the evolution of rooftop gardening takes the habitat concept one step further: the rooftop as a space to grow vegetation primarily to benefit the environment. Referred to variously as eco-roofs or "extensive" green roofs—unlike "intensive" green roofs, which require regular maintenance—this type

of planting is not designed for recreational use. It is usually established on a very thin layer of growing medium and is meant to be virtually maintenance-free. A successfully installed extensive green roof becomes a nearly self-sustaining micro-habitat.

Green roofs are particularly useful in controlling storm water runoff, which is a problem in every urban setting, where housing, concrete, and asphalt have reduced much of the ground's capacity to absorb excess water after a thunderstorm or during a snow melt. Instead of soaking into the ground, large amounts of water overload storm water management systems and carry heavy metals and other pollutants into rivers and streams.



## Plants for Rooftop Gardening

Rooftop gardens are subjected to very harsh conditions—drought, drying winds, baking sun, and extremes in temperature. These factors must be considered when choosing what to grow. Your best bets are plants that are native to prairie or alpine environments. The following plants have proven to be well suited for rooftop gardens; trees and shrubs would not be suitable for eco-roofs.

### PERENNIALS

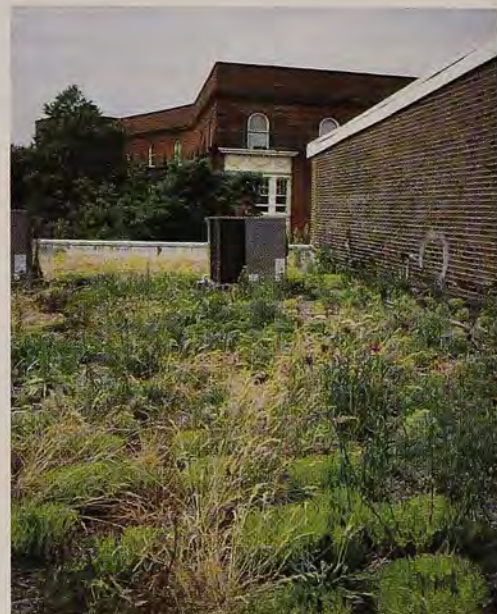
*Achillea* spp. (yarrow)  
*Ajuga reptans* (bugleweed)  
*Andropogon gerardii* (little blue stem)  
*Asclepias tuberosa* (butterfly weed)  
*Avena* spp. (oats)  
*Buchloe dactyloides* (buffalo grass)  
*Carex* spp. (sedges)  
*Dianthus* spp. (pinks)  
*Festuca* spp. (fescues)  
*Fragaria chiloensis* (beach strawberry)  
*Gaillardia grandiflora*  
 (blanket flower)  
*Helianthemum nummularium*  
 (sun rose)  
*Hemerocallis* spp. (daylilies)  
*Lavandula angustifolia* (lavender)  
*Liatris* spp. (blazing stars)  
*Nandina domestica*  
 (heavenly bamboo)  
*Opuntia compressa*  
 (prickly pear cactus)  
*Phlox* spp. (phlox)  
*Portulaca grandiflora* (moss rose)  
*Rudbeckia* spp. (coneflowers)  
*Sedum* spp. (stonecrops)  
*Sempervivum* spp. (hens and chickens)  
*Solidago speciosa* (goldenrod)  
*Stachys byzantina* (lamb's ear)  
*Thymus serpyllum* (dwarf thyme)  
*Vinca minor* (periwinkle)

### TREES AND SHRUBS

*Arctostaphylos uva-ursi* (bearberry)  
*Cotoneaster dammeri* 'Skogholm'  
*Erica* spp. (heathers)  
*Juniperus horizontalis*  
 (creeping juniper)  
*Lonicera sempervirens* (honeysuckle)  
*Myrica pensylvanica* (bayberry)  
*Pinus mugo* (Swiss mountain pine)  
*Pinus nigra* (black pine)  
*Rhus typhina* (staghorn sumac)  
*Sorbus aucuparia*  
 (European mountain ash)



Charlie Miller of Roofscape, Inc., turned a barren and inhospitable Philadelphia rooftop, above, into a wild meadowlike habitat, right, filled with sedum, fescue, dianthus, yarrow, and salvia. Miller designed the meadow to take advantage of peak periods of rainfall runoff.



In Europe, where densely populated cities and strict environmental regulations have forced urban planners to seek innovative solutions to storm water management and pollution, the ecological benefits of green roofs have been recognized for more than two decades now. Scandinavia, for example, is famous for its sod roofs, which provide insulation from brutal winter cold as well as protection from rainstorm runoff. In both Switzerland and Germany, laws now require builders in highly populated areas to design buildings so that the green space taken up by the buildings—known as the “footprint”—is relocated to their roofs; in certain areas owners of existing commercial and residential buildings are required to “green” 20 percent or more of their roofs.

### COMING TO AMERICA

While the European level of interest in eco-roofs is a long way off in the United States and Canada, a few landscape architects and builders are testing the concept on this side of the Atlantic.

Katrin Scholz-Barth, an engineer and sustainable design consultant for the Washington, D.C., architecture firm HOK International, focuses on using green roofs as ecological solutions to storm water management. Scholz-Barth acquired her interest and expertise in the concept in her native Germany. For the past seven years, before her recent move to Washington, she lived in Minnesota, where extreme cold and the freezing and thawing of ice in winter are common problems for homeowners. She believes green roofs are an ideal solution for such conditions because they provide an extra layer of insulation, thus keeping a building cooler in summer

and warmer in winter. Green roofs also mitigate the damaging effects of ice damming on roof structure. “A correctly installed green roof outlives any conventional roof two- to three-fold,” notes Scholz-Barth.

Last year in Minnesota, Scholz-Barth retrofitted a garage roof with a cover of vegetation in Forest Lake; helped install a green roof on a building at Long Lake Conservation Center in Palisade; and installed eco-roofs on two buildings at Rice Creek Gardens, a 16-acre retail nursery in Blaine. Of the last project, Scholz-Barth says, “It was particularly enjoyable because the nursery was eager to experiment with plants not usually used for eco-roofs.”

Eco-roofing wasn't new to Harvey Buchite, vice president of the nursery. He and his business partner Betty Ann Addison had seen them in travels to Europe and were intrigued by the concept. Buchite says Rice Creek Gardens—which focuses on perennials and alpine—is dedicated to testing plants in search of those that will fare well in northerly zones, and the decision to experiment with “the green roofs is just an extension of the testing process.”

The nursery's eco-roofs have been useful in determining the toughness of many plants. With more than 200 different varieties now flourishing on the nursery's rooftops, Buchite says that he was “surprised by some of the plants that did quite well, in particular *Dianthus* and *Aquilegia*.”

Rice Creek's green roofs have been a big hit. “Customers love our roofs! Two customers are now even planning their own eco-roofs,” says Buchite.

“So far,” says Scholz-Barth, “only a few innovative people are gutsy enough to



## Rooftop Retreat for Hospital Therapy

Many studies have documented the general therapeutic effect of gardens on people who spend time in them, and it would seem natural to link gardens to hospitals, where patients are recovering from various traumas. In a 1984 study by Texas A&M environmental psychologist Roger Ulrich, patients in the same hospital, recuperating from the same operation, were studied regarding the restorative effects of views of a landscaped courtyard versus a brick wall. Overall, those patients with a green view recovered faster, required less pain medication, and had fewer negative comments about their hospital stay.

Apparently officials at Harrison Memorial Hospital in Bremerton, Washington, were thinking along these lines—except this garden would be on a rooftop that commanded a beautiful view of Puget Sound. In 1995, during an expansion of its facilities, the hospital installed a 12,000-square-foot rooftop garden for the use of its staff, patients, and visitors. The garden, designed by landscape architect Bob Shrosbree in conjunction with EDAW Inc. achieves its air of tranquility, oddly enough, with a spare use of plants, favoring instead various patterns of rocks and stones.

"The overall metaphor for the garden is a Pacific Northwest beach," says Shrosbree. "The garden doesn't have a lot of plants, but it has a lot of textural elements at play. The stones are designed as abstracted forms of rocks and waves to reflect the shoreline of Puget Sound."

The decision to go with a minimally planted design was also influenced by the roof itself, which could only accommodate a shallow layer of lightweight soil mixture. "Whenever you are planting on a roof, it's a lot different than planting in the ground," says Shrosbree. "We couldn't get in the depth of soil on the roof that we would need to plant a lot of things, and we wanted to avoid built-up decks, so one of the criteria for the plants was that they had to be shallow-rooted. We primarily used grasses, bamboo, and ground covers—such as dwarf pampas grass, oat grass, heather, and flowering strawberry."

For practical reasons, it was equally important that the selected plants can thrive with minimal care. Constant watering, pruning, and other types of garden upkeep weren't feasible with the hospital's limited maintenance staff. "In the long run," says Shrosbree, "the plants should just be able to grow and do their own thing."

Although stone covers a large expanse of the rooftop, Shrosbree points out that the plants ensure that the garden does not look or feel rigid: The bamboos and other ornamental grasses, in particular, sway and move in the breeze.

While Harrison Memorial Hospital can't claim that its rooftop garden has resulted in early discharge of patients, Shrosbree says hospital officials "have spoken highly of the garden as a definite amenity."

—Mary Yee, managing editor



Rocks and stone slabs combine with plantings of grasses and ground covers in a flowing design at Harrison Memorial Hospital's rooftop garden.



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## Sources

The following companies primarily supply materials for traditional and eco-roof gardens to professional contractors and landscape architects, but they can be contacted for information about the roofing systems they offer.

**AMERICAN HYDROTECH, INC.,** 303 E. Ohio Street, Chicago, IL 60611. (800) 877-6125.

[www.hydrotech-usa.com](http://www.hydrotech-usa.com).

**GARLAND COMPANY, INC.,** 3800 East 91st Street, Cleveland, OH 44105. (800) 321-9336.

[www.garlandco.com](http://www.garlandco.com).

**SOPREMA, INC.,** 310 Quadral Drive, Wadsworth, OH 44281. (800) 356-3521. [www.soprema.com](http://www.soprema.com).

## Resources

### GENERAL

**BROOKLYN BOTANIC GARDEN,** (718) 623-7220. Offers classes on rooftop gardening.

**THE CITY AND TOWN GARDENER: A HANDBOOK FOR PLANTING SMALL SPACES AND CONTAINERS** by Linda Yang. Random House, New York, 1995.

**GARDENS IN THE CITY: NEW YORK IN BLOOM** by Mary Jane Pool; photographs by Betsy Pinover Schiff. Abrams, New York, 1999.

**HORTICULTURAL SOCIETY OF NEW YORK,** (212) 757-0915. Offers annual tours of rooftop gardens.

**ROOF GARDENS** by Theodore Osmundson. W.W. Norton & Company, New York, 1999. A technical resource for professionals.

**ROOFTOP GARDEN RESOURCE GROUP,** 14 Sackville Place, Toronto, Ontario M4X 1A4. (416) 923-9034. [www.interlog.com/~rooftop](http://www.interlog.com/~rooftop). The Web site offers general information on the benefits of rooftop gardens and various aspects of installation.

### ECO-ROOFS

For professional eco-roof consultation, design, and installation.

**ROOFSCAPES, INC.,** 7114 McCallum Street, Philadelphia, PA 19119. (215) 247-8784. [www.roofmeadow.com](http://www.roofmeadow.com).

**KATRIN SCHOLZ-BARTH,** Washington, D.C. (202) 544-8453.

grow a meadow on their roofs." However, the current demand for Scholz-Barth's work suggests the trend toward eco-roofs may be catching on in North America. She is working on the North Mississippi Regional Park Project outside of Minneapolis, Minnesota, where plans are underway for eco-roof installation on new construction of a picnic shelter with a 1,500-square-foot roof and a smaller restroom building.

### STORM WATER MANAGEMENT

Charlie Miller, a storm water management engineer who started Roofscapes, Inc. in Philadelphia two years ago, is at the forefront of the eco-roofing business in the United States. Miller and Scholz-Barth have collaborated on several eco-roofing projects and are currently considering a municipal eco-roofing project in Chicago (see page 15). According to Miller, "The interest in green roofs has grown geometrically in the past year," and he can only see it becoming more pertinent in the future.

Miller learned about European green roofing systems while researching a manual for storm water runoff. Like Scholz-Barth, he sees eco-roofing as a practical engineering solution for a variety of urban problems. "The fascinating thing about the system is that it can be used to address the needs of every client and project," says Miller. "In Chicago, for instance, the concern is the heat island effect; in Portland, it's storm water runoff; while in the South, it's water quality and loss of open space."

In Philadelphia last year, Miller installed a rooftop meadow habitat atop the Philadelphia Fencing Academy, owned by Mark and Laura Masters. Mark Masters,

who describes the roof as "a free-growing field," has been very pleased with its new look. He says the plants that Miller initially installed, including yarrow, sedum, and fescue, have now been joined by volunteers that came as wind-blown seeds or were brought in by birds and other animals. "It's neat to see an ecosystem evolve," says Masters, adding that the roof has helped reduce the cost of air conditioning the building. Apparently the rooftop is becoming a local source of inspiration. "Quite a number of city officials come to visit the roof," says Masters.

Meanwhile, in the rainy Pacific Northwest, Tom Liptan—an environmental specialist at the City of Portland Environmental Services whose job includes finding solutions for storm water runoff—is also sold on the concept of eco-roofs. Six years ago, Liptan found out about a Belgian company's grass-covered roof and immediately became curious. "I started thinking: What would happen to water when it hits the roof?" Liptan recalls. "Hypothetically, if you have a rooftop that's like a sponge, you'll reduce the problems of overflow." Three years ago Liptan designed and planted an experimental eco-roof on his home garage to see how it would handle Portland's average annual rainfall of about 40 inches. Says Liptan, "It started working right away."

Liptan's green roof—covered with two to three inches of garden soil and planted primarily in sedums—retains up to 100 percent of the rainfall in the drier summer months. Even in the wet winter months, when runoff occurs, the eco-roof dramatically slows the movement of rainwater—thus helping to control runoff, which in



Oregon resident Tom Liptan installed this eco-roof on his home garage in 1996; three years later, the sedums he planted on it are still thriving.



## A Career Takes Off from One Rooftop Garden

The rooftop of television station WCCO in Minneapolis, Minnesota, helped to launch a horticultural career. In 1993, Master Gardener and meteorologist Rebecca Kolls began reporting from the station's rooftop. When the community embraced her daily weather reports laced with tips on organic gardening, the station commissioned award-winning landscape architect Thomas Oslund to design and install a working rooftop garden. As Kolls puts it, "What was supposed to be a \$10,000 weather set turned into a spectacular \$200,000 functional garden and closed the streets of Minneapolis so the cranes could fortify the rooftop and deliver materials."



Rebecca Kolls shows off the harvest of a summer garden.

Kolls has fond memories of her rooftop oasis. "Up on that roof the stresses of the city were washed away," Kolls says. "It was an incredible experience." Kolls's rooftop garden grew vegetables, measured weather forces, and served as a teaching tool. "To help the plants survive the cold Minnesota winters," she recalls, "we would place bubble wrap around the containers and put them below wind level."

Kolls's extensive news segments on gardening blossomed into a television series and in 1997 launched "Rebecca's Garden," the down-to-earth Midwestern answer to Martha Stewart. Today, the rooftop at WCCO is no longer a working garden; however, the Minnesota Horticultural Society maintains container plantings there. Meanwhile, Kolls—host of television's "Rebecca's Garden," author of *Rebecca's Garden: Four Seasons to Grow On*, namesake of her own gardening magazine and Web site, and contributing lifestyle and gardening personality for ABC's "Good Morning America"—lives by her philosophy that started on that windswept rooftop. In her words, "The garden is an extension of personal expression. Whether you live in the country or a big-city apartment, gardening enriches everyone's life." —T.P.

turn reduces the discharge of rainwater-borne pollutants into rivers and streams.

Liptan's experiment convinced him that eco-roofs could be part of an effective solution to runoff. He and his colleagues were able to persuade city authorities at first to try green roofs on a rooftop at a women's shelter. The city is now designing green rooftops for a nine-story mixed-use building in downtown Portland and a four-story multi-unit residential building in mid-town.

### CLEANER AND COOLER AIR

In conjunction with the United States Environmental Protection Agency, the Chicago Department of Environment recently announced plans for a large eco-rooftop gardening project in downtown Chicago. Improving air quality and addressing the phenomenon known as "urban heat island"—where the heat-absorbing asphalt and tar surfaces of streets and roofs contribute to localized temperature elevations—are the primary reasons behind Chicago's experiment with rooftop gardening. Alexandra Holt, deputy director of the Chicago Department of Environment, also cited energy efficiency—the insulating

qualities of rooftop gardens help to regulate building temperatures—and sound insulation as additional environmental benefits of the program.

The program started this summer with the installation of a rooftop garden atop city hall. Plans for greening other public buildings, such as schools, are in the works. Holt hopes the initiative will continue beyond public buildings with incentives and grant programs to entice commercial and residential property owners to join the efforts.

## green every roof?

If by now the eco-roof concept has caught your fancy, you might be tempted to get a ladder and start greening your own roof. But beware: Adapting the structure of a roof for *any* garden is not a do-it-yourself project. Eco-roofs look especially simple, but Scholz-Barth cautions that people "often grossly underestimate how much engineering has to go into such an endeavor."

An extensive green roof may add as little as 15 pounds or as much as 40 pounds per square foot, depending on the soil mixture and its thickness. Anyone contemplating an eco-roof should consult a structural engineer to determine how much load the roof can bear, then work with an eco-roof designer to determine if the roof can be turned into a green roof. To prevent plants from possible drowning, flat roofs, for example, will require a design that allows drainage.

While many American landscape architects are at least aware of green roofs, there are not many as yet who specialize in them. Scholz-Barth and Miller are among the few experts in this country focusing on eco-roofs (see "Resources" on page 14).

### OTHER CONSIDERATIONS

Because most roofs can only bear a few inches of a lightweight soil mix and because the air above-ground is drier and windier, the conditions on a rooftop garden are often comparable to a mountain environment. In traditional rooftop gardens, this necessitates frequent watering or installing some sort of irrigation system; in eco-roofs regular watering is not needed. However, says Scholz-Barth, "Just like any newly planted area, a green roof needs to be watered during the first couple of months after installation, depending on the natural precipitation." An established eco-roof generally needs only a yearly application of slow-release fertilizer.

Plants selected for eco-roofs must be able to grow in only a thin layer of soil, spread quickly to form a thick ground cover, tolerate poor soil, drought, wind, and intense exposure to sun. Species native to alpine and desert regions are obviously good candidates. In some regions, only plants that can survive drought should be selected. While turf grass for roof cover is popular in Scandinavia, it is not practical in North America except in the moist Pacific Northwest. Scholz-Barth particularly favors the use of sedums and phloxes, which require little care, fare well on most roofs, and flower from early spring to late summer.

With all the ecological benefits that eco-roofs have to offer, it's easy to forget that they can also offer enjoyment. You might not be able to sit on an eco-roof on a summer day and relax with a cool drink as you would in a traditional rooftop garden, but it can still be attractive. 🍷

*Tonda Phalen is a free-lance writer living in Alexandria, Virginia. Mary Yee, managing editor of The American Gardener, contributed to this article.*





# offshoots

## THE STRESS TEST

by Elizabeth Stromme

We quiver. We squeal. We kneel at their altar. "Aren't they the living end?" we exclaim at the fabulousness of plants and flowers. But if our initial admiration is sincere, it is soon peppered with qualifications: "If only they'd grow in my clay soil." "If they were blue, they'd match the bridesmaids' dresses." And so on. The fact is, we seem unable to accept our beloved plants for what they are; instead, we're always itching to improve them—often in attempts that involve torture.

Like this advice from a popular French science magazine circa 1910: Wind your vegetable patch with copper wire, then zap it with electricity to increase your vegetables' girths. In America, in the same decade, some fertilizer companies advocated amending the soil to improve yield. Nothing amiss there—until you learn the magic ingredient was radium. Among the latest improvement methods in the high-tech arsenal? Shooting plants with gene-insertion guns and rubbing them with bacteria.

Given this context, the very latest blip on the radar screen of plant improvement should seem tame: simply subjecting plants to stress—that is, limiting the amount of water and fertilizer that we give them. It's the old "less is more" theory, and I, for one, have bought into it. But the Stress School of Gardening has few adherents as yet, and it seems unlikely we'll ever recruit those who play Mozart to their plants or those who consider plants furnishings for an exterior design. Still, there must be gardeners out there with open minds willing to entertain the possibility that tough love can improve a garden's character.

The idea is not as twisted as it appears. In practice, with the right plants and within important limits, stress can lead to extraordinary payoffs—starting in your orchard, herb garden, and vegetable plots.

### A MATTER OF TASTE

Take the plum tree in my garden, for instance. It hasn't been fertilized or watered in 12 years. Yet every June I'm up to my elbows in scrumptious fruit. If your soil is in fairly good shape, tomatoes, too, can benefit from similar treatment. With little or no high-nitrogen fertilizer applied to the plants, more energy goes into making fruit instead of

foliage. Less fertilizer can also mean less need to water—and more flavorful tomatoes. Likewise, parsley, arugula, and basil grown on a lean regime develop leaves with real texture and twice the taste appeal of pampered plants—although size and yield are often smaller.

In addition to tasting better, some foods may actually be more nutritious: A USDA soil scientist has found that excessive use of nitrogen fertilizer can significantly reduce the vitamin C content in vegetables such as chard, green beans, and kale.

And benign neglect can benefit more than your palate. I once heard a woman complain that the perfume of American lavender bushes couldn't compare with those she'd smelled in the south of France. Having once lived near Nice, I can say with pride that the fragrance of California lavenders can be every bit as fine—as long as we don't smother them with care. My intensely perfumed *Lavandula dentata* thrives in dismal soil on rainwater alone.

### LONG LIVE STRESS!

From a biological standpoint, many plants actually fare better with less. In a report in *California Agriculture* (July/August 1995), researchers showed that excessive use of nitrogen fertilizer on nectarine trees increased the fruits' susceptibility to insects and disease. What's more, "deprived" plants may live longer than their overindulged counterparts. For example, according to a horticulturist at the Arboretum of Los Angeles County, acacias planted in southern California are frequently overwatered, resulting in root rot and an early demise—the trees usually live about 20 years, rather than their natural lifespan of 30 years.

Succulents, too, will be longer lived if the plant cells are allowed to slow their division rate and go dormant during the natural dry season. This can have an unexpected bonus: You could one day be-

queath your favorite old-man cactus (*Cephalocereus senilis*) to your children as an heirloom.

But it's not just plants that benefit from stress. It can be good for gardeners, too. Think of the money you'll save by not replacing all those pumped-up, pooped-out plants—not to mention your savings on the cost of fertilizer and water.

You'll also have more free time. For example, fewer plants will need staking: No longer fat and leggy with excessive fertilizers and water, your plants will be better able to withstand fierce winds, or else they'll keep a lower profile on the horizon, away from winds. And you





won't need to trek out to the country to find a patch of undeveloped nature, because your garden, over time, will look more and more like the country.

## QUIBBLES AND CAVEATS

It's time now to be sensible and responsible—and to avoid potential lawsuits. What constitutes “stress” is obviously relative. To gardeners accustomed to lavishing their plants with water and fertilizers, withholding a portion of either can hardly be harmful. Still, there's a fine line between just enough stress and death. Here are some common-sense guidelines.

Choosing plants best suited to your site is paramount. That means knowing where your plants are originally from—their preferred climate, soil, and exposure to sun. Species native to your region are an obvious and safe bet, since they're used to fending for themselves. But plants from similar habitats in regions throughout the world also are likely to thrive on neglect.

You'll also have more success if you rely on species and heirloom plants. These plants are proven survivors, whereas hybrids and their clones are frequently bred—and often inbred—to respond to fertilizers and water. They will not take deprivation as well.

Stress is relative, as well, to a plant's age. Old and well-established plants in your garden that are used to rich rations must be gradually weaned over the course of many seasons—if not years. Make sure new plants from a nursery are not rootbound—they might choke to death before they've had the opportunity to be stressed. Also, if the weather is hot, protect new transplants with shade cloth and regular watering until they're established.

Plants sown directly from seed are excellent for stress management—but only after they've had a solid start. They should be hardened off gradually before being planted outdoors, then, like transplants, watered regularly until established.

It's also wise to improve your soil. Although Stress-ophiles don't favor fertilizer—because we don't believe in growing plants fast—we do believe in compost and mulches, because we believe in growing plants strong. Compost and mulch increase the soil's fertility and its capacity to retain water. Other ways to improve your soil without fertilizer include growing cover crops—“green manure”—to fix existing nitrogen from the air, and allowing the roots of dead plants to decompose in the ground to provide organic matter and improve porosity—the natural air spaces in the soil.

Placement of plants, too, is important. Taking advantage of microclimates within your garden, for instance, will facilitate your plants' success with neglect. There will be times when you lose a plant or two, but that just means you can focus on the plants that are as at home in your garden as you are.

Of course, the appearance of a Stress Garden is not for everyone. (I like to call it the “Country Look,” because the image seems easier to sell.) A stress-managed garden can look plump and sleek after a good rainfall, but there's no hedging the fact that it can look wild at times and spare during dry spells when plants will naturally go dormant. Yet think what that wildness invites: the birds, bees, and butterflies to supply the buzz of a real garden of Eden.

In light of ongoing concerns about a global shortage of fresh water and in view of reports of toxic materials recycled into commercial fertilizer, there is now, more than ever, a need to reconsider our horticultural practices. We could do worse than to give our plants the stress test. With an estimated 70 million gardeners in the United States alone, we could make a collective impact simply by putting the screws on the plants we love, then kicking back on the porch to relax and admire those that make the grade. 🍷

*Elizabeth Stromme is a Los Angeles-based writer and author.*

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# mail-order explorer

## WILKERSON MILL GARDENS

by Christina M. Scott

**T**hey say the love for plants is contagious. *They*, in this case, are Elizabeth Dean, Gene Griffith, Heather McCoy, and Shawn Wells, the team behind Wilkerson Mill Gardens, a Palmetto, Georgia, nursery specializing in woody plants. Their conviction on this point is borne out by conversations with these plant lovers, who can make you covet plants you have never even heard of.

Though the nursery only began selling plants through the mail in 1993—"you have to do mail order when you're out in the middle of nowhere," Dean says with a laugh—it has quickly become a household name throughout the Southeast. Home gardeners and professional horticulturists alike are enthusiastic about the "new kid on the block," mentioning this Georgia nursery's name in the same sentence as some of the most well-respected mail-order nurseries in the country, including Heronswood, ForestFarm, and Plant Delights Nursery.

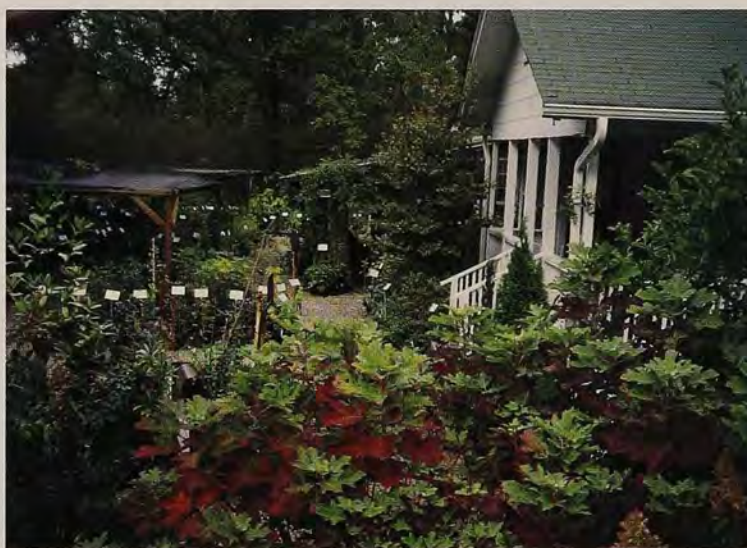
### SOUTHERN COMFORT

Wilkerson Mill Gardens sits on a 30-acre property complete with mature white oak trees, a bubbling stream, and the last standing gristmill in Fulton County, Georgia. In this idyllic landscape, it's not surprising that the Wilkerson team wants to keep things simple. Though its reputation is growing exponentially, Elizabeth Dean and

husband Gene Griffith—Wilkerson's founders—strive to keep the nursery itself a manageable size. "When we started, we knew that we needed to be either really big or really small—there's no in-between," says Dean. "We've made our choices and we're very happy with our personal-sized business and our personal-sized lives." Shawn Wells joined the team in 1994, followed by his wife, Heather McCoy, in 1996, but the nursery has remained a small, family-sized business.

Don't think, however, that a small nursery by default has a small plant selection. University of Georgia horticulturist Michael Dirr calls Wilkerson Mill "a nursery for the true plantsperson." Dirr has been involved with the nursery from the start, when Dean and Griffith contacted him for information on woody plants for the South. "You can think of the craziest plants," says Dirr, "and they probably have them." For instance, how often do you see a spurleaf (*Tetracentron sinense*) advertised? Not often, but this rare 50-foot-high tree, native to central and western China, is found in the pages of Wilkerson Mill's catalog. It sports heart-shaped leaves that arise from spurs and bright yellow-green catkins in spring and summer.

Other offerings include the Chinese hydrangea vine (*Schizophragma integrifolium*), a shade-loving climber with glorious light green foliage. At maturity, it bears broad creamy white blooms highlighted by spectacular two-to-three-inch-long sepals. And, unlike many climbers, this one is quick to establish. For something unusual to add texture to a garden, there's the needle palm (*Rhaphidophyllum hystrix*), a native of the southeastern coastal plain that



Among the plants offered by Wilkerson Mill Gardens is Chinese hydrangea vine (*Schizophragma integrifolium*), left, a vine with glowing foliage. The nursery's retail yard, above, is open to the public in the spring and fall.



**Wilkerson Mill Gardens is open to the public from February through June and September through November. To receive a catalog, send \$3 to 9595 Wilkerson Mill Road, Palmetto, GA 30268. You can also order the catalog or plants by calling (770) 463-2400 or online at [www.wilkersonmill.com](http://www.wilkersonmill.com). Due to agricultural restrictions, Wilkerson Mill cannot ship to some western states.**

has the lowest USDA hardiness zone rating—Zone 7—of any palm in the world. The catalog description is right on the mark when it says “the large tropical leaves of this palm make a winter-weary heart warm again.”

If it's winter interest you're looking for, Wilkerson has it. Dean and Griffith's original business plan was to grow trees and shrubs for cut stems, and this is reflected in the catalog. Plants such as white-flowered quince (*Chaenomeles speciosa* 'Nivalis'), cotoneasters, winterberries (*Ilex serrata* and *I. verticillata*), and viburnums—of which 40 selections are available—are wonderful for the winter garden as well as the vase.

Wendy White, a Birmingham, Alabama, gardener who works in a floral design shop, enjoys Wilkerson Mill's selection of plants for cut stems. One of her most recent purchases was *Fothergilla gardenii* 'Jane Platt', a small shrub with spring-blooming bottlebrush flowers. “I can always find something in their catalog to order,” she says. But White's true love is the hydrangea—her two-acre woodland garden contains nearly 90 hydrangea selections—and to fulfill her desire for more, she need look no further than Wilkerson Mill.

## HYDRANGEA MADNESS

Many nurseries have one genus of plants that they just can't seem to get enough of. At Wilkerson, that plant is the hydrangea. There are more than 100 different hydrangea selections growing at the nursery. In the catalog, though, you'll find about 60 hydrangeas listed at any one time. “We have a huge collection of hydrangeas,” says Dean. “But frankly, many aren't worthy of the garden, so we don't list them all.” Still, with 60 to choose from, there's sure to be something for everyone.

Do the pastel colors of many hydrangea flowers turn your stomach? No problem. Try *H. macrophylla* 'Nigra', a bigleaf hydrangea that has striking purplish-black stems on new growth. It also has the typical lavender, blue, or pink blooms—depending on your soil pH—but Dean and company suggest cutting back the shrub in late winter. Removing the flower buds, explains the catalog, “promote[s] vigorous new growth and maximum purple stemmed impact—let the flowers be damned!”

Of course, the collection also includes many more bigleaves (*H. macrophylla*), as well as panicle (*H. paniculata*) and oak-leaf (*H. quercifolia*) hydrangeas, a few of our native wild hydrangeas (*H. arborescens*), and even a couple of *asperas* (*H. aspera*), a distinctive species with large, rough, fuzzy leaves and slightly domed, lace-cap blooms in which interior lilac flowers are surrounded by white florets. “It's good and bad being pegged as the hydrangea nursery, because we have so much more to offer,” says Dean, “but, we'll ride the horse that's running!”

Michael Dirr believes that this horse will keep on running. “Wilkerson Mill Gardens has brought hydrangeas and many other shrubs to the forefront in the Southeast,” he says. “They've had such a positive influence on the industry in this region, I think they are going to move into the new century as the leading purveyors of unique, rare, good quality plants.”

*Christina M. Scott is assistant editor of The American Gardener.*

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# conservationist's notebook

## PROTECTING MEDICINAL PLANTS

by Christina M. Scott

Once confined to the shelves of health-food stores and co-ops, herbal remedies have taken mainstream America by storm in the last decade, resulting in an “herbal renaissance.” Indeed, retail sales of herbal products skyrocketed from approximately \$1.6 billion in 1994 to an estimated \$4 billion in 1998. But this resurgence of interest in natural remedies is causing many to fear that the plants supplying the active ingredients in these products are heading down a dark road toward extinction in the wild.

“All of our native plants face the threat of habitat destruction,” says Richard Liebmann, executive director of United Plant Savers (UpS), a Vermont-based grassroots organization dedicated to saving at-risk native medicinal plants. “But medicinals face a dual threat: habitat destruction and overcollection from the wild.” Excessive wild harvesting has created a dire situation for such well-known plants as American ginseng (*Panax quinquefolius*), lady’s-slipper orchid (*Cypripedium* spp.), and trillium root along with lesser-known species such as helonias root (*Chamaelirium luteum*), unicorn root (*Aletris farinosa*), and wild yam (*Dioscorea villosa*).

In recent years, however, the fight to save these plants has been taken up by national and international governmental agencies, industry groups, and grassroots conservation organizations.

### A COLLABORATIVE EFFORT

At the center of attention is goldenseal (*Hydrastis canadensis*), a small woodland plant found only in eastern North America. For more than 200 years, this unassuming plant that carries only two leaves above-ground has been harvested for the medicinal components—berberine and hydras-

tine—concentrated in its golden rhizome. Goldenseal has been in the spotlight since its 1997 listing with the Convention on International Trade in Endangered Species of Fauna and Flora (CITES), a treaty that governs the international trade in wildlife.

In response to the CITES listing, which placed trade restrictions on goldenseal, representatives from government, industry, and grassroots conservation organizations met in Anaheim, California, last year to discuss the establishment of a monitoring system to track goldenseal roots from harvest to their final sale as a raw product.

Proponents hope the monitoring system will ultimately ensure that the harvest and trade of goldenseal are kept within sustainable levels. “The program needs to evolve before it can be seen as a model for other medicinal plants,” says Chris Robbins, program officer at TRAFFIC-North America, the wildlife-trade monitoring arm of the World Wildlife Fund’s United States office. “But it holds real promise to become a system that is preventive as opposed to reactionary.”

### CULTIVATING SURVIVAL

While the monitoring system will help track the status of goldenseal in the wild, the long-term solution for the survival of this and other medicinals seems to be cultivation. Historically, most medicinal plants have been harvested by sustainable wildcrafting—the systematic harvesting of plants from the wild that leaves ample mature plants for restocking those populations. “To avoid the risk of pushing the trade into a blackmarket, sustainable wild harvesting should be part of any conservation effort,” says Robbins.

But some question the appropriateness of wildcrafting for many of these plants. “Goldenseal, for example, grows too slowly and is too delicate to successfully withstand wild harvesting,” says Richo Cech, a plant researcher and owner of Horizon Herbs, an Oregon nursery that propagates more than 500 medicinal species. For



United Plant Savers (UpS) conducts a workshop at its plant sanctuary in Ohio, above. UpS’s mission is protecting endangered native medicinal plants such as goldenseal, left, prized for the reputedly therapeutic properties of its rhizomes.



this reason, he says, "There is a general agreement by everyone involved that cultivation is the best answer."

Though American ginseng is beginning to be grown commercially on a large scale, the cultivation requirements of many native medicinals are not fully understood. To address this problem, many organizations are trying to determine the best cultivation methods for at-risk plants. This summer, for example, UpS established a 380-acre sanctuary and research center in Meigs County, Ohio, for this purpose. "A major need in the short term," says Liebmman, "is to get solid information to farmers so they can begin to grow these plants."

Not far from the UpS site is the National Center for the Preservation of Medicinal Herbs (NCPMH), founded by Frontier Natural Products Co-op, a Colorado-based herbal products company. "One of our goals is to move the industry away from wildcrafting and toward organic cultivation," says Steve Phillips, Frontier's manager of education and social responsibility. At the 68-acre center, researchers are not only protecting and expanding populations of medicinal herbs, they are testing cultivation methods for at-risk plants such as goldenseal, bug bane (*Cimicifuga racemosa*), and blue cohosh (*Caulophyllum thalictroides*)—as well as encouraging organic farming of these herbs and educating the public. "So many of these herbs pass in and out of our warehouses each year," Phillips explains, "that if anybody is going to be involved with their conservation, it should be companies like us."

#### STARTING AT HOME

In the meantime, conservationists are urging the public to get involved. "Consumers need to become aware of those species of concern in their region," says Robbins. Although more than 75 percent of commercially harvested medicinal plants come from the southern Appalachian range, conservation is not just an issue for those who live in the East. "In the western states," notes Robbins, "there are serious problems with echinacea, and in the Rocky Mountain states, wild parsley (*Lomatium dissectum*) and osha root (*Ligusticum porteri*) are in danger."

Growing those plants native to your region—even if you don't harvest them for medicinal use—is a big step toward their conservation. "The more of these at-risk natives we can get planted, the better," says Phillips. "Someday, the only thing left of the wild may be what's in our own backyards." 🍀

*Christina M. Scott is assistant editor of The American Gardener.*

## Resources

**FOREST PHARMACY: MEDICINAL PLANTS IN AMERICAN FORESTS** by Steven Foster. Forest History Society, Durham, North Carolina, 1995.

**THE GARDENER'S GUIDE TO PLANT CONSERVATION** by Nina T. Marshall. World Wildlife Foundation, Washington, D.C., 1993. The 2nd edition to be published in early 2000.

**THE MEDICINAL GARDEN** by Anne McIntyre. Henry Holt, New York, 1997.

**NATIONAL CENTER FOR THE PRESERVATION OF MEDICINAL HERBS**, 33560 Beech Grove Road, Rutland, OH 45775. (740) 742-4401. E-mail: heather.mcneill@frontiercoop.com. [www.ncpmh.org](http://www.ncpmh.org).

**UNITED PLANT SAVERS**, P.O. Box 420, East Barre, VT 05649. (802) 479-9825. [www.plantsavers.org](http://www.plantsavers.org). The Web site lists sources for cultivated seeds and plants of native medicinal plants.

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# gardeners information service

***My ginkgo tree is growing more than I'd like. Can you tell me what time of year I should trim it? Do I need to fertilize it?***

—W.W., Morristown, New Jersey

Often called a living fossil because it has survived practically unchanged for millions of years, the maidenhair tree (*Ginkgo biloba*) is a deciduous tree native to southeastern China. For ornamental

use, male trees are preferred over female trees, which produce “fruits” that give off an unpleasant odor. The tree’s fan-shaped leaves turn striking yellow in autumn.

It’s best to avoid pruning ginkgos, except for young trees that are developing competing leaders. In this case, the weaker branch should be pruned in winter when the tree is dormant. On established trees, shoots shortened by pruning will die back completely; hence, poorly shaped trees can rarely be improved by remedial pruning, and pruning to restrict growth can

even result in the death of the tree. If you absolutely must prune, remove all branches back to the point of origin to prevent pruned shoots from becoming diseased and infecting the whole tree.

To restrict growth, do not fertilize the tree; you may even want to decrease fertilization of any grass or ornamentals growing under or close to the tree. As a rule, established trees do not need to be routinely fertilized if they are growing well and show no symptoms of nutrient deficiency.

***How do I protect Cortaderia selloana ‘Pumila’ during the winter? I have lost plants every year to frost and root rot. Should I mulch?***

—M.C., Staten Island, New York

Pampas grass (*Cortaderia selloana*) is a dramatic ornamental grass known for its beautiful feathery plumes. Hardy in USDA Zone 7 and heat tolerant to AHS Zone 12, this South American native prefers moist winters and hot, dry summers. For northeastern gardens like yours, the compact cultivar ‘Pumila’ is the best choice, because it is the most cold hardy of the pampas grasses—surviving outdoors in Zone 6 with protection.

While heavy mulching will offer some winter protection, Rick Darke, author of *The Color Encyclopedia of Ornamental Grasses*,

warns that this method could increase the possibility of root rot. Instead, focus on growing strong, healthy plants that will be better suited to withstand harsh winter conditions. Because pampas grass is a warm-season grower, Darke recommends planting it in full sun in spring or early summer so it has time to establish a good root system. If your plant is in a location that is exposed to salt spray—which can be a significant factor leading to winter demise—move it to a sheltered site. Darke suggests leaving the grass uncut through the winter for extra crown protection.

Kurt Bluemel, owner of Kurt Bluemel, Inc., a Maryland nursery that specializes in ornamental grasses, adds that good drainage in winter is essential. He recommends planting ‘Pumila’ in a southern exposure and adding a layer of gravel to the bottom of the planting hole to ensure good drainage. He also suggests two of his own introductions—*C. selloana* ‘Andes Silver’ and ‘Patagonia’—both of which are hardy in Zone 6. Bluemel’s catalog can be ordered by calling (410) 557-9785 or by visiting the nursery’s Web site at [www.bluemel.com](http://www.bluemel.com).

The real culprit behind your plants’ demise may be the mild winters we’ve had the past few years. Intermittent warm and cold spells disrupt plants’ dormancy periods, causing normally cold-hardy plants to suffer damage. If you continue to have problems, treat pampas grass as a tender perennial. Dig up the plant each year before the soil freezes, pot it up, and store it in a greenhouse, garage, or other frost-free area. Water sparingly through the winter and replant outdoors in the spring.

***My agapanthus are very pot-bound. I overwinter them in a cold room and water them as you would pelargoniums or clivias, but I had very little bloom this summer. Any tips or ideas?***

—R.H., Burlington, Vermont

The African blue lily (*Agapanthus* spp.) grows best when somewhat pot-bound, but Tom Winn, co-owner of Glasshouse Works in Stewart, Ohio, says sometimes plants become so root-bound that nearly all the organic material in the original soil is used up. Winn suggests repotting the plant—not necessarily into a bigger pot—to give the roots fresh soil. Winn also suggests using a balanced, slow-release fertilizer to promote more flowering.

African blue lilies should be divided every four to six years. Overwinter in a cool, bright spot and water sparingly. When new growth begins to emerge in spring, use a sharp knife or spade to divide the rhizomes and fleshy roots into clumps with at least one or two emerging foliage clusters and repot using a soil-based mix. During the growing season, African blue lilies require copious amounts of water and must not be allowed to dry out. 🍷

—Melanie Bonacorsa, Manager, Gardeners Information Service

For answers to your gardening questions, call Gardeners Information Service at (800) 777-7931 ext. 31 between 10 a.m. and 4 p.m. Eastern time, or e-mail us anytime at [gis@ahs.org](mailto:gis@ahs.org).



# Late-Season Anemones

**These tall, graceful perennials help fill the breach in the late summer and fall garden.**



b y C . C o l s t o n B u r r e l l

**Though poets aplenty have praised** the delicate windflowers of spring, few wax eloquently about the anemones that wait for the warmer months of summer and fall before they flower. Still, the late-blooming anemones have their admirers. William Robinson placed a gold-embossed Japanese anemone on the cover of the 1913 edition of his classic tome *The English Flower Garden*. And any garden writer worth reading praises the long bloom period and delicate flowers of anemones, while begrudging the unruly vigor of these late-season charmers.

The closest I came to finding full-blown praise for late-season anemones, however, was a quote from English writer E. A. Bowles, who wrote in *My Garden in Autumn and Winter* that “*Anemone japonica* is a plant I should like to grow every form

The silvery pink blooms of *A. tomentosa* ‘Robustissima’ grace the late summer garden.

of.... The simplicity of outline and graceful habit...are quite good enough for any flower intended for this world and not

for the meads of Asphodel.” The pragmatic Henry Mitchell wrote reverent but less florid prose extolling these beautiful and serviceable plants: “One of the most obliging of all garden plants, and maybe the best perennial for the early fall garden, is the Japanese anemone. It spreads moderately but is not invasive, and as far as I have seen, it is not bothered by mildew, viruses or bugs.”

All in all, there are some 120 anemone species, but in this article the focus is on the taller fibrous-rooted and rhizomatous anemones that bloom from early summer through fall. These include the Asian anemones mentioned above, as well as several American species that bloom in early and midsummer. A carefully planned display can keep the garden blooming in anemones for nearly three months.

## ***Kin to the Buttercup***

Anemones belong to the buttercup family (Ranunculaceae), along with *Pulsatilla* and *Hepatica*, both of which were once classified



as anemones. The closely related rue anemone (*Anemonella*) and the curious false anemone (*Anemonopsis*) disclose their kinship to anemones in their names. Other beloved ornamental plants that share this family tree include bugbanes (*Cimicifuga* spp.), clematis, delphiniums, and hellebores.

As with most members of the family, anemone flowers lack true petals; instead, they are composed of five or more colorful petallike sepals. A central ring of yellow sta-

gory are *A. hupehensis*, *A. ×hybrida*, *A. tomentosa*, and *A. vitifolia*. To start with, these species are originally native to China rather than Japan, although they are thought to have been cultivated in Japan for hundreds of years. University of Georgia horticulturist Allan Armitage and others have suggested it is more suitable to refer to this group as autumn-flowering anemones.

Elizabeth Sheldon, author of *A Proper Garden*, sums up the conundrum thusly: "... I know for sure only that the white *A.*

*vitifolia* exists, for I raised it from seed. As for the others, plants from seed labeled *Anemone hupehensis* proved to be indistinguishable from plants I purchased as *Anemone japonica*, and after poring over my books, I can only conclude that these anemones have been hopelessly jumbled." With that caution, the following descriptions are based on my own observations and the prevailing wisdom in garden literature.

Of the Asian anemones, the earliest to bloom is the 'Robustissima' cultivar of *A. tomentosa*, which starts flowering as early as June at the southern extent of its garden range (AHS Heat Zone 8) and continues through early fall. 'Robustissima' is also the hardiest of the Japanese types and the only one reliable for gardeners in USDA Zones 3 and 4. As the perennial garden slides into the flowerless trough of late summer, the cheering silvery-pink flowers

with a rosy reverse open in profusion. The short-stemmed flowers are densely packed into terminal clusters above a whorl of three stalkless leaves. Fine silvery hairs coat the stems and the underside of the foliage. Armitage describes this selection as "robust to the point of thuggery in the shade," so prudence dictates it be planted in full sun.

No matter how many references you consult, it is next to impossible to get a clear explanation of the relationship between *A. tomentosa* and grapeleaf anemone (*A. vitifolia*), which have overlapping native ranges in the mountains of central Asia. The former has apparently been passed off as the latter for decades and some horticulturists believe they may simply be variants on a single species. Since it is difficult to find either species in the nursery trade—



**Above left:** Popular with rock gardeners, *A. ×lesseri* carries deep rose-red flowers well above its foliage. **Above right:** The delicate-looking flowers of *A. hupehensis* 'Hadspen Abundance' contrast with the sharp edges of variegated *Yucca* 'Guardman'. **Opposite:** Our native *A. canadensis* makes an attractive ground cover.



mens surrounds a dome of many ovaries that gives rise to a button- or thimblelike seed head composed of the single-seeded fruits botanists term "achenes." The achenes are covered with cottony fuzz that aids their dispersal by wind.

Most anemones have both basal and stem leaves; the basal leaves are often hand-shaped—palmate—with three to seven deeply lobed segments. The smaller stem leaves are often clustered at stem nodes and beneath the flower stalks.

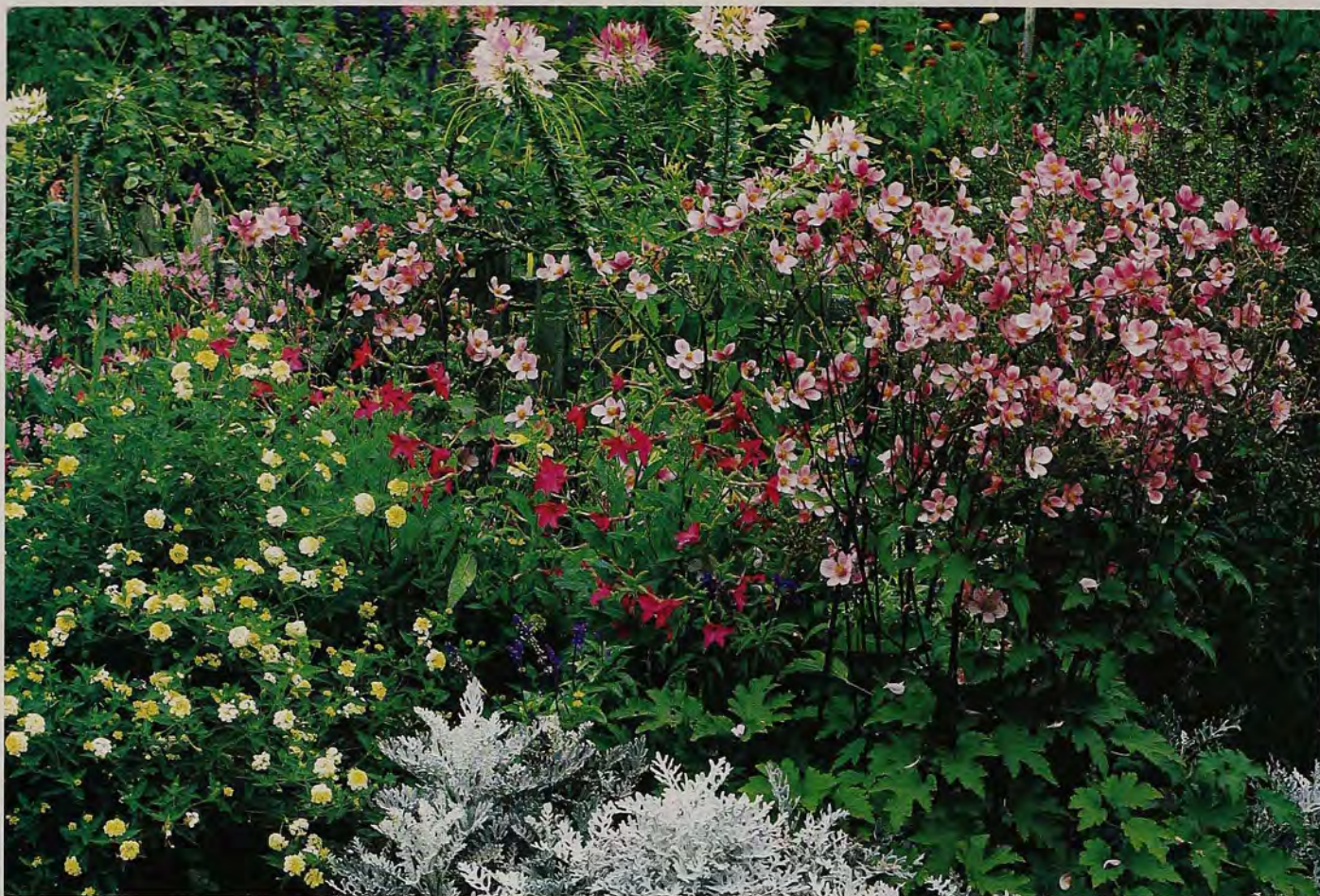
## Asian Anemones

The shifting currents of horticultural nomenclature have certainly eroded one's confidence in describing the group known collectively—though inaccurately—as Japanese anemones. Included in this cate-









Heat-tolerant annuals such as cleome, dusty miller, and lantana—which last into late summer—make good companions for Chinese anemone, which bears graceful pink flowers from mid-August into September.

‘Robustissima’ is usually the only available representative of *A. tomentosa*—it seems that for gardeners the distinction is largely moot, anyway.

When you can find it, the true grapeleaf anemone can most easily be identified by its foliage. Its large undivided leaves have three to five shallow lobes, whereas those of *A. tomentosa* are usually more sharply divided into three parts. Grapeleaf anemone is less hardy than *A. tomentosa* (Zone 5) but it blooms at about the same time, from late summer through early fall.

Chinese anemone (*A. hupehensis*) is similar in appearance to *A. tomentosa*, but flowers later. Slender stalks two to three feet tall support fragile five-petaled white or rose-pink flowers above mostly basal, ternately divided and coarsely lobed leaves in late summer and fall. They grow from thick tuberous roots. The selection ‘September Charm’, which has soft-rose-colored flowers that fade to pink toward the center, is by far the most common form of *A. hupehensis* found in North American gardens. Popular cultivars such as ‘Bowles’ Pink’ and ‘Hadsphen Abundance’ are also generally ascribed to this species.

Recently, specialty nurseries have begun

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offering Chinese anemones grown from seed collected in the wild, with either white or pink flowers. The variety *A. hupehensis* var. *japonica*—collected in Japan but still likely of Chinese origin—has added to the confusion surrounding fall anemones. Sometimes listed as *A. japonica*, it differs from the species in having many narrow, deep pink petals. The popular semi-double-flowered cultivar ‘Prinz Heinrich’ is probably a selection of this variety.

Most of the plants sold as Japanese anemones are cultivars of hybrid origin, known collectively as *Anemone*  $\times$  *hybrida*. These garden hybrids are taller than the anemone species, varying in height from three to five feet. They also produce infertile pollen, unlike the species, which are fertile and set seeds. Single and double flowers range in color from white to pink and rose. Some of the selections listed here may more correctly belong to *A. hupehensis*.

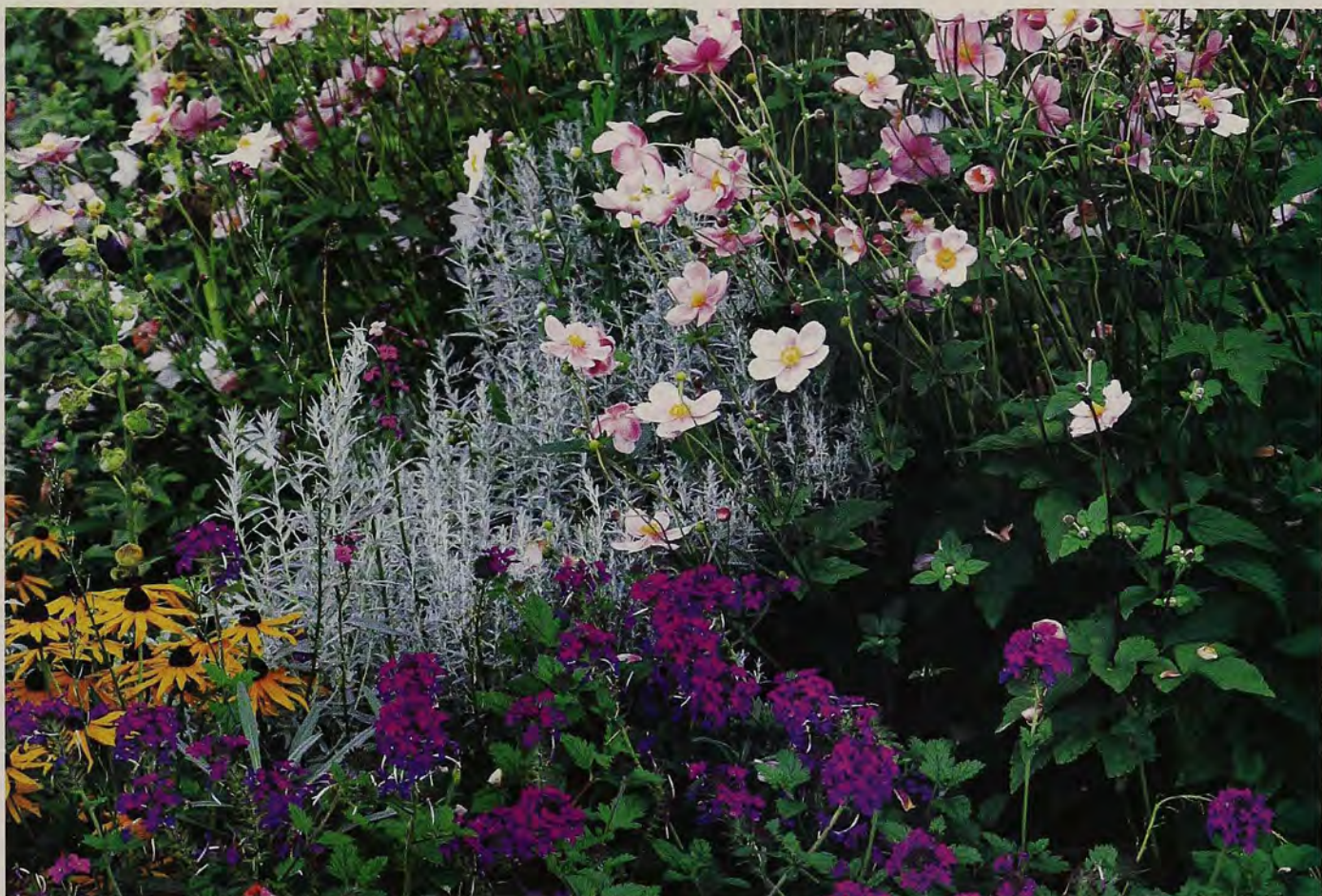
‘Alice’ has large, single pink flowers on stems to three feet tall over deeply incised foliage. ‘Honorine Jobert’ has pure white single flowers with bright yellow stamens on

three- to four-foot stems. ‘Lady Gilmour’ is a must for those who fancy fully double flowers, in this case a soft pink. ‘Margarette’ has semi- to fully double deep pink flowers on three-foot stems. ‘Max Vogel’ has lovely single four-inch pink flowers on four-foot stems. ‘Pamina’ is a handsome deep rose-pink double. ‘Queen Charlotte’ has three-inch, semi-double pink flowers. ‘Whirlwind’ is four to five feet tall with four-inch semi-double flowers. In Zone 4 gardens, these plants are subject to freeze damage in winter when snow cover is inadequate. Mulch with marsh hay as a precaution, but be prepared to lose the plants in a severe winter. Most of these plants are reliably cold hardy in Zones 5 to 8.

### American Anemones

Certainly less well known to gardeners than the Asian species are the early summer anemones native to the woodlands and prairies of North America. These anemones were well regarded by Native Americans for their medicinal properties. A tea made from the roots was taken for headaches, and the

**Standing taller than most anemone species, *A.  $\times$  hybrida* is a good choice for the back of a border. Here it serves as a backdrop for an assortment of plants, including *Verbena* ‘Sissinghurst.’**





compound anemonin—found in all species—is clinically proven as a potent antiseptic. The pounded, boiled roots were used externally to dress wounds.

In gardening circles, only the lovely meadow anemone (*A. canadensis*) has anything like a following. But because it is highly invasive, many who fall under its spell place this species in a confined space, where its lightning-fast rhizomes can't easily escape.

This exuberant grower has two-inch bright white flowers held on slender one-

greenish-white flowers with sharp-pointed petals, each held on a long, erect stalk. Plants grow to two feet tall from fleshy-rooted crowns. Below the flowers, a whorl of three-lobed and deeply dissected leaves graces the stem about halfway up. The "candle" is created by the erect, green, conelike seed head, which explodes into a cottony froth when ripe. Grow in average to rich, moist to dry soil in full sun or light shade. Hardy in Zones 3 to 8.

The northland is home to the extremely hardy and enchanting *A. multifida*. This rare but worthwhile species is perhaps best known as one of the parents—with *A. sylvestris*—of the red-flowered *A. xlesseri*. Three deeply cleft leaves with narrow segments make a frilly collar below the one-inch white to yellow flowers that bloom in early summer. The erect stems stand one to two feet tall. In the wild this species is found from Newfoundland and Maine west to Alaska and Mexico, as well as in the mountains of South America. It grows best in full sun to part shade in a rich, well-drained, limey soil. It is cold hardy in Zones 3 to 8 but not very heat tolerant.

The hybrid *A. xlesseri* is popular with rock gardeners and anemone aficionados. Plants sport one-and-a-half- to two-inch rose-red flowers on slender stalks held well above the finely dissected leaves. Place this delicate one- to one-and-a-half-foot tall beauty at the front of the border. Rich, evenly moist soil suits

it best, and a little shade is appreciated where summers are hot. This hardy plant thrives in Zones 4 to 8.

It takes a true native-plant enthusiast to appreciate thimbleweed (*A. virginiana*). While this species will never win "first of show," it has a quiet charm and subtle beauty. The one- to one-and-a-half-inch flowers are greenish—though occasionally pure white—with broad, pointed sepals. They are carried in clusters, one to a stem, above a whorl of three leaves. The thimble is the short, rounded cone that contains the seeds. The basal leaves are long-stalked, with three ragged, palmate lobes. Give these natives of woods, clearings, meadows, and roadsides average to rich, moist soil in full to part sun. Hardy in Zones 3 to 8,



*A. xhybrida* 'Pamina', above, grows two to three feet tall and bears deep rose-pink double flowers.

two-foot stems above a whorl of three deeply cut leaves. The ragged basal leaves are palmately lobed and nearly round, so they form an attractive ground cover dotted with flowering stalks that create a real show when in bloom. The bright yellow stamens give way to a buttonlike seed head. Hardy in Zones 3 to 8, the plant is found in the wild in low woods, wet prairies, ditches, and marshes in a wide variety of soils from Quebec to Alberta south to Maryland and New Mexico. In gardens, meadow anemones grow best in rich, evenly moist soil.

Native to meadows, prairies, and dry savannas from Maine to British Columbia south to New Jersey and Arizona, candle anemone (*A. cylindrica*) is an endearing plant with multiple three-quarter-inch,



these plants are native throughout eastern North America, west to British Columbia and Kansas.

Though late-season anemones come to our gardens from a variety of habitats, their growth requirements are remarkably similar. Most grow best in a rich, evenly moist soil in sun or light shade. Candle anemone is extremely drought tolerant, while meadow anemone and all Japanese anemones will tolerate damp conditions. Clump formers such as thimbleweed, candle anemone, and *A. multifida* are better behaved than their running relations, which spread by creeping underground stems. Divide clumps in spring or after plants have finished flowering.

Propagate late-season anemones from root cuttings taken after the plants are dormant or by sowing fresh seed outdoors.

### Anemones in the Garden

The garden uses of late-season anemones are as varied as their shapes and sizes. Meadow anemones and thimbleweed are best used in informal settings such as meadow or prairie gardens, or along a shaded path. They are excellent ground covers and are perfect for planting under shrubs. Ferns, starry campion (*Silene stellata*), Siberian iris, white wood aster (*Aster divaricatus*), and border phlox (*Phlox paniculata*) are a few excellent companion plants. Candle anemone excels in a well-drained garden or rockery with penstemons, pinks, catmint (*Nepeta* spp.), and thymes, as well as purple prairie clover

(*Dalea purpurea*) and other plants of the dry prairie.

Use fall-flowering anemones en masse to enliven the late border. Their airy, swaying heads are perfect complements to the striking foliage of ornamental rhubarb (*Rheum palmatum*), yuccas, New Zealand flax (*Phormium* spp.), and ornamental grasses.

Good flowering companions include sunflowers, asters, goldenrods, sages (*Salvia* spp.), meadow saffron (*Colchicum* spp.), and autumn crocus (*Crocus speciosus*). Plant the taller varieties of anemones in front of flowering shrubs or in partial shade with large ferns such as ostrich fern (*Matteuccia struthiopteris*) or cinnamon fern (*Osmunda cinnamomea*), monkshood (*Aconitum* spp.), toadlily (*Tricyrtis* spp.), and bugbane (*Cimicifuga simplex*).

Though the tall stems beg to be cut, opinions vary regarding the anemone as a cut flower. Vita Sackville-West avers that it "tires and droops once cut." E. A. Bowles laments that "unfortunately, none of them last very well when cut," while William Robinson emphatically demands that "all good forms of the plant should be cultivated where cut flowers are required in autumn."

Perhaps the most honest assessment of the charms and curses of Japanese anemones that I have ever read is Dan Hinkley's account in his Heronswood Nursery catalog:

"One autumn day, I passed a garden...where there was blossoming a magnificent plant, with willowy, erect stems

## Invasive Tendencies

There's no doubt that some of the summer- and fall-blooming anemones can be a little more aggressive than many gardeners like. The native Canada anemone (*A. canadensis*) is the worst offender and should be restricted to bottomless containers or by deep edging unless naturalization in a large area is desired.

All the Asian species are runners, spreading by stoloniferous roots and popping up in spring much farther from the parent plant than you would think possible. Planting them with stout-rooted plants is the best way to keep them in check because they will overrun more delicate species. Ornamental grasses, rodgersias, Joe-Pye weed, *Phlox paniculata*, hosta and similar robust species are good companion plants to restrict the spread of Asian anemones.

—C.C.B.

carrying large, porcelain pink flowers which arose from clumps of bold, maple-like foliage.... I decided I would return that evening to ask the gardener of its identity. Nine hours later I arrived to see that my plant in question had vanished without a trace. Just as I was about to leave...the gardener emerged from the house, and I inquired as to whether I had imagined the entire scene. 'Oh, the Japanese anemone', she said. 'I've been trying to rid the garden of the beast for years. It is in the trash bin if you would like to take it home.' If there is one constant among gardeners worldwide, it is their refusal to believe other gardeners when it comes to invasive plants—especially when one is smitten.... Now years later, I continue to harvest vast clumps of this species from my own garden, never succeeding in ridding the garden of it, quite sure that I don't actually want to...."

I think that says it all. 🐾

C. Colston Burrell is a writer and garden designer living in Free Union, Virginia. His most recent book, *Perennial Combinations*, was published earlier this year by Rodale Press.

This article is the first of a two-part series on anemones. Burrell will write about spring-blooming anemones in the March/April issue of *The American Gardener*.

## Sequence of Bloom



*Anemone virginiana* is an early-blooming species.

Bloom time for individual anemones is obviously subject to regional and climatic variations. The flowering sequence for the species listed below is based on expected start of bloom in Washington, D.C.

SPECIES	APPROXIMATE BLOOM TIME
<i>A. multifida</i>	mid-May
<i>A. canadensis</i>	late May
<i>A. × lesseri</i>	late May
<i>A. virginiana</i>	late May
<i>A. cylindrica</i>	early June
<i>A. tomentosa</i>	early August
<i>A. vitifolia</i>	early August
<i>A. hupehensis</i>	mid-August
<i>A. × hybrida</i>	late August





**Colorful fruits and  
fall foliage make  
mountain ashes  
appealing additions  
to gardens in cool,  
moist climates.**

# Sorbus

b y L e e R e i c h





# Reconsidered

**As children, my friends and I were well acquainted with mountain ashes.** European mountain ash (*Sorbus aucuparia*) was ubiquitous to suburban home lots in the Northeast in the 1950s, and the trees were readily recognized by their ferny leaves and clusters of flashy berrylike fruits that sometimes served as playground artillery.



Previous pages: European mountain ash in fruit. Below: American mountain ash in fall splendor in the eastern mountains. Bottom: Kashmir mountain ash features pink flowers in spring, and white berries and red foliage in fall.



Mountain ashes began falling out of favor as ornamental trees soon after that—and rightly so in many cases. As with our native white birch, most mountain ash species are native to areas with cool, moist climates. When planted in sun-drenched backyards where summers are hot and sometimes arid, these trees are susceptible to a host of ailments, particularly borers and the bacterial disease fire blight. They have been damned with faint praise by some of America's best-known horticulturists, including the late Donald Wyman, who wrote in the 1990 edition of his classic *Trees for American Gardens*, "All in all, the mountain ash is not one of our best ornamental trees.... As an ornamental here and there, however, especially for fall display when it can be grown in the full sun where it does best and not in partial shade, it will add a colorful spot of interest to almost any planting."

There are, nonetheless, many reasons for gardeners in cooler climates to consider *Sorbus*. With good growing conditions and careful choice of species or cultivar, mountain ashes can thrive and provide four seasons of beauty. In addition, breeders and plant explorers have continued to seek out new selections that are less susceptible to disease and to make crosses between mountain ashes and compatible genera such as hawthorns (*Crataegus* spp.), cotoneaster (*Cotoneaster* spp.), and pears (*Pyrus* spp.).

*Sorbus* are, like most deciduous trees and shrubs, subdued in winter, but even then many selections offer attractive bark

and prominently fat, hairy, and sometimes colorful buds. In spring, mountain ash branches come alive with drooping or upright clusters of creamy white—or, in the case of Kashmir mountain ash (*S. cashmiriana*), pink—blossoms. Summer is another season of quiet beauty. Autumn coaxes the most spectacular show from *Sorbus*, as the clusters of berries color up to—depending on the species and cultivar—fire-engine red, orange, pink, or white. Even white berries, such as those of Kashmir mountain ash, contribute to the autumnal show with their large size and red fruit stalks. These fruits are a popular winter food source for many birds and other wildlife. The other element of the trees' autumnal splendor is their foliage, which takes on a range of hues from red to purple, depending on species and climate.

### Family History

It comes as a surprise to some that mountain ashes are members of the rose family (Rosaceae). But botanists generally divide the rose family into four subfamilies based on differences in the structure of the flowers and fruits. *Sorbus* is classified with related plants such as serviceberries (*Amelanchier* spp.), hawthorns, apples, firethorns (*Pyracantha* spp.), and pears into subgroup Maloideae. The striking "berries" of mountain ashes are actually pome fruits, like apples and pears.

Unlike members of the other subgroups in the rose family, these genera have epigynous flowers in which the ovary is contained within the top portion of the flower stem, known as the receptacle. It is the receptacle that swells around the seeds to produce the fleshy, usually edible, part of the pome.

Some 120 *Sorbus* species have been recognized, but the genus's nomenclature is confusing because mountain ashes interbreed freely with one another and with related genera. To add to the confusion, *Sorbus* reproduces apomictically—that is to say, seeds can form without normal fertilization. Botanists have broken the genus into a half dozen or so botanical sections or subgenera, but for garden purposes, it's easiest to consider separately those plants with pinnate or feathery compound leaves and those with simple leaves.

### Rowans

The European mountain ashes of my youth are representative of *Sorbus* species that have compound leaves. Although in America these trees are usually called mountain ashes—a name derived from the trees' ash-





like leaves and their preference for mountain habitats—in Europe they are more commonly called rowans. Theories about the origins of this sobriquet vary: Some sources link the name to French or Norse words for “red,” it may also stem from the Old Norse word *rune*, meaning “mystical writing.” Either way, among many European cultures rowans gained a reputation for various magical or spiritual qualities—they were believed to be useful for warding off witches and staving off bad luck in general. A block of rowan-tree wood on the keel of a ship reputedly protected it in high seas. Another European name for these trees is quickbeam.

Native to much of northern Europe and Asia—and widely naturalized in similar latitudes in North America—European mountain ash (*S. aucuparia*) is a fine ornamental tree growing 20 to 40 feet tall where conditions are to its liking—namely, cool in summer. It is cold hardy to USDA Zone 2 but is heat tolerant only to parts of AHS Zone 7. This tree has been cultivated for centuries in northern Europe, so numerous cultivars have been developed. Just a few of the notable ones include ‘Asplenifolia’, which has lacy foliage with deeply serrated leaflets; ‘Fastigiata’, upright, with particularly large fruits; and ‘Beissneri’, with cut fo-



liage that clings to graceful, copper-colored shoots on red stalks.

American mountain ash (*S. americana*) is similar to its European cousin, but the two can be differentiated by their buds: Those of American mountain ash are dark red and gummy, while those of European mountain ash are white and woolly. The growth habit of the American species is more bushy—it grows 10 to 30 feet tall—and there is some evidence that this tree is less plagued by pests than is European mountain ash.

American mountain ash is rare in the nursery trade and backyards, but does, at least, cheer up cool forests from Newfoundland to Manitoba and south down the Appalachians into Georgia. It is cold hardy to Zone 3 and heat tolerant into AHS Zone 7. The berries, small but gathered in bountiful clusters, feed grouse, grosbeaks, and cedar waxwings, while the fragrant bark provides sustenance to moose—leading to one of the tree’s other names, misseymoosy. A similar tree—also native but unfortunately also not well known in the nursery trade—is the showy mountain ash (*S. decora*). Its larger fruits are the most obvious way to differentiate it from the American mountain ash. It is slightly harder than *S. americana* but less heat tolerant.

### Asian Species

More mountain ashes with compound leaves can be found among Asian species. Like the previously mentioned Kashmir mountain ash, Vilmorin’s rowan (*S. vilmorinii*) has white fruits, although they start out rose-red to pale pink before turning creamy white. This shrubby species



Top: White flowers and silvery, simple leaves distinguish common whitebeam. Above: Although similar in appearance to American mountain ash, showy mountain ash has larger fruits, is slightly more compact, and is said to be harder.

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The burnished orange foliage of the Korean mountain ash cultivar 'Rigida', above, highlights a crisp fall day at the Arnold Arboretum in Massachusetts.

## Intergeneric Hybrids

As if the taxonomy of *Sorbus* isn't confusing enough, it is compounded by the tendency of mountain ashes to hybridize with other genera in the rose family. Although few of these intergeneric hybrids are known or grown, many have useful ornamental and fruiting attributes.

×*Amelosorbus*. The combination of *Sorbus* and *Amelanchier* (serviceberry) produces shrubby plants with incompletely pinnate leaves and dark red fruits touched with a blue bloom.

×*Sorbaronia*. Hybrids between *Sorbus* and *Aronia* (chokeberry) have been known since the 18th century and several species are recognized. These shrubby plants bear purple to black fruits and have good fall color.

×*Sorbocotoneaster*. Natural hybrids between mountain ash and *Cotoneaster* (cotonaster) were originally identified in pine forests of eastern Siberia. These also tend to be shrubby plants, with dark red fruits.

×*Sorbopyrus*. The union of *Sorbus* and *Pyrus* (pear) usually results in a small to medium-sized tree. The Bollwyller pear (×*Sorbopyrus auricularis*) has reddish fruits that are sweet, edible, and—as its name suggests—pear shaped.

A number of breeders are experimenting with intergeneric hybrids of *Sorbus*. Harold Pellett, executive director of the Landscape Plant Development Center at the University of Minnesota Landscape Arboretum in Chanhassen, says the center has been working with hybrids between mountain ash and other genera for nearly 20 years. "The interest is two-fold," he says. "For the shorter term it is to develop small trees with some of the characteristics of *Sorbus*, but with tolerance to fire blight and some of the other problems *Sorbus* has. The longer-term goal is to develop bridges between more of the different genera in the rose family." According to Pellett, the center is likely to introduce one or two selections from its *Sorbus* breeding program within the next few years.

—L.R.

grows about 12 feet high and as wide. It is hardy to Zone 6 but not very heat tolerant.

Even more shrubby is Chinese dwarf mountain ash (*S. reducta*). The dark red stems of this thicket-forming species rise three to five feet above suckering roots. Its dangling clusters of fruits start out pink to crimson and turn white as they mature; a good crop of fruits is, unfortunately, often seen only every other year. Reliably hardy only from Zones 6 to 8, dwarf mountain ash will survive in cooler regions if protected by consistent snow cover.

Japanese mountain ash (*S. commixta*) is a tree that grows to 30 feet tall. Leaves unfold with a coppery hue, then turn a pleasant deep purple at the end of the season, creating a perfect backdrop for its orange-red fruits. It is cold hardy to Zone 6.

*S. rufoferruginea* is similar to Japanese mountain ash, except for the rust-colored hairs on its buds and the undersides of its leaves. The cultivar 'Longwood Sunset' has performed well in Zones 4 to 7, where it exhibits good heat-, drought-, and disease-resistance.

## Simple-Leaved Sorbus— The Whitebeams

The kinship of whitebeams to mountain ashes is not obvious to the casual observer, what with whitebeams' loose clusters of flowers and fruits and their simple—one-bladed—rather than compound leaves. Although well-known in Europe, whitebeams have never caught on this side of the Atlantic. Their leaves may not be as structurally interesting as those of mountain ashes, but they are eye-catching because their dense covering of down makes them appear almost white. The common name whitebeam is a combination of the appearance of their foliage with "beam," a centuries-old European word meaning "tree" or "wood."

As leaves unfold in spring from the fat buds of the common whitebeam (*S. aria*), this tree might be momentarily mistaken for a magnolia in bloom. Later, with all leaves unfolded and only their undersides still downy white, the trees put on a glittery show as the leaves flutter in breezes. This tree, often shrubby, grows to 35 feet and is cold hardy in Zones 4 to 6. New leaves of the cultivar 'Lutetiana' unfold with a yellowish-green color, while 'Majestica' sports large leaves—up to six inches long—and dark orange fruits.

Other notable whitebeams include the Swedish whitebeam (*S. intermedia*) of northern Europe and the wild service tree, or chequer tree (*S. torminalis*), of Europe,



## Edible Species of *Sorbus*

northern Africa, and western Asia. Swedish whitebeam, well known as an ornamental in Britain, is a small, densely twigged, round-headed tree. The wild service tree is best known for its majestic proportions and edible fruits. Both trees are cold hardy to Zone 6 and heat tolerant to AHS Zone 7.

An up-and-coming star among *Sorbus* is Korean mountain ash (*S. alnifolia*), native not only to Korea but to Japan and central China. With its smooth, gray bark and serrated, pointy oval leaves, Korean mountain ash bears a resemblance to beech—but with showy flowers and fruit. The tree, adapted from Zones 3 to 7 and growing to about 60 feet in height, starts out pyramidal, then becomes rounded in form. This species has proven to be more resistant to borers and other ailments than other members of this genus. However, the Korean mountain ash does have shortcomings: Its flowers are biennial, and horticulturist Peter Del Tredici of the Arnold Arboretum in Jamaica Plain, Massachusetts, reports that there, at least, the tree is exhibiting invasive tendencies.

### Hybrids

Mating is rampant within *Sorbus*. This may cause headaches for taxonomists but provides no end of pleasure to gardeners. Two interesting hybrids—offspring of a compound-leaved parent (*S. aucuparia*) and a simple-leaved parent (*S. aria*)—are *S. hybridula* and oakleaf mountain ash (*S. xthuringiaca*). Reflecting their shared parentage, leaves of both taxa are dull green on their upper sides and felty white below, becoming deeply lobed towards their bases. Both these hybrids are compact, pyramidal trees growing 20 to 40 feet tall and 12 to 25 feet in diameter.

### Optimizing Growing Conditions

When grown under unsuitable conditions, *Sorbus* trees are susceptible to borers and to a canker disease caused by *Cytospora* fungi. Within the darkened and sunken cytospora cankers, the sapwood is reddish brown. However, twigs and small branches may die back without there being an obvious sign of a canker. Pruning can alleviate canker problems if cuts are made into healthy wood a foot below cankers. The best way to limit borer and canker problems is to plant trees in an appropriate location and keep them growing vigorously.

Not too vigorously, though, because *Sorbus*—along with apple, pear, and other rose family members—is susceptible to fire blight, a bacterial disease that most readily

Besides providing tasty treats to birds—the specific epithet *aucuparia* means “to catch birds,” because fowlers once used these fruits to bait traps—fruits of some mountain ashes also are good food for us. Edible species of *Sorbus* bear fruits that are relatively large and have little or no astringency or bitterness.

Fruits of the service tree (*S. domestica*) and the wild service tree (*S. torminalis*) are edible after they have been bletted—or allowed to soften in a cool room, as is done with medlars (*Mespilus germanica*). The ancient Romans were known to enjoy the inch-long, brownish, pear-shaped fruits of the service tree.

With its sycamorelike leaves, the wild service tree is difficult to identify as a *Sorbus*. Also known as the chequer tree—perhaps because it frequently grew near taverns of that name that were common in East Sussex, England—the cherry-sized, russet-red fruits were once made into drinks served at these inns. They were also commonly sold at markets in southern England and other parts of northern Europe.

A few *Sorbus* species produce fruit that are ready for consumption without being bletted. The ‘Edulis’ cultivar of the European mountain ash has relatively large fruits that make tasty jams. Jim Gilbert, owner of One Green World, a mail-order nursery in Molalla, Oregon, that specializes in unusual fruiting plants, says that two cultivars of *S. aucuparia* he has introduced from Europe—‘Rabina’ and ‘Rosina’—also have tasty fruits and are quite ornamental.

The Asian species *S. yuana*, which resembles Korean mountain ash but has larger fruits, is also reputed to be suitable for eating fresh. Stephen Spongberg, director of the Polly Hill Arboretum at Martha’s Vineyard—who has studied the genus extensively—reports that the olive-sized fruits of *S. yuana* are sweeter than pears, but have a flavor all their own.

And speaking of pear flavor, another edible *Sorbus* is not strictly a *Sorbus* at all, but an intergeneric hybrid of *Sorbus* with pear (*Pyrus*). Fruits of ‘Shipova’, a cultivar of this hybrid, are the size of plums and have pale yellow, speckled skin with a reddish blush. The flesh is sweet, with a mild taste of pear.

—L.R.



‘Rabina’, above, has tasty fruits.

infects succulent, vigorously growing stems. Infected tissue blackens, and succulent stem tips curl over in characteristic shepherd’s crooks. The bacteria work their way within the plant towards the roots until late in the season, when they temporarily settle into darkened, sunken lesions. Diligent and regular pruning out of infections a foot into healthy wood is very effective in controlling fire blight. When pruning blighted shoots in summer, sterilize tools with alcohol between cuts to avoid spreading the infection.

Injudicious fertilizer applications and pruning stimulate blight-susceptible growth, so it is important to strike a balance in vigor that minimizes problems from fire blight, borers, and cankers. One way to regulate the growth of trees planted in lawns is to key mowing height to tree vigor.

Where more tree vigor is needed, mow closer; where trees have been growing too strongly, let the grass grow longer to soak up more nutrients and water.

With few exceptions, *Sorbus* species grow best in acidic, fairly well-aerated soil in full sun. Because they are trees of northern forests, their roots should be kept cool and moist beneath a thick layer of organic mulch. This should alleviate, to some degree, the stress of heat and drought. But there is no substitute for the right climate: Expect mountain ashes to grow best in regions that experience cool summers. 🍷

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# Success with Sedges

**Long clumped anonymously with other "grasslike" plants, sedges are now coming into their own.**

b y R i c k D a r k e



Above: The crimson seed clusters of *Carex baccans* provide a splash of late season color. Opposite: The slender arcing leaves of *Carex morrowii* var. *temnolepis* 'Silk Tassel' offer a graceful contrast to the geometric foliage of *Oxalis braziliensis*.

**The buzz that has propelled grasses** into the ornamental limelight in recent years is finally beginning to benefit the sedges. In the overly simplified parlance of many gardening books on "ornamental grasses," sedges—members of the sedge family (Cyperaceae)—have often been unceremoniously lumped with the true grasses (Poaceae), the rushes (Juncaceae), and a motley crew of narrow-leaved plants that look like grasses only if your vision is approaching that of the mature Gertrude Jekyll. The time-honored botany class mnemonic "sedges have edges and rushes are round, grasses are hollow and rush all around" is somewhat helpful, but go much beyond this and the delicate botanical distinctions between grasses and sedges quickly become more daunting than delightful. On a practical gardening level, however, the uniqueness of sedges is appreciable: They are truly worth knowing and growing.

Like grasses, sedges are a cosmopolitan group, but they are especially common in moist and wet habitats in temperate zones. This love of moisture makes many sedges well suited to join the current water-gardening renaissance. Also like grasses, sedges occur naturally in sunny habitats but—of great importance to gardeners—there are many more sedges adapted to woodlands or otherwise shaded situations.

While there are fewer sedges than grasses, they still make up a relatively large family of approximately 115 genera and 3,600 species, nearly all of which are perennial. The botanical name of the family is derived from the genus *Cyperus*, but the majority of sedges grown ornamentally belong in *Carex*, a huge genus comprised of nearly 1,000 species. Although this article will focus on "true" sedges in the genus *Carex*, other ornamentals in the sedge family include cotton grasses (*Eriophorum* spp.), umbrella or paper grasses (*Papyrus* spp.), beak-rushes (*Rhynchospora* spp.), bulrushes (*Schoenoplectus* spp.), and wool grasses (*Scirpus* spp.).

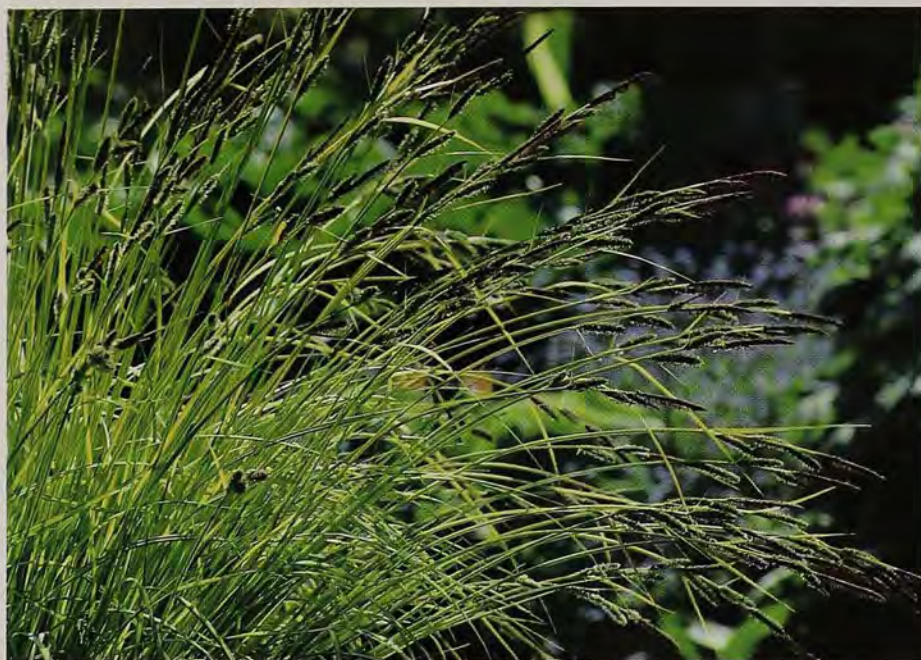
## **Subtle Beauty**

Rarely are wind-pollinated flowers conventionally showy, and sedges are no exception. Grass flowers are often notable because they occur in great numbers in plumelike or enormously branched inflorescences. Sedge flowers are grouped in lesser numbers, typically in dense spikey clusters or modestly branched arrangements, and rarely achieve the luminous









**Top:** The dark seed heads of *Carex elata* 'Aurea' are a perfect foil to its golden foliage. **Above:** 'Aurea' makes a splashy statement planted on either side of sturdy stone steps in this Portland, Oregon, garden.

appeal of grasses. Even so, the flowers and seed heads of many sedges are attractive in unusual ways. The flowers of Fraser's sedge (*Cymophyllus fraserianus*) are puffy and white. Those of *Carex nudata* are nearly black. Ripening seed clusters of *Carex bac-cans* are truly red. Gray's sedge (*Carex grayi*) produces curious green macelike clusters.

It is in their foliage that sedges excel, displaying colors that match or exceed the diversity found in grasses. Hues include a myriad of greens, blues, yellows, and browns, plus an almost immoral abundance of variegated sorts. Foliage textures also vary greatly. Some sedges are so fine as to appear hairlike, others are decidedly broad

and bold. Most sedges form rounded mounds, though others are distinctly upright. Many ornamental sedges are ever-green or semi-evergreen. The overwintering foliage combined with early new growth make many sedges particularly valuable in the spring garden, when grasses are often still dormant or inconsequential.

Sedges are a diverse lot, but one fair generalization is that they are too little known and too little used in the garden. Some of the most familiar, such as the true *Carex morrowii* 'Variegata', are among the least exciting choices. In recent years the palette has been greatly expanded, and the proliferation of mail-order and online nurseries makes it easier than ever to find the best and the brightest. With a little imagination, sedges can serve as specimens, accents, ground covers, or even lawns. They can enliven containers or hanging baskets, or add unique grace and interest to water's edge in ponds, pools, and fountains.

### *Variegated Sedges*

Variegated plants may not suit everyone's taste, but if you like them, some of the best can be found among the sedges. Many of the most popular variegated sedges originated in Japan, where subtle variations in foliage are valued. Most do best planted in moist, fertile organic soil and will grow in part shade or nearly full sun if provided adequate moisture. The leaves of *Carex morrowii* are typically almost a half-inch wide and solid green, but variegated forms were introduced to Europe by the mid-1800s.

Among gardeners and the nursery industry, the name *C. morrowii* 'Variegata' has long served as a "catch all" for a number of variegated Japanese sedges, creating much confusion. Some plants sold under this name have distinctly cream-variegated margins. In others the variegation is barely apparent. Since this very durable, broadly adapted sedge is most frequently used as a ground cover, it is best to choose a cultivar that spreads with reasonable vigor. A sure bet among the modern lot is *C. morrowii* 'Ice Dance', which has good marginal variegation, is cold hardy to Zone 5 and fairly heat tolerant, and quickly knits together to create a uniform carpet. A related selection, *C. morrowii* var. *temnolepis* 'Silk Tassel', has leaves only an eighth-inch wide, dark green at the margins and clear white at center, forming an exquisite, shimmering fountain of great refinement.

Though often mislabelled as *C. morrowii*, *C. oshimensis* 'Evergold' is a common



but excellent sedge, cold hardy to Zone 6 but performing best in regions with moderate summer heat and humidity. 'Evergold' forms a densely tufted, spilling mass of fine-textured foliage to 16 inches tall. The glossy slender leaves are dark green at the margins with a broad median stripe that is creamy white on emerging foliage, usually yellowing slightly as it matures. Reversions to solid green and variations in the color of the median variegation are somewhat common. This truly beautiful sedge is useful as a bright accent, in groups, or as a container subject.

Densely tufted *C. conica* 'Snowline' is finer-textured than 'Evergold', and—as its name suggests—is quite hardy, surviving into Zone 5. Similarly hardy is *C. dolichostachya* 'Kaga Nishiki', a lacy beauty perfect for brightening a semi-shaded border or moist sunny garden spot. Its leaves are medium green at the center and gold at the edges, forming a symmetrical fountainlike mound.

Distinct from the preceding sedges is *C. siderosticha* 'Variegata', which creeps slowly to form a dense mass of bold-textured foliage. The leaves are just over an inch wide, mostly green at center with white margins and frequent secondary striping. Originating from a mountain woodland species, this sedge is a long-lived and durable choice for the shade garden. One of the most striking of the variegated sedges, it is beautiful from the moment the new leaves emerge in spring until it goes dormant in late autumn. Slugs and snails may disfigure the foliage in constantly moist settings. Although cold hardy to Zone 6, its foliage dies back in winter. Terra Nova Nurseries, a wholesale grower in Oregon, has recently introduced from Japan a stunning gold-variegated selection called 'Island Brocade' that shows great promise for use in garden beds and container displays.

One of the most unusual of the variegated sedges is *C. phyllocephala* 'Sparkler', which has a unique whorled effect to its foliage. The leaves are dark green in center with broad, conspicuous white to creamy white margins. While only cold hardy to Zone 8, it makes a superb container specimen in colder regions. It grows to two feet tall in part shade or in full sun with plenty of moisture.

#### **Sedges for Watersides and Wet Environments**

Not surprisingly, you're likely to find the greatest number of sedges offered by nur-

eries specializing in plants for water gardens, often grouped with other "marginals"—plants that are happy to have their feet wet but don't venture into deep waters.

Many of the most popular waterside sedges are tender species such as umbrella plant (*Cyperus alternifolius*) and papyrus (*C. papyrus*)—hardy only in Zones 8 to 10—but there are a number of ornamental *Carex* species suited to wet edges. Most unusual is *C. baccans*, the crimson-seeded sedge native to India, Sri Lanka, and China. This is a coarse-textured plant with medium green, half-inch-wide leaves and seed clusters that turn bright red by late autumn and remain showy through winter in mild climates. Hardy only to Zone 8, it grows well in shallow standing water or along slow, partly shaded streams.

Less exotic and much more cold hardy—to Zone 4—is palm sedge (*C. muskingumensis*) a North American native. The light green June flowers neither add nor detract significantly from the foliage, which is the main reason for grow-

ing this sedge. Palm sedge spreads by rhizomes, forming a fine-textured mass. Narrow tapered leaves radiate from lax stems growing to two feet tall. A tough, broadly adapted plant, palm sedge will thrive in shallow water but will also grow well in garden soils of average moisture. A few cultivars are available, including 'Wacht-posten' (also sold as 'Sentry Tower')—which is slightly more erect than the species—and 'Oehme', which has narrow yellow leaf margins. The most recent introduction, 'Little Midge', is a true miniature—less than 10 inches tall—but vigorous and extremely durable even in soils that go fairly dry in summer.

It is interesting to think how a keen eye tuned to chance variation can sometimes produce something of great value to the gardens of so many. Untold multitudes of tussock sedges (*Carex elata*) naturally occur in swamps, mires, fens, and edges of lakes and riverbanks in northern and eastern Europe—and nearly all of them have medium green leaves. Many years ago,



A member of the sedge family, papyrus, shown above in company with water lilies and turtles, is an outstanding addition to the margins of a pond.



## Growing Sedges in the Garden

**M**ost sedges are easy to grow on well-drained organic soils. Moisture requirements vary considerably between species, but there are many drought-tolerant types in addition to those that prefer moist conditions. Relatively few pests or diseases affect sedges. The brown-leaved New Zealand species are susceptible to root mealybugs in overly hot climates. Slugs can be a minor nuisance in moist, shady settings. Leaf-spotting attributable to *Botrytis* can sometimes mar variegated selections. Cold and heat stress are usually the limiting factors to growing sedges. Tropicals and subtropicals such as *Cyperus papyrus* must have continuous warmth. Among temperate species, many of the most vividly variegated cultivars are reliably hardy only to USDA Zone 6 or 7, yet many of these will also suffer mightily in regions with hot summers (AHS Heat Zone 9 and higher).

Sedges increase by means of rhizomes or stolons. Many are tufted in their growth, forming clumps that gradually increase in girth. Others run at varying paces, sometimes forming large mats. The popular genus *Carex* includes both runners and clumpers. Most sedges can be propagated by division in spring. Many of the more cold-hardy ones may also be successfully divided in fall, and the subtropical and tropical types can be divided whenever they are in strong vegetative growth. Deciduous types usually look best when cut back annually in winter or early spring. Evergreens or semi-evergreens are often best left uncut, or they should be cut back only occasionally in late spring to remove accumulations of old foliage from previous seasons. —R.D.



New Zealand sedges such as leatherleaf sedge, above, have unusual bronze-colored to brown foliage that looks best set off against silver and gray companion plants.

English writer and horticulturist E. A. Bowles was walking in his familiar Norfolk Broads when he came upon a chance mutation with golden-striped leaves. His discovery has since become well known to the gardening world as Bowles golden sedge, *C. elata* 'Aurea'.

What has often escaped memory is that this species is naturally at home in soils that are inundated, at least for part of the year. Bowles golden sedge will grow adequately in soils of average moisture, but its intensely yellow foliage is at its best—and lasts longest into summer—when planted at a wet edge. Shaded siting is necessary in

drier soils, in which case the foliage will be more lime-green than yellow. It grows beautifully in the Pacific Northwest, where its golden glow is a welcome tonic for the frequent stretches of gray and wet weather that are typical of winter in that region. It is hardy to Zone 5, but cannot tolerate hot dry summers.

### New Zealand Sedges

Those gardeners who fear they have a brown thumb should be encouraged to try their luck with the New Zealand sedges, a strikingly unusual group of exceptionally fine-textured, tuft-forming *Carex* species. All are evergreen, but here this term seems a bit of a misnomer. Enthusiasts describe the foliage hues as shimmering shades of bronze, tan, copper, and even burnt umber. The uninitiated may wonder if they are looking at last season's mortalities. I find these plants particularly valuable as tools for convincing American gardeners not to use mulch as a preferred background color for beds and borders: Brown against brown is rarely attractive. The New Zealand sedges demand companions that offer both textural and color contrast. Silvers and bright gray plants such as *Artemisia* or *Stachys* always work well, as will a host of flowering consorts.

The New Zealand sedges generally require well-aerated soils, especially in winter, and, though beautiful, are typically short-lived in North American gardens. They will tolerate part shade, but their colors are most vibrant in sun. They are not bothered by summer heat but are particularly susceptible to root mealybugs.

Two of the best and most readily available species are New Zealand hairy sedge (*C. comans*) and leatherleaf sedge (*C. buechananii*). The aptly named hairy sedge produces a great mound of pendant flowing foliage often nearly two feet across. The cultivar 'Bronze' has deeply bronzed foliage all year and is cold hardy to Zone 5. The slightly hardier leatherleaf sedge is similar in color but strikingly different in form, with nearly erect or only slightly arching foliage. Blonde sedge or frosted curls sedge (*C. albula*) produces a cascading fountain of the finest-textured, light green foliage. The leaves are highly glossy, and the plants often appear silvery green from a distance. This species is cold hardy to Zone 5. Most New Zealand sedges self-seed to some degree but are rarely a nuisance. They also make fine container subjects.



### More Native North American Sedges

A renewed interest in North American native plants is also broadening the available palette of garden sedges. There is considerable ornamental potential among a number of sedge genera, including *Carex*, *Cymophyllus*, *Eriophorum*, *Rhynchospora*, and *Scirpus*, to name a few.

It is a wonder that Fraser's sedge (*Cymophyllus fraserianus*, formerly *Carex fraseri*) is not better established in our woodland gardens. Named for its discoverer John Fraser (1750–1811), this handsome eastern native is rare in the wild and rarer in cultivation. It occurs naturally on rich, sloping upland woods and streambanks from Tennessee north to Pennsylvania, producing great clumps of lustrous, leathery, dark green foliage overtopped by some of the showiest flowers of all the sedges. Individual leaves are typically three-quarters of an inch wide and may be 20 inches long, persisting in evergreen glory through winter. The May-to-June flowers are bright white with conspicuous threadlike anthers and are clustered at the top of 15-inch-tall stems. Hardy at least to Zone 6 and tolerant of dense deciduous shade, Fraser's sedge requires a well-drained, richly organic soil with steady moisture for best growth. It may be propagated by seed or division.

Another woodland species, plantain-leaved sedge (*Carex plantaginea*), makes a delightful bold-textured companion to ferns and woodland wildflowers. The leaves are broad—to just over an inch wide—and bright shiny green, with prominent parallel veins and a subtle pleated effect. The foliage persists through winter for an evergreen presence. Plants are clump-forming but durable and long-lived, and are suitable for massing as a shady ground cover. A versatile species, *C. plantaginea* also makes an attractive container specimen. It requires regular moisture and part shade for best growth and is cold hardy to Zone 5.

A number of native woodland sedges have foliage in varying shades of glaucous blue-green and show promise for deciduous woodland gardens. Of these, *Carex flaccosperma* and its bluest variety, *Carex flaccosperma* var. *glaucodea*, are currently most widely available. Native to rich, often calcareous woods and bottomlands in the east, these sedges form loose tussocks up to one foot wide. The basal leaves persist through winter in fine condition. Tolerant of extremely shady conditions in summer,

these sedges are useful for planting under deciduous shrubs in mixed borders. Their blue-green leaves are a welcome presence in autumn, winter, and spring.

Gray's sedge (*C. grayi*)—named for eminent American botanist Asa Gray (1810–1888)—is a clump-forming native of eastern meadows and moist woodlands. It flowers in May, later producing conspicuous and attractive lime-green seed heads shaped like miniature maces, held up to three feet high, on leafy stalks. This species does best in light shade and moist organic soil and can be easily grown in a container for close viewing. Hardy to Zone 5, it may also be easily grown from seed.

European gardeners are familiar with their native pendulous sedge (*C. pendula*),



**Below left: The delightful mophead flowers of Fraser's sedge, native to moist woodlands of the eastern United States, are increasingly difficult to find in the wild. Below: Lush clumps of another North American native, plantain-leaved sedge, soften the edges of fieldstone in this North Carolina garden.**



## A Wanton and Weedy Sedge

In the May/June 1999 issue of *The American Gardener*, AHS President Emeritus H. Marc Cathey speculated that his grandfather—a North Carolina farmer—would have offered spirited commentary about inviting grasses into the cultivated landscape. I'm certain he would have really been alarmed had he heard that gardeners were next thinking about growing sedges—deliberately—since the farmer's most familiar sedge is *Cyperus esculentus*, a notorious and truly pernicious weed.

Known as nut-sedge, yellow nut-sedge, or nutgrass, this native of western Asia and Africa is widespread in the temperate New World and plagues farm and garden with equal alacrity. Attempts at mechanical removal are usually futile: The plant spreads by long, slender, tuber-bearing rhizomes and is capable of replicating from the tiniest remaining segment, which is particularly bad news for those of us who prefer our gardens herbicide-free. The good news is that the majority of sedges offered for ornamental use are clump-formers or slow spreaders, and even the fleetest running types can be managed with modest effort. —R.D.





Another sedge family member ideal for use in water gardens is giant bulrush (*Schoenoplectus tabernaemontani*). The cultivar 'Albescens' is shown here rising dramatically from a pond.

but it is cold hardy only to Zone 8 and is rarely encountered in American gardens. A similar but much hardier—to Zone 5—alternative is the fringed sedge (*C. crinita*), native to wet, shady woodlands and swales in eastern North America. Four feet tall measured to the top of the arching inflorescences, fringed sedge has great architectural interest. The pliant stems move gracefully with woodland breezes, and the pendant green flower clusters and seed heads catch the sunlight nicely. It is well adapted to wet shady conditions and is readily grown from seed.

North America also has its analogues to the European tussock sedge, though as yet no golden forms have been found. Native to wet swales, marshes, and creeksides, the northeastern tussock sedge (*C. stricta*) is similar in form and habit to *C. elata* and develops dense tussocks raised above water's surface, each with a characteristic skirt of accumulated old foliage surrounding the base. It spreads by rhizomes, often creating large stands. This species deserves consideration in larger, wet woodland gardens where it makes a stunning textural contrast with natural companions such as skunk cabbage (*Symplocarpus foetidus*), cinnamon fern (*Osmunda cinnamomea*), and royal fern (*O. regalis*). It is hardy to Zone 4.

Western gardeners may wish to try the analogous California black-flowering sedge (*C. nudata*), which is native along wet, sandy or rocky streambeds below the high-water mark in northern California. Hardy to Zone 7, it is densely tufted and reminiscent of *C. stricta*, but the conspicuously ornamental late-winter or early-spring flowers are nearly black when opening.

Another western species truly worth attention is the San Diego sedge (*C. spissa*). Native along watercourses in southern California, this tall sedge—to five feet—has wide, strikingly gray-blue leaves that distinguish it from all others. It spreads slowly by rhizomes—forming large clumps—and is a fine choice for streamside planting. The foliage is evergreen but is best cut back every few years to remove accumulations of dead or discolored leaves. It is cold hardy to Zone 7.

There are so many more native sedges worth inviting into American gardens. I've long admired the lime-green drifts of three-way sedge (*Dulichium arundinaceum*) that edge the reflective, tea-colored waters of the nearby New Jersey pine barrens near my home. This sedge is

## Sources

**CRYSTAL PALACE PERENNIALS**, P.O. Box 154, St. John, IN 46373. (219) 374-9419. E-mail: GSpeichert@aol.com. [www.crystalpalaceperennial.com](http://www.crystalpalaceperennial.com). Catalog free.

**HERONSWOOD NURSERY**, 7530 NE 288th Street, Kingston, WA 98346-9502. (360) 297-4172. E-mail: heronswood@silverlink.net.

[www.heronswood.com](http://www.heronswood.com). Catalog \$5.  
**KURT BLUEMEL, INC.**, 2740 Greene Lane, Baldwin, MD 21013-9523. (410) 557-7229. [www.bluemel.com](http://www.bluemel.com). Catalog \$3.

**LIMEROCK ORNAMENTAL GRASSES, INC.**, 70 Sawmill Road, Port Matilda, PA 16870. (814) 692-2272. Catalog \$4.

**PLANT DELIGHTS NURSERY, INC.**, 9241 Sauls Road, Raleigh, NC 27603. (919) 772-4794. [www.plantdel.com](http://www.plantdel.com). Catalog 10 stamps or a box of chocolates.

## Resources

**THE COLOR ENCYCLOPEDIA OF ORNAMENTAL GRASSES, SEDGES, RUSHES, RESTIOS, AND SELECTED BAMBOOS** by Rick Darke. Timber Press, Portland, Oregon, 1999.

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becoming available at more and more aquatic plant nurseries. The upright stems are distinctly triangular in cross section, and the sharp, narrow leaves are arranged in three obvious rows. The fine texture of this and many other semi-aquatic sedges makes for dramatic compositions when combined with the typically broad leaves of wetland companions such as waterlilies, lotus, pickerel weeds, and bog arums. The diverse appeal and utility of sedges can certainly put a fresh edge on our expanding definition of the American garden. ■

*The author of The Color Encyclopedia of Ornamental Grasses, Rick Darke lives in Landenberg, Pennsylvania.*



# Fragrant Tulips

**Get twice the sensory satisfaction  
by adding tulips with scented flowers  
to your spring bulb display.**



b y R a n d B . L e e

**There are more tulips** in the world than you can shake a stick at, but very few of them possess anything like what you would call perfume. Those that do are the treasures of my spring garden.

When I say these tulips are perfumed, I do not mean that they would outstink the damask rose, beggar the jasmine, or wipe from memory the haunting midsummer sweetness of honeysuckle. The scent of tulips varies in intensity from cultivar to cultivar and from year to year, depending on climate, being rather thin overall, slightly musky, and slightly honeyed; in the most strongly fragrant types it reminds me of the perfumed red lipstick my mother—and many other women—used to wear in the 1950s.

Nor does a tulip's fragrance travel far from the flower. But stick your nose close, or walk through a warmish parlor where a bouquet of these flowers is displayed, and ever after you will

find the unscented majority of the genus—no matter how highly colored—falls slightly short of perfection.

Tulips are, conveniently for gardeners, classified into groups based for the most part on their time of bloom. The exception to this rule is species—sometimes called botanical or wild—tulips, which are normally grouped based on their relationship to a few predominant species. Individual species and hybrids are usually considered a subgroup of the latter classification. In the following discussion of fragrant tulips, botanical species representing a range of flowering times are covered first, then the other tulips are described in order of flowering schedule, starting with single early tulips and moving on to middle- and late-season tulips.

## **Species Tulips**

Perhaps the oldest scented tulip grown is the wood tulip (*Tulipa sylvestris*, once known as—among other names—*T. florentina* var. *odorata*). At only eight to 14 inches tall, it is a flower one must



stoop to sniff, but, come spring, any self-respecting gardener will be on his or her knees anyway, so this is not a great hardship.

In early April wood tulips raise their channeled, narrow, dark blue-green leaves and one or two starry flowers in a shaded and irrigated clay-and-loam bed in my Santa Fe garden, at what is supposed to be near the limit of the species's range; they are reliable from about Zone 4 or 5 through the cooler areas of Zone 8.

The small blossoms are yellow inside with green markings, sometimes tinged slightly pink on the outer surface of the petals. They are not much to look at if you prefer tulips as big as Volkswagens, but their fragrance has been likened to that of violets, and they naturalize well in any reasonably moist spot. Scott Kunst, a garden historian and owner of Old House Gardens nursery

in Ann Arbor, Michigan, says they are so commonly found on the sites of former homesteads in Pennsylvania that they are often called "Dutch tulips." Actually, their origins are uncertain—they have long been naturalized from Europe and North Africa to Central Asia and Siberia—but they were probably first brought into European gardens by the Italians in the 12th century.

Another fragrant species tulip is *T. biflora*, from the Caspian Sea and Caucasus Mountain regions of southeastern Europe and first described in horticultural literature around 1776. One of the smallest tulips in cultivation—only about four inches tall—it has curvy, narrow blue-green leaves with burgundy margins and tips. The bell-shaped blossoms are a dull greenish gray on the outside but a sweet cream color on the inside, with a golden base.

**Below:** The lily-flowered tulip 'Ballerina' takes center stage in this mixed border, photographed in late April.

**Opposite:** Introduced in the mid-18th century and still in production today, delicately scented 'Keizerskroon', left, is one of the most enduring tulip cultivars. *Tulipa biflora*, right, a species tulip native to eastern Europe, has flowers with flaring cream-colored petals that reveal a golden heart.







*Of the early-flowering tulips, the classes that yield the most-fragrant varieties are the single and double earlies.*

The Candia tulip (*T. saxatilis*) is five to eight inches tall, bearing in April to May one to four scented pinkish-lilac blossoms blotched yellow and cream at the center. Its narrow leaves are a shining green. Though it is supposed to be hardy to Zone 4 or 5, it comes from Crete—like its darker-flowered near relative *T. bakeri*—and requires no cold period to flower. This makes it a great species tulip for Zones 8 to 10. It was introduced to gardens in 1827.

The diminutive *T. aucheriana*, from Iran, stands four to six inches tall, with one to three flat, pink, starry flowers per stem. The flowers are striped yellowish green outside, but inside they bear a central yellowish-brown blotch. The strap-shaped leaves are distinguished by wavy margins.

### **Early Tulips**

Of the early-flowering tulips, the classes that yield the most-fragrant varieties are the single and double earlies. Of the single earlies, 'Prince of Austria' is one of the rarest. Introduced to commerce around 1860, this tulip is widely said to be the most strongly perfumed of all tulips. Hardy from Zones 3 to 7, it blooms in early to mid-April at about a foot tall. Its rather large buds open a brilliant orange-red and mature to a shimmering red-orange. Its scent is particularly honeyed.

'Prinses Irene' (usually sold in North America as 'Princess Irene') is orange, too, but a softer, truer orange than that of the Prince, with wine streaks up its petals like a

blush of aristocratic pique. It, too, gets 12 inches tall. There is sweetness in the Princess's scent, but there is something else, too: the soft odor of lint just warm from the dryer, a scent that is homey rather than alluring. It is best to keep the Princess and Prince apart; they possess very different orders of color.

'Generaal de Wet' is another kettle of fish. This cultivar is a sport of 'Prince of Austria', but where the Prince is a rogue in a coat of flame, the Generaal's more restrained coloring hints of fires banked but by no means extinguished. 'Generaal de Wet' is hardy from Zones 3 to 7 or 8. Its flowers, which are large for its 16-inch height, are a warm amber color, gold at the base, and flushed and spotted dark orange; they offer a dignified version of the 'Prince of Austria' perfume.

Another royal, 'Keizerskroon', also possesses scent. It is one of the oldest tulips in cultivation, introduced in 1750, with somewhat variable, scarlet, yellow-edged, cup-shaped flowers on roughly 13-inch stems. It is hardy from Zones 3 to 7. Although a number of similar clones are in commerce, so far I have found the true 'Keizerskroon' carried only by Kunst at Old House Gardens in Michigan (see "Sources" on page 47). What a thrill to grow a tulip known more than 200 years ago!

'Bellona' is probably my favorite scented tulip. Some people call it a single early, others a mid-season-blooming Triumph tulip; for me it blooms with 'Generaal de







Wet' and 'Prince of Austria'. Introduced around 1944, 'Bellona' is as yellow as a tulip can be. It grows 18 inches tall under ideal conditions and is hardy from Zones 3 to 7, but even in less-than-perfect growing conditions, as in my garden, there is no tulip that can compare to it for simple perfection of flower. Each bud opens to a rich, warmly perfumed, butter-gold goblet, long-lasting on the stalk and in the vase, and it forces easily. Every fall I can't keep myself from ordering dozens and dozens. I find it quite as strongly perfumed as 'Prince of Austria', but I would hate to have to choose between them.

The double early tulips are short for the size of their blooms, standing only about

Opposite: A garden of these fragrant pink tulips would offer double delight. Clockwise from top left: 'Maywonder', a peony-flowered tulip; 'Electra', a cherry-colored early double; and 'Peach Blossom', a short early double.



Above: Fragrant yellow 'Monte Carlo' mixes it up with pink 'Preludium' and red 'Ile de France' in this brilliant display garden in Roozengaard in Washington State.

10 to 12 inches tall. They are ideal for forcing and planting in beds, and they can also be cut for arrangements—although a forced pot brought into the warmth of the room will be just as pretty as a vase arrangement—and the blooms will last longer. Many possess a sweet scent. 'Abba' is tomato-red, flamed a deeper red; 'Electra' is cherry-red; 'Monte Carlo' is a gorgeous yellow, strongly perfumed; 'Peach Blossom' is a beautiful pale pink—not peach; 'Schoonoord' is sweet-scented and white. Because of their heavy blooms, these tulips should be planted in a location that is sheltered from strong winds; all bloom about mid-April in Zone 6.

### *Mid-Season Flowering Tulips*

Tulips are not, as a class, deeply scented, but two cultivars of these mid-season

## Sources

**BRENT AND BECKY'S BULBS**, 7463 Heath Trail, Gloucester, VA 23061. (877) 661-2852. [www.brentandbeckysbulbs.com](http://www.brentandbeckysbulbs.com). Catalog free.

**JOHN SCHEEPERS, INC.**, 23 Tulip Drive, Bantam, CT 06750. (860) 567-0838. Catalog free.

**MCCLURE & ZIMMERMAN**, 108 West Winnebago Street, P.O. Box 368, Friesland, WI 53935. (800) 883-6998. [www.mzbulb.com](http://www.mzbulb.com). Catalog free.

**OLD HOUSE GARDENS**, 536 Third Street, Ann Arbor, MI 48103-4957. (734) 995-1486. [OHGBulbs@aol.com](mailto:OHGBulbs@aol.com). Catalog \$2.

**PINETREE GARDEN SEEDS**, Box 300, New Gloucester, ME 04260. (207) 926-3400. [www.superseeds.com](http://www.superseeds.com). Catalog free.

## Resources

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**BULBS** (two volumes) by John E. Bryan. Timber Press, Portland, Oregon, 1989.

**BULBS AND TUBERS** by Klaas Noordhuis and Sam Benvie. Firefly Books, Buffalo, New York, 1997.

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**THE INTERNATIONAL BULB SOCIETY**, P.O. Box 92136, Pasadena, CA 91109-2136. [www.bulbsociety.com](http://www.bulbsociety.com)

**NETHERLANDS FLOWER BULB INFORMATION CENTER**, 30 Midwood Street, Brooklyn, NY 11225.



## Caring for Tulips

When choosing tulips, it is important to remember that the types most likely to perennialize in your garden are the species tulips and the single earlies. Most others will have to be replaced each year. In USDA Zones 9 and 10, tulips must be pre-chilled and grown as annuals. It is best to use mid- and late-season blooming tulips in these regions, because they perform better in warmer conditions.

All tulip bulbs will do better and produce longer flower displays if the soil is initially well prepared. Good drainage is important, as is full sun (afternoon shade is advisable in hot climates) and a fertile soil; amending with compost, well-rotted manure, and bonemeal or soft phosphate rock dust will cover a multitude of sins.

I like clumps of tulips better than rows or a single tulip dotted here and there. If you plant species tulips in your mixed borders, however, put them well to the back or the sides, because under ideal conditions they will multiply and devour your flower bed year by year.

Feed all tulips with a commercial bulb fertilizer or a balanced blend of bone-meal and phosphate rock dust as soon as they emerge from the ground. After the plants finish blooming, snap or prune off the forming seed heads but leave as much stem and leaf on the plants as possible. You can plant annuals such as cosmos and larkspurs in front of or around the fading plants to distract attention from them until they have withered. The longer you leave them undisturbed before they wither, the more food they will store in their bulbs for next year.

In consequence, the perennial types will flower in ensuing years like nobody's business—unless, of course, the squirrels or gophers get them. If you are plagued with these rodents, a sprinkling of cayenne pepper in the planting holes and/or a layer of chicken wire over the top of your bulbs may be necessary. —R.B.L.

## Other Tulips of Fragrance

The following tulips have at one time or another been described as possessing at least some fragrance. A few are difficult to find in commerce, but all are worth trying both for fragrance and appearance.

TULIP	COLOR	FLOWERING TIME
<i>T.</i> 'Apricot Beauty'	salmon-pink	April/May
<i>T.</i> 'Apricot Parrot'	salmon-pink with green markings	May
<i>T. bakeri</i>	purple	March/April
<i>T.</i> 'Bastogne'	dark red flamed cardinal red	April/May
<i>T.</i> 'Beauty Queen'	pale salmon feathered rose	mid-April
<i>T.</i> 'Christmas Marvel'	bright cherry pink	mid-April
<i>T.</i> 'Daydream'	golden orange	May
<i>T. dubia</i>	yellow with violet markings	May/June
<i>T. fosteriana</i>	scarlet with black markings	March/April
<i>T.</i> 'Ivory Floradale'	creamy white	March/April
<i>T. kaufmanniana</i>	cream to yellow	March/April
<i>T.</i> 'Little Beauty'	reddish pink	early May
<i>T.</i> 'Little Princess'	burnt orange flushed gold	early May
<i>T.</i> 'Mr. Van der Hoef'	golden yellow	April
<i>T.</i> 'Oranjezon' ('Orange Sun')	orange	May
<i>T. platystigma</i>	pink to violet with orange markings	May
<i>T.</i> 'Purissima'	white	early May
<i>T. tarda</i>	yellow and white with multi-colored markings	May

bloomers in particular stand out for their fragrance. 'Annie Schilder' is rose on the outside, edged in orange; within, the flower is rightly described as "persimmon," flamed pink and blotched yellow at the center. It stands 18 inches tall and blooms in late April or early May with a pronounced fragrance. 'Salmon Jewel' is rosy orange streaked violet outside, earth-orange within; alas, the colors fade as the blossoms age, but they are pretty while they last.

### Late-Flowering Tulips

Among the lily-flowered tulips, 'Ballerina' is another fragrant gem. This cultivar, which stands 22 inches tall, is usually described as lemon-yellow with scarlet flames, but, in fact, the scarlet and yellow combine to make the flowers a luminous pale-edged orange outside, earth-orange and red within. Like all the tulips in its class, it has back-curved petals and long graceful stems. 'Ballerina' is hardy from perhaps Zones 3 to 7.

'Orange Favourite', a sweetly perfumed, 20-inch-tall parrot tulip, possesses fantastically fringed, scalloped petals that are dark orange and flushed rose with green streaks on the outside, while inside they are a strong reddish orange.

The single late tulips—sometimes called cottage tulips—are not renowned for their fragrance, but I have found 'Dillenburg', which is hardy from Zones 3 to 8—a notable exception. Aptly described as "terracotta-colored," its wonderfully scented flowers wave two feet off the ground.

The taller cousins of the double early tulips, the equally double peony-flowering tulips make much better cut flowers and a few are also scented. At 18 inches tall, 'Angelique' has enchanting creamy pink flowers with darker pink flushing; 'Creme Upstar'—short at 14 inches—is pale yellow and cream, edged rose; 'Maywonder' is a rather blowsy rose-to-red-colored tulip that grows to 20 inches.

Your fall bulb catalogs should still be sitting on the coffee table or lying on the floor beneath your nightstand, so if you haven't done so already, now is the time—while inspiration has a hold of you—to take the plunge and order some fragrant tulips in time to plant them this fall. You will have a winter to anticipate the results of your impulsiveness, but the results come springtime will be well worth the wait. ●

*Rand B. Lee stoops to smell the tulips in his Santa Fe, New Mexico, garden.*



# The Greening of Kansas City

**Kansas City's two major public gardens are a study in contrasts.**



Flanked by grasses and butterbur (*Petasites japonicus*), a soothing cascade of water tumbles down rock steps in Powell Garden's Rock and Waterfall Garden.

by Bill Sheldon  
photography by Aneal Vohra

**Fifteen years ago** the Kansas City area had the dubious distinction of being the largest metropolitan region in the United States without a major public garden. Today, thanks to the beneficence of a local family and the foresight of a suburban government, residents of the sprawling metropolitan area that overlaps the border between Kansas and Missouri have two up-and-coming regional gardens to choose from—Powell Gardens and the Overland Park Arboretum and Botanical Gardens.

Powell Gardens—located on the Missouri side about 30 miles southeast of the city center—opened in 1987. Established with private funding, Powell is the more classical botanical garden of the two and is much further along in development of gardens and visitor facilities on its 915 rural acres.

Named after Overland Park, Kansas, a commuter community of some 130,000 people located 20 miles southwest of central Kansas City, Overland Park Arboretum and Botanical Gardens opened in 1995. Overland Park's developers have only scratched the surface of the garden's 620 acres but are carrying forward a carefully outlined development program that will preserve the diverse ecology of the existing landscape and promote environmental awareness.

## ***Different Paths***

Despite initial misgivings that the gardens might end up duplicating each other's plant displays, the gardens have developed with quite different philosophies. "Ten years ago





**Top:** Sited on the lakeshore opposite the visitor education center, Powell Garden's chapel was designed to blend in with the natural beauty of the garden. **Above:** George E. Powell III and his wife, Wendy, enjoy one of the formal gardens at Powell.

we were only somewhat aware of what Powell was planning, and I know they were apprehensive about competition," says Ailie Speer, a former member of the Overland Park city council who chaired the original planning committee for the arboretum.

Cooperation between the gardens has been enhanced by participation of a few community leaders on the board of directors for both gardens. "We deliberately tried to steer away from Powell's main focus," says Wayne Byrd, a former Overland Park city council member who now chairs Overland Park's Parks and Recreation Department Foundation and also serves on the board of the Friends of Powell Gardens. Powell's President Eric Tschanz concurs: "If you visit both gardens, you'll see there's quite a bit of difference in the styles and in the programs being offered."

That the gardens are so different is not surprising considering the contrasting routes taken in planning and developing their facilities. Powell Gardens represents the vision of a local family who sought to leave a legacy for area residents. "Our family saw the void and wanted to create a significant cultural statement for Kansas City," says George E. Powell III, whose grandfather's foundation has principally funded the garden.

Powell's conceptualization occurred in the early to mid-1980s, when Powell's aunt—Marjorie Powell Allen—and other Powell family members began discussing the idea of a botanical garden for the

Kansas City area. Funding was set aside for the garden and ground was broken in 1984 on land owned by the Powell family that had previously been used as a dairy farm. The first gardens and a temporary visitor's center were completed by 1987; the new state-of-the-art visitor education center opened in 1997.

Overland Park also traces its origins back to the mid- to late '80s. Speer says that at that time local government officials received a clear message from area residents that suburban development had gone too far. "There was a widespread desire to preserve greenspace," she recalls.

In 1990, the City of Overland Park purchased 300 acres from Margaret Cundiff, a local resident who still lives on an adjoining property. Additional funding for major development projects has since been raised by seeking matching grants and donations from public and private sources in surrounding communities. In 1997 Crosby and Bebe Kemper donated another 320 acres of land adjoining the arboretum's western border.

The master plan was completed in 1991 and the first gardens were installed in 1995. The first major building, an environmental education center, is scheduled to be completed this fall.

### ***Powell Gardens***

Powell Gardens' master plan was designed by Geoffrey Rausch, a former member of the American Horticultural Society's Board of Directors and a partner in Mar-





## Powell Gardens

There is a nominal admission fee to visit Powell, but AHS members carrying a valid membership card will be admitted free as part of the AHS Reciprocal Admission Program. Powell is open daily except on New Year's Day, Thanksgiving, and Christmas; hours vary seasonally. For additional information or directions, write Powell Gardens, 1609 NW U.S. Highway 50, Kingsville, MO 64061; call (816) 697-2600; or visit Powell's Web site at [www.powellgardens.org](http://www.powellgardens.org).

## Overland Park

Admission is free to Overland Park Arboretum; the facility is open daily but hours vary seasonally. For additional information or directions, write to Overland Park Arboretum and Botanical Gardens, P.O. Box 26147, Shawnee Mission, KS 66225; call (913) 685-3604.

shall. Tyler Rausch, a landscape architecture firm based in Pittsburgh, Pennsylvania. Rausch has worked with major gardens across the country, including the Missouri Botanical Garden, Atlanta Botanical Garden, and Chicago Botanic Garden.

The garden is anchored around a 12-acre lake, with the visitor education center

along the long western axis of the lakeshore, a chapel at the northern end of the lake, and the main landscaped area—a three-acre perennial demonstration garden and a two-and-a-half-acre rock and waterfall garden—across from the visitor education center on the eastern corner of the lake. The perennial garden contains 1,200 different perennials suitable for Kansas City's climate, while the rock and waterfall garden includes a woodland area that supports 600 varieties of shade-loving plants such as hostas and azaleas. Another major feature is a six-acre hillside meadow composed of a mixture of native prairie plants and non-native wildflowers such as daisies and cosmos.

So far only 20 of Powell's 915 acres are formally cultivated—although another 80 acres is maintained—so the garden has an informal, open look, with rolling hills and long sightlines. Over the next 25 years, says Powell's president, Eric Tschanz, about 150 acres will be formally designed. "We've taken advantage of the natural lay of the land," says Tschanz, "so the gardens aren't on top of each other." According to Tschanz, visitors frequently comment that the garden evokes a sense of serenity or spirituality. "It's nothing we tried overtly to develop," says Tschanz. "It just evolved in that direction."

The spiritual nature is enhanced by a glass-wood-and-stone chapel that sits above the lake, opposite the visitor's center. The non-denominational chapel—designed by nationally renowned architect Fay Jones—was not in the original plan for the garden, but was built at the behest of Marjorie Pow-



**Top:** Overland Park Arboretum supervisor Ruth Doherty prepares to cross Wolf Creek as she hikes in the arboretum's pristine woods. **Above:** Massed purple salvia creates a brilliant display in the courtyard garden at Powell Gardens.



## Overland Park and Powell at a Glance

	OVERLAND PARK	POWELL
Original land use	Multi-use farm	Dairy farm
Year purchased	1990	1948
Year opened	1995	1987
Full-time/part-time staff	2/10	31/34
Total acres/acres in use/acres planned	620/20/40	915/100/200
Annual visitation	20,000	115,000
Annual budget	\$300,000	\$2 million
Total planned capital cost	\$14 to \$17 million	\$50 million



Above left: Ailie Speer, who was on the planning committee for the Overland Park Arboretum, shows off Osage orange fruits found along one of the trails. Above right: Water courses along a naturalized channel in Overland's Erickson Water Garden.



ell Allen, who was inspired by the chapel at Callaway Gardens in Georgia.

The only real challenge Powell has faced is its location—about 45 minutes' drive from mid-town Kansas City, which tends to discourage visitors who have a limited time to spend in the garden. As the garden continues to develop, however, its founders believe more and more people will find reasons to seek it out.

And there are great plans for Powell's future. "In terms of the time it usually takes to develop public gardens, we've moved along fairly quickly," says Tschanz. The major project at Powell this year is a water garden that is being constructed on a two-acre island in the center of the lake. In the next 25 years a number of new gardens will be created at Powell, including one of Rausch's specialties, a children's garden.

### Overland Park

What the City of Overland Park got for its initial \$1.6 million investment is a diverse 300-acre tract that includes eight distinct

ecosystems. These ecosystems reflect the transition on the site from oak-hickory forest representative of that found in the nearby Ozark Mountains to riparian (river) woodland and prairie remnants. Visitors can see all these habitats by following the five miles of wood-chip-surfaced hiking trails that crisscross the arboretum's property.

Overland Park is home to many native species, including trees such as pawpaw (*Asimina triloba*), and Osage orange (*Maclura pomifera*). Shrubs and native wildflowers on the site include leatherwood (*Dirca palustris*), fragrant sumac (*Rhus aromatica*), dog-tooth violets (*Erythronium albidum*), and elderberry (*Sambucus canadensis*).

"We're the huge backyard that folks in residential developments can't have," says staff horticulturist Bob Facer. "We're preserving a diverse selection of the regional natural plant communities so that people can see and learn about them."

Another dynamic natural feature at Overland is Wolf Creek, a fast-moving stream that strikes diagonally across the property. The

stream and its narrow floodplain support a riparian woodland ecosystem featuring plants that tolerate seasonal flooding.

"The original design was to develop only 15 percent of the land and leave the rest natural," says Byrd. To achieve that goal, structured gardens are being carefully integrated into the existing landscape. The first major garden constructed was the Erickson Water Garden, which includes waterfalls, channels, and a meadow garden. Two woodland gardens—reflecting the community's strong commitment to preserving trees—opened this summer and a children's discovery garden will be completed this fall.

The garden's first major building, the environmental education center, is also scheduled to be finished this fall. The building will also serve as a visitor center; the actual visitor center is slated to be built in conjunction with a conservatory at a later stage of development. Building the education center first, says Byrd, allows the arboretum to get started on its main mission of providing environmental education.

The building itself is a showcase for environmental practices. It will be heated and cooled by geothermal energy, and eventually the wastewater produced by the building will be treated in an on-site solar aquatic biological treatment facility. "The building should be teaching us about environmentally responsible principles even when there are no classes in session," says Byrd.

### Looking Ahead

With sound financial backing and strong community support, Kansas City's young public gardens have potential to join the elite public gardens in America's heartland.

Frank Theis, a Kansas City planner who has consulted with botanical gardens across the country, has a good perspective on both gardens because he created the master plan for Overland Park and is also past president of the Friends of Powell Gardens. "Powell promises to be among the finest privately run gardens in the country, maybe among the top 10 of all gardens," he says.

Theis is also sanguine about Overland Park's long-term prospects. "It's a very different kind of experience at Overland Park, one we believe will complement Powell Gardens. Overland Park's demographics are excellent, and it is designed to handle larger numbers of people than Powell," he says. ●

*Bill Sheldon is a free-lance writer living in Gardner, Missouri.*





## book reviews

🌱 **annuals**

🌱 **cacti**

🌱 **birds in the garden**

🌱 **gardening dictionary**

### DISCOVERING ANNUALS.

Graham Rice. Timber Press, Portland, Oregon, 1999. 1,992 pages. 10" x 10 1/2". Publisher's price, hardcover: \$34.95. AHS price: \$24.50.

These days it seems that there is hardly any garden topic that publishers haven't done to death. Rather than looking for needs to fill, they look for bandwagons to board. Annuals have been a notable exception, but that's not the only reason this book came as a delightful surprise. At Timber Press, information rather than drop-dead photography or snazzy layout is usually the priority. Must-haves for the serious gardener, but not exactly eye-popping. If *Discovering Annuals* were just a *bit* thicker and the text a *little* less authoritative, it could be—dare we say it?—a coffee table book. The photographs are sumptuous and generously used and should go a long way toward restoring this plant category to respect.

Just as deserving of celebration is Rice's friendly, colloquial tone, paired with an analysis of why annuals have come to such a sorry state. He takes a hard look at the "green industry," its reluctance to develop and market products for more thoughtful gardeners, and its bent toward cultivars that are squat, scentless, or garish instead of graceful, fragrant, and discreet. Some wonderful plants appear briefly, only to be gone from nurseries in a few seasons, he

laments. Unfortunately, the great specificity with which he treats cultivars could also serve to date the book.

Some annuals are downright ugly and dumpy, he acknowledges in his foreword. Don't buy them. Options are out there, but it often means growing plants from seed. Impatiens are a good example. In spite of being painfully common—a friend of mine calls them "the pigeons of the plant world"—they truly are almost indispensable for mid-to late-summer color in shade. But if you want, say, a pearly pale pink to glow discreetly between the hostas and ferns rather than a hodgepodge of magenta, highway-cone orange, and fire hydrant red, you better plan on getting those seed trays out next winter. Rice notes many other annuals that are sold in less-than-thrilling mixes, as though we gardeners couldn't make our own decisions about whether we want to mingle red and yellow.

One reason many of us have come to loathe annuals is the way they've been planted in uniform—or red, white, and blue—blobs in public places. So the business of how to mingle them may be the most exciting aspect of the book. The listing for each genus is rich with ideas about annual and perennial companions, not only for color of flower and foliage, but also to come on-stage as one species fades or its stems get ratty.

Although Rice is British, he spends considerable time in the United States and credits fellow garden writer Judy White—who renders her name judywhite—with helping him look for cultural differences for the plants he mentions. I certainly didn't detect any errors along these lines. Similarly, when I did an online search for the availability of mentioned cultivars, I came up empty on a few but found enough sources to satisfy my itch for pictured beauties like *Lavatera* 'Silver Cup' or the pale yellow *Chrysanthemum coronarium* 'Primrose Gem'.

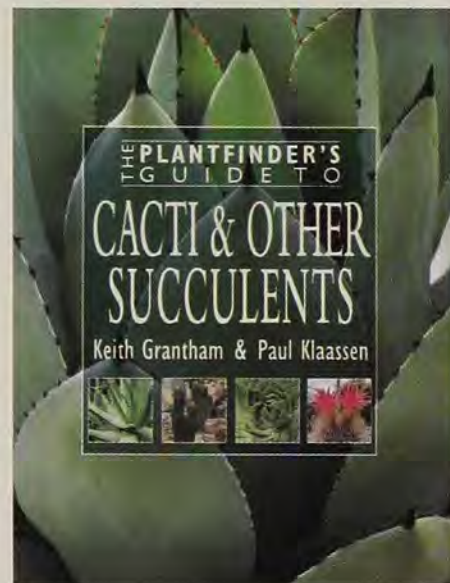
I would have preferred that Rice come down more firmly on the side of organic gar-

dening. A cultural section in the back of the book advises first to hand-pick insects—but then to "spray with an insecticide." Rice admits to using a systemic insecticide weekly on nasturtiums and suggests preventive spraying for mildew-prone plants such as calendula.

With the incredible array of plants in his book, a better answer for those in humid climates would be his suggestion regarding ugly annuals: Just don't grow them.

—Kathleen Fisher

Kathleen Fisher is a free-lance writer living in Alexandria, Virginia.

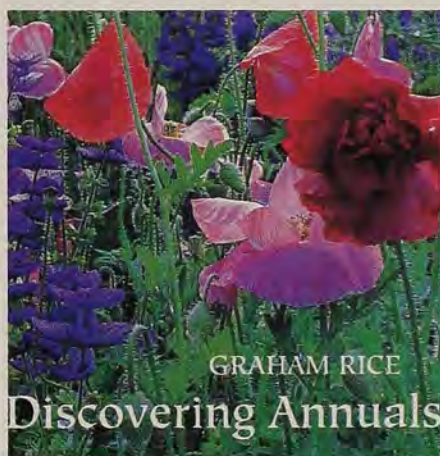


### THE PLANTFINDER'S GUIDE TO CACTI & OTHER SUCCULENTS.

Keith Grantham and Paul Klaassen. Timber Press, Portland, Oregon, 1999. 192 pages. 7 1/4" x 10 1/4". Publisher's price, hardcover: \$34.95. AHS price: \$24.50.

With increasing American interest in a southwestern gardening style, the publication of *The Plantfinder's Guide to Cacti & Other Succulents* couldn't have come at a better time. Though the authors are British—giving the book a decidedly European slant—they provide thorough coverage of the subject, making the book a useful reference no matter where you live.

As I initially flipped through this book, I was struck by the quality of the photographs and line drawings interspersed throughout the text. Black-and-white line drawings depict propagation methods and provide a particularly informative rendering of the many different cacti and succulent shapes. The color photographs are also done well, with accurate reproductions of the often vivid hues of these fascinating plants. I especially appreciated the photo-





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graphs of plants growing in garden settings—too many books on this topic rely heavily on potted specimens.

Still, I would like to have seen more information on growing cacti and succulents in the garden. Though the chapter on cultivation is generally well done, it downplays growing these plants outdoors, probably because of the difficulty of doing so successfully in northern Europe. American readers need to know that there are many cold-hardy cacti and succulents that can be grown in a garden, particularly in western North America.

The book's alphabetic guide to more than 120 genera provides a good picture of the range of plants falling under the headings of cacti and succulents. In many cases, however, I felt the plants chosen as representative of individual genera were odd—and sometimes obscure—species. On the other hand, the summary chart at the end of the chapter is quite good and offers valuable watering information.

As with many gardening books published in the United Kingdom, American readers of *The Plantfinder's Guide to Cacti & Other Succulents* must consider the context in which it was written. The chapter on conservation, for example, does not come out strongly enough against wild collection—a crucial issue in North America, but since there are no native cacti growing in Europe, this omission is understandable.

Despite these flaws, this book provides very useful information on cacti and succulents and will, I believe, spawn more interest in these often-overlooked garden plants.

—David Salman

*David Salman is the owner of Santa Fe Greenhouses and High Country Gardens nursery in Santa Fe, New Mexico.*

### THE BACKYARD BIRDHOUSE BOOK.

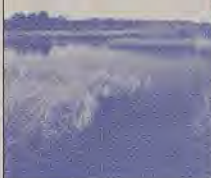
*René and Christyna M. Laubach. Storey Books, Pownal, Vermont, 1999. 204 pages. 7 1/4" x 10 1/4". Publisher's price, hardcover: \$34.95. AHS price: \$20.*

### GARDENING FOR THE BIRDS.

*Thomas G. Barnes. University Press of Kentucky, Lexington, Kentucky, 1999. 288 pages. 7 1/4" x 10 1/4". Publisher's price, hardcover: \$24.95. AHS price: \$17.50.*

Developing "theme gardens" is nothing new. As gardeners become exposed to different types of garden design, they frequently look for new dimensions to add to their gardening experience. Transforming a garden into a wildlife habitat, however, is a significant and bold

## The Backyard Birdhouse Book



**Building Nestboxes and Creating Natural Habitats**

*René and Christyna M. Laubach*  
Foreword by Wayne R. Petersen



new step in natural gardening. As gardeners over the years have turned from annuals to perennials and from exotics to natives, it was only a matter of time before the garden began to take on its destined role as a natural ecosystem.

More attention is now being turned to attracting birds to the garden. Most people enjoy having birds around—a fact proven by the 60 million Americans who actively feed birds. Fortunately, many of the native plants now being used in gardens are bird magnets. In fact, as the Laubachs point out in *The Backyard Birdhouse Book*, native plant species actually support 10 to 50 percent more species of wildlife than non-natives. If you plant it, they will come.

*The Backyard Birdhouse Book* is a rich guide to attracting cavity-nesters to your garden and providing them with a safe, healthy environment, while beautifully integrating this habitat into your landscape. For the novice, the Laubachs have wisely limited the scope of their work to include just 27 birds, ranging from primary cavity-nesters such as woodpeckers to secondary nesters such as bluebirds, swallows, purple martins, nuthatches, and wood ducks.

*The Backyard Birdhouse Book* is among the best books for a budding bird enthusiast. Each bird is treated with an extensive profile, with life cycle descriptions, nesting and habitat requirements, birdhouse designs, and problems to address—including parasites, pathogen sources, and invasion by aggressive, undesirable species such as cowbirds and European starlings. Appropriate attention is given to landscaping considerations, and, most important of all, to conservation projects and opportunities. Best of all, the book not only introduces



the reader to these fascinating species, but it encourages closer contact through monitoring and recording the conditions of your avian guests.

Thomas G. Barnes's *Gardening for the Birds* is an extensive and practical guide to attracting a variety of wildlife to the urban and suburban garden. As might be expected, the book addresses the selection of appropriate plants for desired species, with charts and illustrations to assist in matching wildlife with specific nectar and food sources. It also suggests basic planting schemes and includes information on the siting, construction, and maintenance of ponds; the creation of nesting and feeding areas; and so on. But that is where this book departs from similar works. Special credit is due to Barnes, a forestry professor and extension wildlife specialist, for having created a useful and well-organized manual for habitat development—not surprisingly, reminiscent of college textbooks and extension manuals—which finally addresses the numerous and sometimes daunting challenges that gardeners face in welcoming wildlife into their gardens and lives.

Too often, horticultural and nature publications extol the virtues of creating backyard habitat areas to preserve biodiversity or provide much-needed oases for migratory birds and butterflies, while overlooking the important fact that not all wildlife is equally welcome in every backyard. Fawns are cute, for example, but gardeners in the Mid-Atlantic States are at their wit's end facing a chomping deer population that exceeds record levels. In this respect, Barnes echoes the Laubachs' book, acknowledging that setting up a birdhouse might attract your desired species—or it might become a haven for unwanted house sparrows. The author presents other examples of the "uninvited"—including deer, small mammals, and other chewing pests—and offers practical and humane barriers and IPM strategies.

Barnes further uses his detailed knowledge of wildlife to help readers anticipate the potential problems posed by improperly managed or sited ponds, feeders, and other wildlife features—problems that include predation and disease. While the book lacks the sumptuous photos found in many wildlife gardening books, it does the gardener a greater service by providing an honest picture of the responsibilities that must be understood and accepted *before* hanging the first birdfeeder.

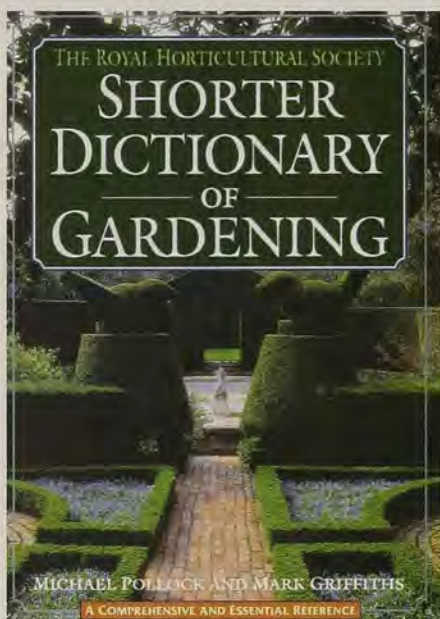
—Joe Keyser

Joe Keyser is an education specialist for the Montgomery County, Maryland, Department of Environmental Protection.

## THE RHS SHORTER DICTIONARY OF GARDENING.

Michael Pollock and Mark Griffiths. Macmillan UK, London, 1999. 836 pages. 8" x 11". Publisher's price, hardcover: \$65. AHS price: \$65.

**A**mong the many references that adorn gardeners' book shelves, perhaps one of the most important is a good horticultural dictionary. By far the most comprehensive is the Royal Horticultural Society's 1992 *New RHS Dictionary of Gardening*. The average gardener, however, may find that monumental four-volume set a bit unwieldy—not to mention expensive. Fortunately, RHS has now condensed that work into the one-volume *Shorter Dictionary of Gardening*.



As with any dictionary, there will be times when you search for a word, only to find it is not listed. With this reference, however, those frustrations will be few. What makes this volume special is its treatment of a wide range of topics. Design principles, propagation methods, and pests and diseases are explained in detail. In addition, more than 1,900 genera are described, with information on nomenclature, culture, and common species. And the illustrations of plant forms in the appendix—which includes a common name index and useful synonym index—are among the best I've seen.

At 836 pages, you won't be toting this dictionary with you on your garden walks, but if you don't already have a comprehensive gardening dictionary on the shelf, this is a worthy choice. 🍷

—Christina M. Scott

Christina M. Scott is assistant editor of *The American Gardener*.



## Plant Trees

**I**n our town, we needed to do something about the run-off that polluted our rivers and streams. One thing we did was to plant trees in our yards and along the stream banks. Now, the trees filter chemicals, hold the soil in place, and give wildlife a home.

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## gardeners' books

To better serve our members, AHS has teamed up with Amazon.com. We can now offer better discounts on most titles, faster delivery, more inventory, and improved access to hard-to-find titles. The books listed here are chosen based on perceived reader interest, unusual subject matter, or substantive content. To order, or for information about other gardening books, please call Trish Gibson at (800) 777-7931 ext. 36 or visit our Web site at [www.ahs.org](http://www.ahs.org) and link to Amazon.com.

### GARDENING LITERATURE



#### A GARDEN OF ONE'S OWN: WRITINGS OF ELIZABETH LAWRENCE.

Barbara Scott and Bobby J. Ward, editors. University of North Carolina Press, Chapel Hill, North Carolina, 1997. 281 pages. Publisher's price, hardcover: \$24.95. AHS price: \$17.50.

This compilation of more than 50 articles penned by landscape architect and writer Elizabeth Lawrence between 1932 and 1978 covers trees, shrubs, bulbs, herbaceous perennials, native plants, and even fellow gardeners. Fans of Lawrence's six books will enjoy this collection, which conveys her love for the garden and broad knowledge of gardening subjects. A short autobiography and

Lawrence's introductions to books written by Gertrude Jekyll and William Lanier Hunt are also included.

#### ALL MY EDENS: A GARDENER'S MEMOIR.

Pat Welsh. Chronicle Books, San Francisco, California, 1996. 214 pages. Publisher's price, hardcover: \$24.95. AHS price: \$12.

These memoirs take the reader on a journey through the life and gardens of Welsh, the first garden editor of *San Diego Home Garden* magazine. Welsh also spent five years as the "Resident Gardener" for a San Diego television station. Old photographs of the author's family and gardens illustrate her childhood in Yorkshire, England, as well as her later years in Pennsylvania and California.

### ROCK GARDENS

#### ROCK GARDENS.

The New York Botanical Garden. Clarkson N. Potter Publishers, New York, 1997. 192 pages. Publisher's price, softcover: \$23. AHS price: \$17.50.

Written by experts at The New York Botanical Garden (NYBG), this book is a step-by-step guide for building and planting a great rock garden. The advantages and disadvantages of different rock garden settings—from ledges and outcrops to sandbeds and alpine meadows—are discussed, and ideas on how to replicate these environments in your own garden are provided. Detailed descriptions of 75 selected rock garden plants are illustrated with color photographs. In addition, regional guides explain how to adapt rock garden concepts for different areas of North America.

#### BULBS FOR THE ROCK GARDEN.

Jack Elliott. Timber Press, Portland, Oregon, 1996. 160 pages. Publisher's price, hardcover: \$29.95. AHS price: \$29.95.

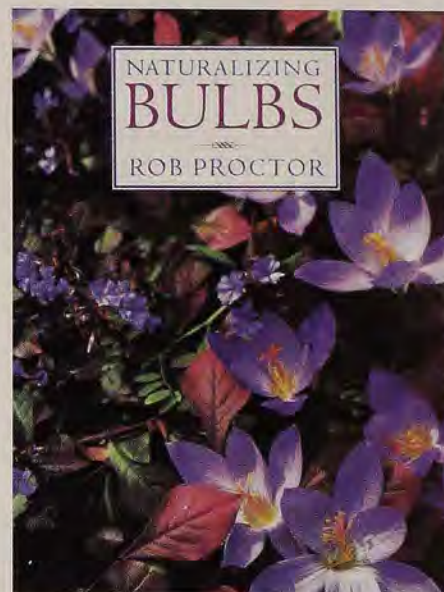
This guide by the former president of the Alpine Garden Society provides general information about bulbs, corms, and tubers, as well as more specific advice on how to grow bulbous plants suitable for rock gardens. Each of the four chapters is devoted to bulbs for a different season and includes photographs, illustrations, and charts.

### PLANTS

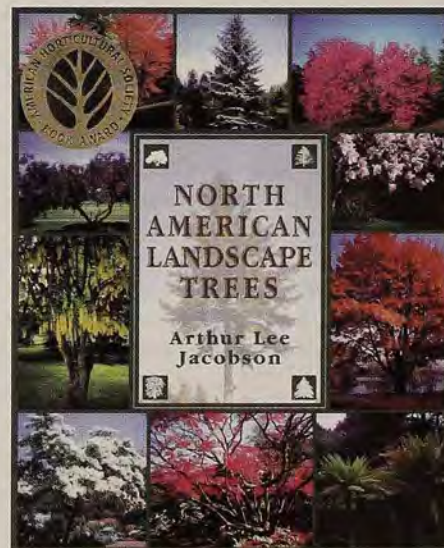
#### NATURALIZING BULBS.

Rob Proctor. Henry Holt and Company, New York, 1997. 241 pages. Publisher's price, hardcover: \$35. AHS price: \$24.50.

This reader-friendly guide discusses innov-



ative ways to use bulbs in the naturalistic garden. Color photographs accompany descriptions of the easy-care bulbs Proctor recommends, which include selections that bloom in each of the four seasons. Proctor's book covers all the basics, including proper site selection, color coordination, planting techniques, and weed control.



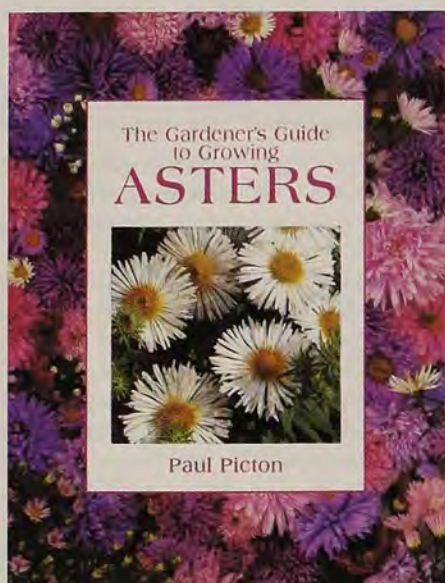
#### NORTH AMERICAN LANDSCAPE TREES.

Arthur Lee Jacobson. Ten Speed Press, Berkeley, California, 1996. 722 pages. Publisher's price, hardcover: \$39.95. AHS price: \$28.

A 1996 recipient of the AHS Book Award, *North American Landscape Trees* is a complete resource on the history and nomenclature of ornamental trees grown in temperate North America. The book focuses on nearly 5,000 different trees, covering 72 families, 198 genera, and 3,450 cultivars. The alphabetical listings—which include physical descriptions of each tree



and cultural requirements—are accompanied by more than 250 photographs and 600 line drawings.



### THE GARDENER'S GUIDE TO GROWING ASTERS.

*Paul Picton. Timber Press, Portland, Oregon, 1999. 160 pages. Publisher's price, hardcover: \$29.95. AHS price: \$21.*

This practical guide includes an interesting account of the history of asters all over the world. Various species are identified as suitable for garden, container, or cut-flower use. An alphabetical listing of species provides descriptive text and photographs for easy identification and selection. The author also offers instructions for growing asters and preventing pests and diseases. Contains more than 85 color photographs.

### THE NORTHWEST GARDENERS' RESOURCE DIRECTORY, EIGHTH EDITION.

*Stephanie Feeney. Cedarcroft Press, Bellingham, Washington, 1999. 352 pages. Publisher's price, softcover: \$19.95. AHS price: \$16.* An indispensable guide to everything horticultural in the Pacific Northwest, this latest expanded edition of the directory features more than 300 nurseries in Oregon, Washington, and British Columbia and over 1,000 Web sites and e-mail addresses of interest for gardeners in the region. Gardening organizations, educational opportunities, plant sales and shows, literature, and public gardens are among other topics covered in this book.

### SEEDS

### COLLECTING, PROCESSING AND GERMINATING SEEDS OF WILDLAND PLANTS.

*James A. Young and Cheryl G. Young. Timber Press, Portland, Oregon, 1986. 236 pages. Publisher's price, hardcover: \$25. AHS price: \$17.50.*

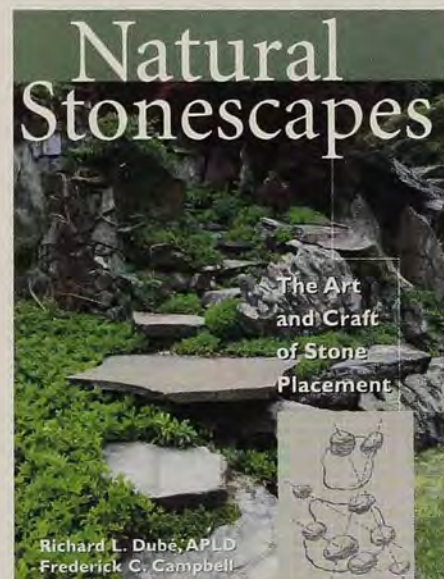
Using this informative book, you can introduce diversity into your garden—and save money at the same time. In addition to discussing collection methods for seeds, post-harvest handling, and cleaning and storage, the authors provide specific germination requirements for hundreds of trees, shrubs, herbaceous plants, and grasses. Suggestions for additional reading and a glossary make this book an excellent reference for the serious gardener's library.

### LANDSCAPING

### NATURAL STONESCAPES.

*Richard L. Dubé and Frederick C. Campbell. Storey Books, Pownal, Vermont, 1999. 168 pages. Publisher's price, softcover: \$24.95. AHS price: \$20.*

In this practical guide, the authors show how designs in stone can mimic the forms of nature. They provide clear instructions for adapting designs to fit the shape, existing features, and limitations of your site. To get you started, 20 designs—illustrated with step-by-step installation instructions—are included for a variety of landscapes. In addition, different types of stone are described in detail and instructions are given for moving stones to and around the garden. Includes hundreds of illustrations and photographs.



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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](http://www.ahs.org).

### MID-ATLANTIC

**JULY 9–OCT. 31. *Splendors of Ancient Egypt*.** Living display of Egyptian plants. Lewis Ginter Botanical Garden, Richmond, Virginia. (804) 262-9887.

**AHS SEPT. 11. *Caring for Koi in a Water Garden*.** Lecture by Ray Abell. Friends of River Farm. George Washington's River Farm, Alexandria, Virginia. (800) 777-7931 ext. 10.

**SEPT. 18. *Green Spring Garden Day*.** Plant sale. Green Spring Gardens, Alexandria, Virginia. (703) 642-5173.

**SEPT. 18. *Native American Fruits*.** Workshop. Monticello, Charlottesville, Virginia. (804) 984-9822.

**AHS SEPT. 25. *Honoring the Past, Celebrating the Future*.** 6th annual gala. The American Horticultural Society. George Washington's River Farm, Alexandria, Virginia. (800) 777-7931 ext. 10.

**SEPT. 30–OCT. 3. *20th Annual Conference*.** American Community Gardening Association. Philadelphia, Pennsylvania. (215) 988-8841.

**OCT. 1. *Viburnums*.** Workshop. Scott Arboretum, Swarthmore College, Swarthmore, Pennsylvania. (610) 328-8025.

**AHS OCT. 3. *2nd Annual AHS Chili Pepper Festival*.** The American Horticultural Society. George Washington's River Farm, Alexandria, Virginia. (800) 777-7831 ext. 31.

**OCT. 14. *Ornamental Grasses*.** Workshop. Scott Arboretum, Swarthmore College, Swarthmore, Pennsylvania. (610) 328-8025.

**OCT. 16. *Belles of the Day*.** Lecture on flowering bulbs by Brent Heath.

Monticello, Charlottesville, Virginia. (804) 984-9822.

**OCT. 23–NOV. 21. *Chrysanthemum Festival*.** Longwood Gardens, Kennett Square, Pennsylvania. (618) 388-1000.

### NORTH CENTRAL

**SEPT. 19. *Putting Your Garden to Bed*.** Class. Klehm Arboretum and Botanic Garden, Rockford, Illinois. (815) 654-4295.

**OCT. 2. *Medicinal Herb Walks*.** Tour of herb garden. Olbrich Botanical Gardens, Madison, Wisconsin. (608) 246-4550.

**OCT. 2–31. *Chrysanthemum Show*.** Frederik Meijer Gardens, Grand Rapids, Michigan. (616) 957-1580.

**THROUGH OCT. 3. *Plants as Animals*.**

## Unveiling da Vinci's Horse in Michigan

The spirit of Renaissance Italy will be in the air on October 7 at the Frederik Meijer Gardens in Grand Rapids, Michigan. That's when Leonardo da Vinci's 24-foot-tall bronze sculpture of a horse will be publicly unveiled. More accurately, it is a colossal sculpture *inspired* by da Vinci, since the great artist's clay model of the work, which had been commissioned by the Duke of Milan, was destroyed by French troops invading Italy in 1499 and never replicated. When da Vinci enthusiast Charles Dent learned about the lost sculpture in 1977, he decided to "give Leonardo his horse" and founded the Pennsylvania-based non-profit Leonardo da Vinci's Horse, Inc. in 1982 to champion the cause. The monument to be unveiled in Grand Rapids is the result of a partnership between the non-profit group and Frederik Meijer Gardens, which announced its acquisition of the sculpture last year.

The horse is the work of a team of contemporary sculptors led by American artist Nina Akamu, who says the sculpture "pays homage to the creative genius of Leonardo. It is not intended to be a re-creation of his sculpture." Two castings are being made of the horse; the first will be presented as a gift to the citizens of Milan, Italy, in September. The bronze for the castings—derived from recycled electrical wire—is being donated by a Michigan metal company.

The horse at Frederik Meijer—the largest sculpture of its kind in the Western hemisphere—will join a variety of sculpture already installed at the gardens, which opened in 1995 as a botanical garden and sculpture park. The 118-acre gardens include a tropical conservatory, a collection of desert plants from around the world, and a two-mile nature trail through woods and wetlands.

The Frederik Meijer Gardens is located at 3411 Bradford Northeast in Grand Rapids. For more information about the gardens and Leonardo da Vinci's Horse, call (616) 957-1580, or visit [www.meijergardens.org](http://www.meijergardens.org).

—Mary Yee, Managing Editor



Lena and Frederik Meijer with sculptor Nina Akamu in front of the clay model of the horse at Talix Foundry in New York.



Topiary exhibit. Chicago Botanic Garden, Glencoe, Illinois. (847) 835-5440.

**OCT. 10. *Cacti and Succulents*.** Class. Klehm Arboretum and Botanic Garden, Rockford, Illinois. (815) 654-4295.

## NORTHEAST

**SEPT. 12. *Flamboyant Foliage*.** Garden tour. Wave Hill, Bronx, New York. (718) 549-3200.

**SEPT. 18–NOV. 1. *Infinity of Traces*.** Art exhibit in woodland. Wave Hill, Bronx, New York. (718) 549-3200.

**SEPT. 25 & 26. *8th Annual Power of Herbs Weekend*.** Classes. New York Botanical Garden, Bronx, New York. (718) 817-8747.

## NORTHWEST

**SEPT. 18. *Treasures of the Woodland*.** Symposium on woodland gardening. Northwest Horticulture Society. Museum of History and Industry, Seattle, Washington. (206) 527-1794.

**SEPT. 30–OCT. 3. *Fall Home and Garden Show*.** Portland Expo Center, Portland, Oregon. (503) 246-8291 or (800) 343-6973.

**OCT. 31. *Mt. Pisgah Arboretum Mushroom Festival*.** Mushroom displays and sales, crafts, music, and nature walks. Mt. Pisgah Arboretum, Eugene, Oregon. (541) 747-3817.

## SOUTH CENTRAL

**SEPT. 25. *Fall Field Day*.** Native plant and seed sales, how-to presentations and demonstrations, art exhibits, and tours. Lady Bird Johnson Wildflower Center, Austin, Texas. (512) 292-4200.

**SEPT. 25 & 26. *Mum Fest*.** City of Barberton. Lake Anna Park, Barberton, Ohio. (330) 843-6653 or (330) 745-3141.

**SEPT. 25 & 26. *Vineyard Gardens, Artists' Gardens, High Tea, and Fancy Hats*.** Garden tours. Hermann, Missouri. (800) 932-8687.

**SEPT. 30–OCT. 2. *57th Annual Bulb and Plant Mart*.** Garden Club of Houston. Westminster United Methodist Church, Houston, Texas. (713) 626-7908.

## Charleston Garden Festival

Gardening festivals abound in the spring, but the Charleston Garden Festival is one of the few that takes place in the fall. This year's seventh annual event, which begins on September 30 and runs through October 3, will offer visitors a chance to experience the gardening traditions of the South through lectures, demonstrations, and tours of Charleston's private gardens and historic plantations.

In keeping with this year's theme, "The Charleston-Barbados Connection," the festival will feature exhibits and educational programs focusing on how settlers from the sugar cane plantations of Barbados in the 17th century influenced the culture of the Old South. On display will be tropical floral creations by the Horticultural Society of Barbados.

Speakers at the festival's Southern Garden Symposium include Rick Darke, Tony Avent, and Glenn Stokes. Also on hand will be more than 60 vendors from across the country and a plant swap.

Admission to the festival's exhibit hall is free to AHS members; symposium and tour tickets are sold separately. For more information about the Charleston Garden Festival, call (843) 762-1855, or e-mail CGF1999@Bellsouth.net. —M.Y.



Selected private Charleston gardens such as Ansonborough, above, are open for tours during the festival.

## Roadside Landscaping Conference in Texas

Have you ever wondered how those show-stopping stands of wildflowers along many interstate highways got there—and whether you can grow them in your own backyard? You can find out at the second Managing Roadsides Naturally conference, to be held Friday and Saturday, October 22 and 23, at Lady Bird Johnson Wildflower Center in Austin, Texas.

While some states—such as Texas—have been successfully implementing highway beautification programs for years, roadside vegetation managers across the country are now looking for effective and environmentally responsible ways to create similar programs. It's this need for more practical information that inspired this year's conference, "How to Manage Roadsides Naturally: The Ecological, Economic, and Aesthetic Benefits of Wildflowers and Native Plants." During the two-day event, native plant experts and transportation officials from various universities and state governments will address topics such as "What is a Natural Roadside?" "Preparing the Site," and "When and How to Plant Wildflowers and Native Plants." Tours of the Lady Bird Johnson Wildflower Center and a panel discussion are also scheduled.

Registration to attend the conference is \$95 per person. For more information write Lady Bird Johnson Wildflower Center, 4801 La Crosse Avenue, Austin, TX 78739-1702, or call (512) 292-4200 ext. 116. —M.Y.



Wildflowers grow in profusion along a Texas roadside.



## Mum-Wild at the San Diego Wild Animal Park

**M**ums crafted as palm trees, mums planted in drifts of dazzling color, and mums cascading as floral waterfalls from tops of trellises, columns, gift shops, and restaurants are featured attractions at the Mum Festival at the San Diego Wild Animal Park in Escondido, California.

Tens of thousands of bronze, lavender, white, orange, and red chrysanthemum blossoms make this Mum Festival the largest on the West Coast. The fourth annual festival opens October 30 and continues to November 31.

Since the Wild Animal Park is a special zoo sanctuary for endangered animals, it is appropriate that the Mum Festival also includes animal topiaries interspersed with the displays. This year, the theme is North American animals, and realistic topiaries of bighorn sheep, coyotes, and flamingoes will highlight the mum planter beds located throughout the Nairobi Village.

The festival was launched after Wild Animal Park horticulturist Cary Sharp's fall visit to Florida's Cypress Gardens in 1994. Impressed by the gardens' lavish mum displays, Sharp decided to give Southern Californians a similar experience of fall color changes through displays of mums.

It's now grown to include more than 8,000 in-ground mums and 1,000 mums crafted as cascades. In addition, the Wild Animal Park claims credit for the creation of "palm mums," a display in which the blooms are trained to cascade like palm fronds and are carefully fastened to palm trees for a unique Southern California creation. Button and daisy forms are used for the planters, and 'Bridal Veil Falls', 'Nevada Falls', and 'Vernal Falls' are used for the cascading displays.

A dedicated staff of gardeners grows 80 percent of the plants from cuttings and spends much of the year pinching and pruning them for the best floral displays. During the festival, the staff deadheads the plants rigorously.

During the opening weekend of the Mum Festival, the park's staff will conduct demonstrations on mum culture and care. Local floral societies will also participate. The festival is free with Wild Animal Park admission: \$19.95 for adults, \$12.95 for children ages three through 11. For more information, call (760) 747-8702.

—Karen L. Dardick, special from Los Angeles



Chrysanthemums are the main attraction at the wild animal park during the Mum Festival.

**OCT. 22–24. Texas Butterfly Festival.** Field trips, photography workshop, and children's programs. Kika de la Garza Building, Mission, Texas. (800) 580-2700.

### SOUTHEAST

**SEPT. 7–11. 26th Annual Convention.** American Ivy Society. Asheville, North Carolina. (770) 458-0055.

**SEPT. 24 & 25. Perennials Conference.** Cheekwood Botanical Garden, Nashville, Tennessee. (615) 353-2148.

**SEPT. 25 & 26. Fall Plant Sale.** Crosby Arboretum, Picayune, Mississippi. (601) 799-2311 ext. 22.

**SEPT. 30–OCT. 2. 12th Annual Conference on Restoring Southern Gardens and Landscapes.** Salem College, Winston-Salem, North Carolina. (336) 721-7378.

**OCT. 2. Henry Y. Offut Fall Conference.** Lectures by plant explorer Roy Lancaster. Sponsored jointly by Botanica, Inc., and Bornheim Arboretum. Christ Church United Methodist Church, Louisville, Kentucky. (502) 267-5074.

**OCT. 8 & 9. Conifer Weekend.** Guided tours and information on dwarf ornamental conifers. Piccadilly Farm, Bishop, Georgia. (706) 769-6516.

**OCT. 8–10. 1999 Chrysanthemum**

**Festival.** Tryon Palace, New Bern, North Carolina. (800) 767-1560.

**OCT. 21–24. A Decade of Preserving America's Exceptional Gardens.** Conference. The Garden Conservancy. Westin Francis Marion Hotel, Charleston, South Carolina. (914) 265-2029.

**OCT. 30. Lady Slipper Orchids Symposium.** Ramada Plaza Hotel, Kissimmee, Florida. (407) 396-7732.

### SOUTHWEST

**OCT. 2. Harvest Fair.** Council of Albuquerque Garden Clubs. Albuquerque Garden Center, Albuquerque, New Mexico. (505) 296-6020.

**OCT. 2 & 3. Fall Plant Sale.** Tucson Botanical Gardens, Tucson, Arizona. (520) 326-9686.

**OCT. 15–31. Annual Plant Sale.** Boyce Thompson Arboretum State Park, Superior, Arizona. (520) 689-2723.

**OCT. 16. Gardening in New Mexico.** Workshop. Santa Fe Greenhouses, Santa Fe, New Mexico. (800) 492-7885.

**OCT. 23 & 24. La Fiesta de los Chiles.** Chile pepper festival. Tucson Botanical Gardens, Tucson, Arizona. (520) 326-9686.

### WEST COAST

**SEPT. 24. The Harvest Moon.** Traditions of Japanese moon-viewing walk. Strybing Arboretum and Botanical Gardens, San Francisco, California. (415) 661-1316.

**OCT. 9. Plant Sale.** Strybing Arboretum and Botanical Gardens, San Francisco, California. (415) 661-1316.

**OCT. 29–30. 13th Annual East West Orchid Show.** New Olani Hotel and Garden, Los Angeles, California. (714) 593-4413.

**NOV. 11–14. Fall Plant Festival 1999.** The Huntington Library, Art Collections and Botanical Gardens, San Marino, California. (626) 405-2140.

### CANADA

**SEPT. 12. Bringing Herbs Indoors.** Workshop. Richter's Herbs, Goodwood, Ontario. (905) 640-6677. ●



# classifieds

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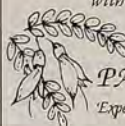
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# hardiness and heat zones

For your convenience, most of the cultivated plants featured in this edition of the magazine are listed here with their USDA Plant Hardiness Zones and AHS Heat Zones. If 0 is listed in place of USDA hardiness zones, it means that plant is a true annual—it completes its life cycle and dies in a year or less. Tropical plants that require minimum temperatures warmer than 40 degrees Fahrenheit—the minimum average temperature in USDA Zone 11—will be listed by minimum average temperature rather than by zone numbers.

## A-C

*Ajuga reptans* USDA 3-9, AHS 9-1  
*Aletris farinosa* 4-9, 9-1  
*Andropogon gerardii* 2-7, 7-1  
*Anemone canadensis* 3-8, 8-1  
*A. cylindrica* 4-7, 7-1  
*A. hupehensis* 4-8, 8-1  
*A. ×hybrida* 5-8, 8-1  
*A. japonica* 4-8, 8-1  
*A. ×lesseri* 4-8, 8-3  
*A. multifida* 2-7, 6-1  
*A. sylvestris* 4-9, 9-1  
*A. tomentosa* 4-8, 8-1  
*A. virginiana* 4-8, 8-1  
*A. vitifolia* 5-8, 8-3  
*Arctostaphylos uva-ursi* 2-6, 6-1  
*Asclepias tuberosa* 4-9, 9-1  
*Aster divaricatus* 4-8, 8-1  
*Buchloe dactyloides* 3-9, 9-1  
*Carex albula* 5-9, 9-3  
*C. baccans* 8-9, 9-5  
*C. buchananii* 7-9, 9-5  
*C. comans* 7-9, 9-7  
*C. conica* 'Snowline' 5-9, 9-4  
*C. crinita* 5-9, 9-3  
*C. dolichostachya* 'Kaga Nishiki' 6-9, 9-6  
*C. elata* 5-9, 9-3  
*C. flaccosperma* var. *glaucodea* 5-9, 9-3  
*C. grayi* 3-8, 8-1  
*C. morrowii* 5-9, 9-4  
*C. morrowii* var. *temnolepis* 5-9, 9-5  
*C. muskingumensis* 4-8, 8-1  
*C. nudata* 7-9, 9-5  
*C. oshimensis* 6-9, 9-5  
*C. pendula* 8-9, 9-6  
*C. phyllocephala* 8-9, 9-6  
*C. plantaginea* 5-9, 9-5  
*C. siderosticha* 5-9, 9-5  
*C. spissa* 7-9, 9-5  
*C. stricta* 4-9, 9-4  
*Caulophyllum thalictroides* 3-8, 8-1  
*Cephalocereus senilis* 50° F, 12-11  
*Chaenomeles speciosa* 5-8, 8-3

*Chamaelirium luteum* 3-8, 8-1  
*Cortaderia selloana* 7-11, 12-7  
*Cotoneaster dammeri* 'Skogholm' 6-8, 8-4  
*Cymophyllus fraserianus* 6-8, 8-3

## D-L

*Dalea purpurea* 9-11, 12-9  
*Dioscorea villosa* 45°, 12-10  
*Fragaria chiloensis* 5-9, 9-1  
*Gaillardia grandiflora* 3-8, 8-1  
*Helianthemum nummularium* 6-8, 8-5  
*Hydrangea arborescens* 4-9, 9-1  
*H. aspera* 6-9, 9-3  
*H. macrophylla* 6-9, 9-3  
*H. paniculata* 4-8, 8-1  
*H. quercifolia* 5-9, 9-1  
*Hydrastis canadensis* 3-8, 8-1  
*Ilex serrata* 5-7, 7-3  
*Juniperus horizontalis* 3-9, 9-1  
*Lavandula angustifolia* 5-8, 8-3  
*L. dentata* 8-9, 9-8  
*Ligusticum porteri* 6-9, 9-4  
*Lonium dissectum* 7-9, 9-7  
*Lonicera sempervirens* 4-9, 9-1

## M-R

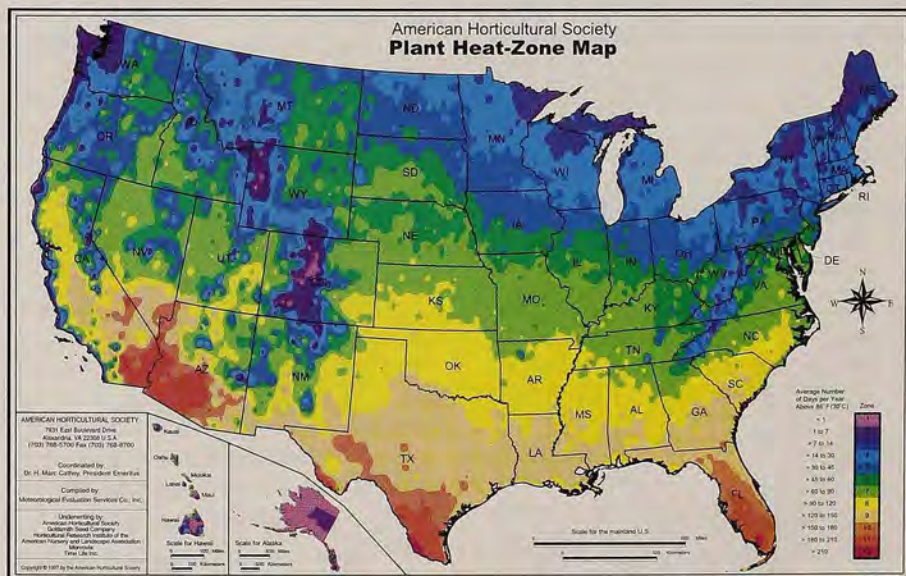
*Matteuccia struthiopteris* 3-8, 8-1  
*Mespilus germanica* 6-9, 9-6  
*Myrica pensylvanica* 3-6, 6-1  
*Nandina domestica* 6-9, 9-2  
*Osmunda cinnamomea* 4-8, 8-1  
*O. regalis* 4-9, 9-1  
*Panax quinquefolius* 3-7, 7-1  
*Pinus mugo* 3-7, 7-1  
*P. nigra* 5-8, 8-4  
*Portulaca grandiflora* 0, 12-1  
*Rhaphidophyllum hystrix* 45° F, 12-10

## S-Z

*Schizophragma integrifolium* 5-9, 9-5

*Silene stellata* 6-9, 9-4  
*Solidago speciosa* 5-9, 9-2  
*Sorbus alnifolia* 5-8, 8-1  
*S. americana* 3-8, 8-1  
*S. aria* 6-8, 8-6  
*S. aucuparia* 4-7, 7-1  
*S. cashmiriana* 5-7, 7-1  
*S. commixta* 6-8, 8-5  
*S. decora* 3-8, 8-1  
*S. domestica* 6-8, 8-5  
*S. hybrida* 5-8, 8-5  
*S. intermedia* 6-8, 8-5  
*S. reducta* 5-8, 8-5  
*S. rufoferruginea* 6-8, 8-6  
*S. ×thuringiaca* 6-8, 8-6  
*S. torminalis* 6-8, 8-6  
*S. vilmorinii* 6-8, 8-6  
*S. yuana* 6-8, 8-6  
*Stachys byzantina* 4-8, 8-1  
*Symplocarous foetidus* 4-7, 7-1  
*Tetracentron sinense* 6-7, 7-6  
*Thymus serpyllum* 4-9, 9-1  
*Tulipa aucheriana* 4-8, 8-1  
*T. bakeri* 4-8, 8-1  
*T. biflora* 4-8, 8-1  
*T. dubia* 4-8, 8-1  
*T. fosteriana* 4-8, 8-1  
*T. kaufmanniana* 4-8, 8-1  
*T. platystigma* 4-8, 8-1  
*T. saxatilis* 4-8, 8-1  
*T. sylvestris* 4-8, 8-1  
*T. tarda* 4-8, 8-1  
*Vinca minor* 4-9, 9-1

The codes above are based on a number of commonly available references and are likely to be conservative. Factors such as microclimates, plant provenance, and use of mulch may affect individual gardeners' experiences. To purchase a durable two-by-three-foot poster of the AHS Heat-Zone Map, call (800) 777-7931 ext. 45.







## pronunciations

### a simple speaking guide to plants found in this issue

#### *Aletris farinosa*

AL-ch-tris fair-ih-NO-suh

#### *Anemone cylindrica*

uh-NEM-o-nee sih-LIN-drih-kuh

#### *A. hupehensis*

A. hoo-pay-EN-sis

#### *A. xlesseri*

A. xLESS-ur-eye

#### *Aster divaricatus*

ASS-tur dih-vair-ih-KAY-tus

#### *Buchloe dactyloides*

boo-KLO-ee dak-tih-LOY-deez

#### *Carex albula*

KAIR-eks AL-bew-luh

#### *C. baccans*

C. BAK-kans

#### *C. buchananii*

C. byoo-kuh-NAN-ee-eye

#### *C. crinita*

C. kry-NY-tuh

#### *C. dolichostachya*

C. dol-ih-ko-STAK-ee-uh

#### *C. flaccosperma* var. *glaucodea*

C. flak-ko-SPER-muh var.  
glaw-KO-dee-uh

#### *C. morrowii* var. *temnolepis*

C. mor-ROW-ee-eye var.  
tem-no-LEP-is

#### *C. muskingumensis*

C. mus-king-yew-MEN-sis

#### *C. nudata*

C. new-DAY-tuh

#### *C. oshimensis*

C. o-she-MEN-sis

#### *C. pendula*

C. PEN-dyew-luh

#### *C. phyllocephala*

C. fil-o-SEF-uh-luh

#### *C. plantaginea*

C. plan-tuh-JIN-ee-uh

#### *C. siderosticha*

C. sih-dur-ROS-tih-kuh

#### *Caulophyllum thalictroides*

kaw-lo-FIL-lum thal-ik-TROY-deez

#### *Cephalocereus senilis*

sef-uh-lo-SEER-ee-us SEN-il-iss

#### *Chaenomeles speciosa*

kee-NO-MEH-leez spee-sec-  
O-suh

#### *Cimicifuga racemosa*

sih-mih-SIF-yew-guh ras-ch-  
MO-suh

#### *Cortaderia selleana*

kor-tuh-DEER-ee-uh sel-lo-AY-nuh

#### *Cymophyllus fraserianus*

sim-o-FIL-us frayz-yer-ee-AN-nus

#### *Cyperus alternifolius*

sy-PEER-us al-tur-nih-FO-lee-us

#### *C. papyrus*

C. puh-PY-rus

#### *Dalea purpurea*

DAY-lee-uh per-PER-ee-uh

#### *Dioscorea villosa*

dy-os-KOR-ee-uh vil-LO-suh

#### *Dulichium arundinaceum*

duh-LIK-ee-um uh-run-dih-  
NAY-see-um

#### *Fothergilla gardenii*

fah-ther-GIL-uh gar-DEN-ee-eye

#### *Gaillardia x grandiflora*

gay-LARD-ee-uh x gran-dih-  
FLOR-uh

#### *Hydrangea arborescens*

hy-DRAN-juh ar-bo-RES-enz

#### *H. macrophylla*

H. mak-ro-FIL-luh

#### *H. quercifolia*

H. kwerc-sih-FO-lee-uh

#### *Hydrastis canadensis*

hy-DRASS-tis kan-uh-DEN-sis

#### *Ilex serrata*

EYE-leks sair-RAY-tuh

#### *Juniperus horizontalis*

joo-NIP-er-iss hoh-rih-zon-TAL-iss

#### *Ligusticum porteri*

lih-gus-tih-kum PORT-ur-eye

#### *Lomatium dissectum*

lo-MAY-she-um dis-SEK-tum

#### *Matteuccia struthiopteris*

muh-TEW-key-uh strew-thee-  
OP-tur-iss

#### *Mespilus germanica*

MES-pih-lus jur-MAN-ih-kuh

#### *Osmunda regalis*

ahz-MUN-duh ree-GAL-iss

#### *Panax quinquefolius*

PAN-aks kwin-kweh-FO-lee-us

#### *Phlox paniculata*

FLOKS pan-ik-yew-LAY-tuh

#### *Rhapidophyllum hystrix*

ruh-pid-o-FIL-um HISS-triks

#### *Schizophragma integrifolium*

skiz-o-FRAG-muh in-teg-ruh-  
FO-lee-um

#### *Sorbus alnifolia*

SOR-bus al-nih-FO-lee-uh

#### *S. aucuparia*

S. aw-kew-PAIR-ee-uh

#### *S. cashmiriana*

S. kash-meer-ee-AY-nuh

#### *S. rufoferruginea*

S. rew-fo-feh-rew-GIN-ee-uh

#### *S. xthuringiaca*

S. xthur-in-jee-AK-uh

#### *S. torminalis*

S. toor-mih-NAY-lis

#### *S. vilmorinii*

S. vil-mor-IN-ee-eye

#### *Symplocarpus foetidus*

sym-plo-KAR-pus FEE-tih-dus

#### *Tetracentron sinense*

teh-truh-SEN-tron sy-NEN-see

#### *Tulipa aucheriana*

TOO-lip-uh aw-ker-ee-AN-uh

#### *T. fosteriana*

T. fos-tur-ee-AN-uh

#### *T. kaufmanniana*

T. kawf-man-ee-AN-uh

#### *T. platystigma*

T. plat-ih-STIG-muh

## What's in a Name? *Aletris farinosa*

Often included within the lily family (Liliaceae), unicorn root—so named for the tapering raceme of white flowers that resembles the horn of the fabled unicorn—is actually a member of Melanthiaceae, a rather problematic family of approximately 25 genera that some taxonomists argue should be divided into several separate, unrelated families.

Valued for the medicinal properties of its root, this native of the eastern United States has also been called colic root, backache root, and rheumatism root. Once common to sandy soils from Maine to Florida and Texas, overcollection of unicorn root has led to its present scarcity in the wild.

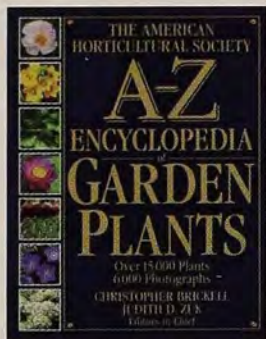
The genus name is formed from the Greek word *aletris*—a term that was used to refer to a female servant or slave whose role in ancient Greek households was to grind corn. This alludes to the mealy or powdery texture of the flowers, which one observer described as appearing to have been dipped in flour. Reinforcing that characteristic, the specific epithet *farinosa* also translates to “mealy.”





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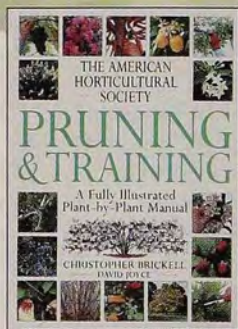
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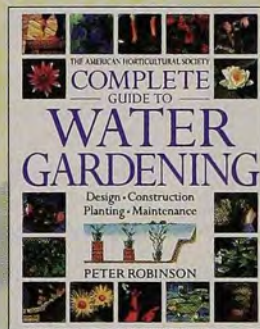


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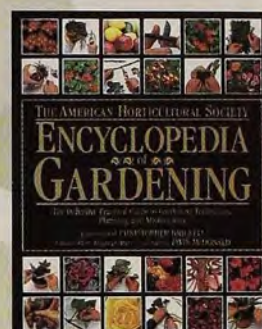


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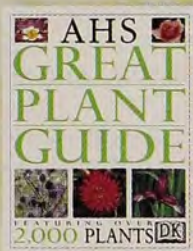
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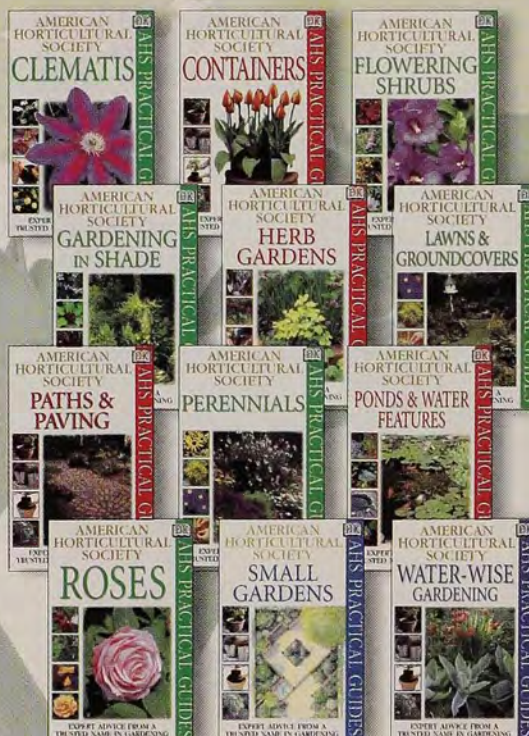
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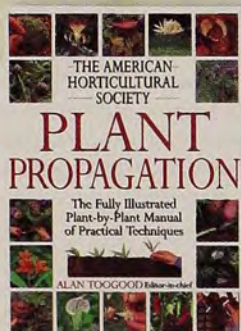
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