

The background of the cover is a lush field of purple Monarda flowers, also known as bee balm. The flowers are in various stages of bloom, with some showing their characteristic whorled structure. The green leaves are vibrant and healthy, creating a dense and colorful scene. The overall lighting is bright, highlighting the textures of the petals and leaves.

The American GARDENER

The Magazine of the American Horticultural Society

July/August 2005

**Shrubs for
Small Spaces**

**Soil Microbes
Enhance Plant
Health**

**H. Marc Cathey:
A Horticultural
Giant's Colorful
Career**

**Bright and
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NOTES FROM RIVER FARM

IT IS A bittersweet moment in time for the AHS. After nearly 50 years of service, our beloved president emeritus, Dr. H. Marc Cathey, is retiring. It is hard to imagine that his ties to the AHS go all the way back to 1959, when he wrote his first article for the AHS publication, which was then called the *National Horticultural Magazine*.

Over that time, he has shared the science of horticulture in fun, engaging ways. He has shared the art of horticulture, surprising us with his creativity. He has inspired us to garden well while at the same time honoring our role as stewards of the earth.

Through his groundbreaking research, he has made significant contributions to the science of horticulture. Through his leadership, he raised our sights and caused us to imagine a greener, more beautiful future. Through his joyful nature and love of people, he showed us how to make connections between plants and people. He is truly one of our great American horticultural heroes. (For more about Dr. Cathey's accomplishments, see the article beginning on page 14.)

Although we have shed a few tears, Dr. Cathey's retirement is certainly a time for celebration. The AHS Board of Directors, the AHS staff, and Marc's many friends across the country wanted to do something really special and memorable to let Marc know just how important he is to us—and to America. And so we did.

At a retirement party on June 3, the AHS Board officially proclaimed Marc's birthday, October 23, as "Dr. H. Marc Cathey Day" at the AHS. The parlor in River Farm's estate house has been renamed the "Dr. H. Marc Cathey Reading Room" and will display all of his published works. Botanical artist Clarissa Bonde created a gorgeous painting of a crocus in Marc's favorite color, purple. Marc and his wife, Mary, were awarded life memberships in AHS. The staff planted a handsome Carolina silverbell (*Halesia carolina*) at River Farm in honor of the Carolinas, where Marc and Mary will spend their retirement. And University of Georgia horticulturist Allan Armitage composed an "Ode to Uncle Marc," which you can read on our Web site (www.ahs.org).

Marc also received a special award for his service to AHS from 1959 to 2005. And from all around the country, gifts arrived to enhance the endowment for the H. Marc Cathey Award, which recognizes achievement in horticultural science. It is Marc's dream that one day a significant honorarium will accompany this award.

From Marc and Mary and all of us at AHS, thank you for your friendship and generosity. If you would like to send your congratulations to Marc or contributions to the endowment for the H. Marc Cathey Award, feel free to send them to the AHS headquarters and we will get them to Marc.

Our very best wishes go to Marc and Mary. We will miss you!



Dr. Cathey and his wife, Mary, are all smiles during his June retirement party at River Farm.

Kathy Moss Warner

—Kathy Moss Warner, AHS President

MEMBERS' FORUM

DEER, FROM EXPERIENCE

After reading Carole Ottesen's article on "Deer Defense" (March/April 2005), I'd like to offer a few thoughts of my own, based on 25 years of experience with deer in Princeton, New Jersey; East Hampton, New York; and now Bucks County, Pennsylvania.

Some of Ottesen's suggestions are useful, but others are of dubious value. Soap, human hair, and rotten eggs have all enjoyed an anecdotal reputation as deer deterrents, but there is no documented evidence that they work. For years, the one commercial product that has been reliably effective is Hinder. A new product on the market, Liquid Fence, seems even better than Hinder. Both are foul-smelling, and that is their secret.

However, any repellent must be applied repeatedly, and always after heavy rain. Several years ago, the American Rose Society reported a new strategy that was showing remarkable success: strong solutions of Hinder placed in ground-level containers, covered loosely with slate, and lined up at 10 foot intervals along rows of plants. The reduction in deer damage was striking and the repellent remains effective for weeks.

As to electric fencing, my two-acre property in Princeton was fenced electrically, but deer eventually penetrated by pushing through, which is always their first choice, in spite of electrical shock. I did not achieve complete success until I erected a six-foot solid wood fence. They will not leap over a fence when they cannot see what lies on the other side.

On my current property, a 10-acre farm, I have tried a new strategy with electric fencing, primarily in the winter, when deer damage can be the most severe. Using a standard fence energizer, I string up long lines of single strand wire, crossing areas where deer are most likely to pass through. My inner garden area is completely encircled by this wire. This is not as big a job as it may sound. Four-foot steel fence posts

are easy to tap into the ground at intervals of, say, 15 feet, and it takes just minutes to string the wire between them. Not a single deer has crossed over this year. Deer are slaves to habit and will go to the same source over and over again, if it's rewarding. The trick is to break these patterns so they will go elsewhere. Nose contact with 8,000 volts usually does the job.

And finally, the option which some people object to, but which is fundamental to deer control, is selective thinning of the herd. Your article did not address the larger ecological issues of deer control. But we have to face the fact that overpopulation of deer is destroying our environment by reducing understory habitat for a wide variety of other native animal and plant species. When the climax growth of mature trees dies, there will be nothing to replace them. The deer herd itself is often sickly and undernourished because of excessive numbers. Until people are willing to move past the "Bambi syndrome," this situation will only get worse.

*Stephen C. Bandy
Bedminster Township
Pennsylvania*

MORE DEER EXPERIENCE

I enjoyed your article on "Deer Defense," particularly the list of deer-resistant plants. I'd like to add a few more recommendations based on 20 years of experience gardening in northern Westchester County, New York: cutleaf stephanandra (*Stephanandra incisa* 'Crispa'), variegated kerria (*Kerria japonica* 'Picta'), and spring vetchling (*Lathyrus vernus*).

As you stated, ferns are generally a safe choice. However, I was amazed one October several years ago to witness a deer helping himself to my beautiful BIG Korean rock fern (*Polystichum tsus-sinense*) and eating it down to the ground.

Thank you for providing such valuable information to frustrated gardeners.

*Mimi Mitchell
Katonah, New York*

LOVES LEUCOTHOES

I was thrilled to read the article about leucothoes in the May/June issue. While thinning some pine trees on timberland we purchased in Robertville, South Carolina, we discovered a patch of *Leucothoe populifolia*. I've protected it from machinery and pruned it to improve the shape. My mother, who lives in Flat Rock, North Carolina, has *L. fontanesiana* growing in her garden beside a lake.

In both cases these leucothoes were not planted but "discovered" on our undeveloped properties. I have never seen any leucothoes offered for sale in nurseries near my home in Bluffton, South Carolina, so I may attempt to propagate those growing on our own land.

*Alice L. Fraser
Bluffton, South Carolina*

CORRECTION

In the article on pulmonarias in the March/April issue, the name of the cultivar pictured at the top of page 36 (and shown below) was inverted. The correct name is 'Cotton Cool'.



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New Plants to be Unveiled at Eastern Performance Trials

THE MUCH-ANTICIPATED Eastern Performance Trials, the first event of its kind in the Mid-Atlantic region, is scheduled for September 19 through 24. River Farm is one of six locations hosting the event, and, under the theme of “Outdoor Garden Show,” will have on display some of the newest plants that will hit the market in 2006. Here’s a preview of what’s expected from the six wholesale companies that will exhibit their products at River Farm.

Campania International—A leading producer of fine garden accents such as statuary, fountains, and containers, this company will be unveiling a new product line.

Centerton Nursery—This nursery, headquartered in Bridgeton, New Jersey, produces container-grown perennials and shrubs, including its own brands. Centerton will be displaying several hibiscuses, daylilies, and roses, among other new introductions.

Cherry Lake Tree Farm—Based in Groveland, Florida, this AHS corporate partner specializes in large container-grown ornamental trees. Cherry Lake will show some of its best-performing trees, including a magnolia developed by Cherry Lake CEO **Michel Sallin**.

Goldsmith Seeds—A multinational company based in Gilroy, California, Goldsmith develops new varieties of flowering plants that are sold through professional growers and retail

centers. Goldsmith will be displaying its latest offerings of popular annuals such as zinnias, pansies, geraniums, and petunias.

Proven Winners®—This partnership between three major plant propagators (**Euro American** in Bonsall, California; **Four Star Greenhouse** in Carleton, Michigan; and **Pleasant View Gardens** in Loudon, New Hampshire) develops high-performance annuals, perennials, grasses, and shrubs. Proven Winners will be showing its newest introductions.

Saunders Brothers Nursery and Orchard—Based in Piney River, Virginia, this nursery produces container-grown and field-grown annuals, perennials, shrubs, and trees. Saunders will feature the most notable and proven varieties in its boxwood collection.

While this premier event, coordinated by the **Garden Centers of America**, is designed

primarily for green industry professionals, a special **AHS Member Day** has been established at River Farm on September 22 so that AHS members have an opportunity to experience the trials.

Please visit www.easternperformancetrials.com for more details. For more information on the AHS Member Day, call (703) 768-5700 ext. 121 or e-mail education@ahs.org.



New plants such as the ‘Bridgeton Celebrity’ daylily from Centerton Nursery will be on display during the trials.

New AHS Board Members

THREE NEW MEMBERS have been elected to the AHS Board of Directors in 2005. All have been involved with the AHS in various leadership roles for many years.

A member of the AHS Advisory Council since 1999 and a Friend of River Farm volunteer for several years, **Harry A. Rissetto** of Falls Church, Virginia, became a Board member in February. A frequent lecturer and writer on labor law matters, Harry is a partner and Deputy Practice Group Manager of the Labor and Employment Practice. An enthusiastic gardener, he is president of the American Dahlia Society and is a trustee and member of the Royal Horticultural Society.

John Alex Floyd Jr., vice president and editor of *Southern Living* magazine, was elected to the Board starting July 1. John previously served on the AHS Board from 1991 to 2001 and is

currently chair of the Editorial Advisory Board for *The American Gardener*. A resident of Trussville, Alabama, John also serves on the visiting committee board for Longwood Gardens in Kennett Square, Pennsylvania, and the Birmingham Botanical Society Board in Birmingham, Alabama, among several other civic organizations.

Katherine (Kat) Belk-Cook of Charlotte, North Carolina, joined the Board on July 1. She is also a member of the AHS Advisory Council and previously served on the AHS Board from 1995 to 2001. Kat is active with several other community and non-profit organizations, serving on the board of Brookgreen Gardens in Murrells Inlet, South Carolina, and the advisory board of Stowe Botanical Garden in Gaston County, North Carolina, among others.

America In Bloom Celebrates Fourth Year

ACROSS THE COUNTRY, citizens of cities and towns of all sizes are once again banding together to show off their horticultural savvy during the fourth annual America in Bloom (AIB) contest. AIB, a volunteer-based, non-profit organization and an AHS partner, organizes this friendly competition to inspire and promote community beautification.

"This year, the America in Bloom participating cities have blossomed to 49," says AIB's Contest and Symposium Chair **Alex Pearl**. "From the smallest, Elfin Forest in California (population 800), to the largest, New York City (population 8 million), cities are demonstrating the multigenerational pride they have for their community."

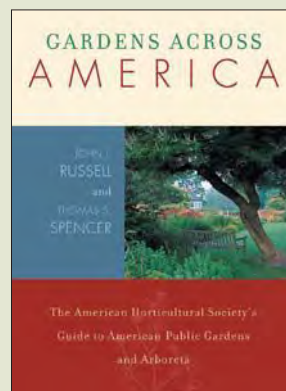
Judges are evaluating each community using eight criteria: floral displays, urban forestry, landscaped areas, turf and ground cover, tidiness, environmental awareness, heritage conservation, and community involvement. Results will be announced at the **AIB Symposium and Awards Program**, which will be held in Cleveland, Ohio, September 8 to 10. AHS will again be sponsoring the community involvement award, which last year went to Vernal, Utah, for their strong volunteering tradition.

"AIB has inspired cities and towns across America to embrace gardening as a community," says AHS President **Katy Moss Warner**, who is on the AIB Board of Directors this year. "It's wonderful to see how their combined efforts result in a

AHS Guide to Public Gardens

A new AHS book, *Gardens Across America: The American Horticultural Society's Guide to American Public Gardens and Arboreta*, is scheduled for release in August.

The first of a two-volume series compiled by John J. Russell and Thomas S. Spencer, the guide provides detailed information and locator maps for nearly 2,000 public gardens east of the Mississippi. Published by Taylor Trade Publishing, the softcover book will retail for \$19.95, but AHS members will be able to take advantage of a special discount. The book can be ordered through the AHS Web site (www.ahs.org) starting in August.



more beautiful and healthy environment for all."

To find out which cities earn top honors this year, look for an article in the November/December issue of *The American Gardener* or visit www.americainbloom.org.

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AHS NATIONAL EVENTS AND PROGRAMS 2005 CALENDAR

Mark your calendar for these upcoming national events and programs that are sponsored or cosponsored by the American Horticultural Society.

- JULY 28–30. **AHS National Children & Youth Garden Symposium.** Atlanta, Georgia. Hosted by the Atlanta Botanical Garden and Wonderland Gardens.
- SEPT. 19–24. **Eastern Performance Trials.** George Washington's River Farm, Alexandria, Virginia. (Thursday, September 22, has been designated a special open day for AHS members to view the trials.)
- SEPT. 24. **AHS Annual Gala.** George Washington's River Farm, Alexandria, Virginia (see ad, opposite page).
- DEC. 8. **Friends of River Farm Holiday Reception,** George Washington's River Farm, Alexandria, Virginia.

For more information about these events, call (800) 777-7931 or visit the AHS Web site (www.ahs.org).

AHS Partners with Green Industry Yellow Pages

THE AHS is pleased to announce its newest corporate partner, the Green Industry Yellow Pages (GIYP) founded by **Steve Cissel**. GIYP is an online searchable directory with two functions: to help gardeners find plants as well as other products and services they need, and to serve as a marketing medium for the green industry. GIYP also offers Virtual Plant Tags™, a plant database full of color photographs and detailed information provided by horticultural experts such as **Michael Dirr** and **Allan Armitage**.

"The Green Industry Yellow Pages is an incredible resource for both the green industry and home gardeners," says AHS President **Katy Moss Warner**. "Forging this partnership between our two organizations will help us both grow exponentially." Visit www.giyp.com to explore this resource further.

The Growing Connection Gains New Advisory Board

THE GROWING CONNECTION (TGC), an international educational program created by the AHS in conjunction with the United Nation's **Food and Agriculture Organization**, recently gained an advisory board. The Global Board of Advisors, created in April 2005, will help steer TGC's development by providing "strategic and technical advice, resource mobilization, and promotion and outreach."

In Memoriam: Kathleen Fisher

Kathy Fisher, editor of the American Horticultural Society's magazine from 1989 to 1998, died in May at the age of 57.



Kathy, who began her career as a newspaper reporter in Kansas, transformed the AHS's membership magazine into an authoritative publication highly respected by avid gardeners and professional horticulturists for its scientific accuracy and focus on earth-friendly gardening practices. "What she did so well was to explain to gardeners the underlying reasons for using environmentally responsible gardening techniques," says AHS President Emeritus **Dr. H. Marc Cathey**.

She also oversaw a major redesign of the magazine in 1997 that included a change in name from *American Horticulturist* to *The American Gardener*.

In addition to being an accomplished editor, Kathy was a prolific writer and an author of several gardening books.

"Kathy loved plants and bringing them to life via text. She also appreciated and profiled the quirky characters who comprise this most noble of professions," says woody plant guru **Michael Dirr** of the University of Georgia. "She will be missed by those who treasure the green world."

The AHS's own **Dr. H. Marc Cathey**, recently retired as President Emeritus, is co-chair of the new board, along with **Vinton G. Cerf**, considered one of the "fathers of the Internet." As pioneers in their respective fields of horticulture and information technology, their leadership will be invaluable as TGC continues to combine innovations from these two fields.

The board consists of 14 other advisors, with expertise in diverse areas such as technology, agricultural science, marketing, education, nutrition, and entertainment. Together, they will guide TGC as it works to improve nutrition worldwide while helping children to cultivate an understanding of and interest in food production.



These schoolchildren in Ghana are part of *The Growing Connection* program.

Currently, TGC has programs with schools in the United States, Ghana, and Mexico. In addition, there are several TGC demonstration gardens and information centers, including one at River Farm. To learn more, visit www.thegrowingconnection.org.



The American Horticultural Society's Annual Gala 2005

Festa di Colori e Giardini
"A Celebration of Color in the Garden"

September 24, 2005
5:00 p.m. – 11:00 p.m.



Join us Saturday, September 24, 2005 at George Washington's River Farm, headquarters of the American Horticultural Society. This elegant evening under the stars is the Society's annual fundraiser to support our national educational programs and the stewardship of River Farm. This year we celebrate color in the garden and the influence of Italian landscape design on American gardens.

Gala attendees will have the unique opportunity to be part of the grand finale for the Eastern Performance Trials, a weeklong industry event showcasing the brightest and best new plants for 2006. The American Horticultural Society is proud to be one of six host sites selected for the debut of this landmark event.

For information on the American Horticultural Society's Annual Gala 2005
call Trish Gibson at 703.768.5700 ext. 114 or e-mail tgibson@ahs.org.

River Farm a Monitoring Site for Emerald Ash Borer

AS PART OF AN emerald ash borer (EAB) monitoring program, the **Fairfax County Forest Pest Section** has placed five green ash trees (*Fraxinus pennsylvanica*) at River Farm.

Since the insects were discovered in the United States in 2002, EABs have killed millions of ash trees in Michigan, Indiana, Ohio, and Canada. In spite of eradication and quarantine efforts, the beetles have continued to spread. In 2003, EAB-infested ash trees from Michigan ended up at a nursery in Maryland, prompting aggressive efforts to contain the population before the insects spread to other Mid-Atlantic states.



Urban Forester Frank Finch ensconces the ash trees' rootballs in mulch for the summer.

Last year, 300 ash trees had to be removed from the Vienna, Virginia, area because infested ash trees from the Maryland nursery had been planted there. In conjunction with the **U.S. Department of Agriculture** and the **Virginia Department of Agriculture and Consumer Services**, the Fairfax County Forest Pest Section then set up 50 “sentinel” trees in the area, but no borers were found. This year, they are continuing to monitor for the beetles.

“We’ve placed 80 trees at various locations around the county to serve as lures,” says Urban Forester **Frank Finch**. “Stressed trees seem to attract the borers, so we’re making cuts in the bark and watering sparingly throughout the summer.” At season’s end, the trees will be removed and analyzed for signs of the pests.

Second Phase of River Farm’s Meadow Completed

THE SECOND PHASE of the André M. Bluemel Memorial Meadow planting was completed at River Farm this past May. Just as they had for the first phase of planting, staff from AHS, **Mount Vernon Estate and Gardens, Kurt Bluemel, Inc.**, and volunteers helped to plant 35,000 plugs donated by AHS Board Member Kurt Bluemel’s nursery. The plugs include 44 different species, of which 98 percent are native to North America. Thirty percent are grasses, such as big bluestem (*Andropogon gerardii*), and 70 percent herbaceous perennials (forbs), such as ‘Husker Red’ penstemon (*Penstemon digitalis*). Two more planting phases are scheduled to complete the planned four-acre meadow.

The current meadow shows the various stages of transition in a managed ecosystem. The first quadrant, planted last spring, is becoming established and requires minimal care beyond spot weeding. Phase two is receiving the regular watering and weeding needed by any new planting. Next February, the third quadrant

Remember to Save Seeds to Share

Now’s the time to start thinking about saving seeds for the annual **AHS Seed Exchange**. This popular program allows our members from around the country to share their seeds with one another. It’s a great way to acquire some unique plants and pass along your family heirlooms or unusual species to other gardeners. More information about the seed exchange, including seed-saving tips and a seed submission form, will be included in the September/October issue of *The American Gardener* or you can log on to www.ahs.org.

If you have a story to share about plants you’ve grown from the AHS Seed Exchange, we’d like to hear them! Mail them to: Editor, *The American Gardener*, 7931 East Boulevard Drive, Alexandria, VA 22308, or e-mail them to editor@ahs.org. We’ll publish the best stories in an upcoming issue of the magazine.

will be treated with an herbicide to clear the ground for planting in spring. For the final quadrant, to be planted in 2007, AHS Horticulturist **Peggy Bowers** will cover the plot with plastic sheeting for a year as an alternative to herbicides. The plastic will trap solar radiation and raise the heat level in the soil, killing the vegetation.

One of the biggest challenges in establishing River Farm’s meadow has been control of invasive, non-native plant species.



AHS staff and volunteers planted more than 35,000 plant plugs in the André Bluemel Memorial Meadow at River Farm this May.

“Oriental bittersweet (*Celastrus orbiculatus*) and porcelain berry (*Ampelopsis brevipedunculata*) in particular have proven difficult to eradicate,” says Peggy.

The most exciting aspect of the meadow so far has been a noticeable increase in wildlife diversity. “There are definitely more beneficial insects, pollinators, and prey animals than there had been,” says Peggy. “Their presence is essential to the long-term sustainability and health of the habitat.”

News written by Assistant Editor Viveka Neveln and Editorial Intern Jessica Rozmus.

AHS PARTNERS IN PROFILE

EarthBox™: Enabling Anyone to Garden Anywhere

by Sheree R. Curry

THE EARTHBOX may not yet be a household name like Post-it Notes, Velcro, and Wite-Out, but like those revolutionary products, it is a 20th-century invention that helps people accomplish a task more efficiently.

A self-contained gardening system, the EarthBox is a rectangular container that easily grows bumper crops of vegetables, flowers, and herbs without any gardening experience required. A plastic cover over the top of the 30-inch-long, 12-inch-high box prevents weeds, and watering is handled by a built-in water reservoir.

Gardeners never have to worry about over- or underwatering, because the soil serves as a wick, drawing the water up to the plants through cutouts in two corners. A drain hole on the side of the box prevents the plants from getting overwatered. A strip of balanced, slow-release fertilizer placed along the top of the soil releases nutrients to the plants automatically through the wicking action in the growing system.

"You are creating this safe zone with a constant flow of water; the plants drink the water and the water gets replaced," says **Frank DiPaolo**, president of the Scranton, Pennsylvania-based company. "The EarthBox allows plants to feed at an ultimate level, and the results are bigger, healthier plants that produce more fruit."

THINKING INSIDE THE BOX

The EarthBox was created as an offshoot of a commercial growing method perfected by founder **Robert Blake Whisenant** after he experienced crop loss due to flood-



Above: Students at White County Middle School in Georgia prepare an EarthBox for *The Growing Connection* program. Left: An EarthBox overflows with herbs and flowers.

ing on his Florida farm. "Blake was determined to develop a farming technique that would give him control from the elements," says DiPaolo. "With this creation, he saw great increases in plant productivity and decreases in water use."

Whisenant and partner **Michael T. Lynch**, who together received the 2003 G.B. Gunslogson Award from the AHS for the creative use of new technology to make home gardening more productive and enjoyable, put EarthBox on the market in 1995. The Earthboxes are marketed primarily via direct mail, but can be purchased online at www.earthbox.com.

"We have a lot of customers who have been gardeners their whole lives," says DiPaolo. "They are older now, and this is great for them because they don't need to till the soil. They just fill the box with the growing mix, plant, and put the top on."

Kimsey Wade of Vinita, Oklahoma, bought his first EarthBox six years ago and has added four more since then. Wade uses the boxes for starting seedling perennials. He also grows a variety of vegetables, which remain in the box until harvest. "Part of the reason I went to using EarthBoxes is you can grow vegetables even when there is a drought and it is too ex-

pensive to water a garden," says Wade.

Because of its ease of use and mobility, EarthBox is also great for novice gardeners. In fact, the company works closely with several youth gardening initiatives, including *The Growing Connection*, a collaboration between the AHS, the **Food and Agricultural Organization (FAO)** of the United Nations, and other businesses. The program currently operates in the United States, Mexico, and Ghana, and supports cross-cultural learning by teaching children about the science of growing food plants.

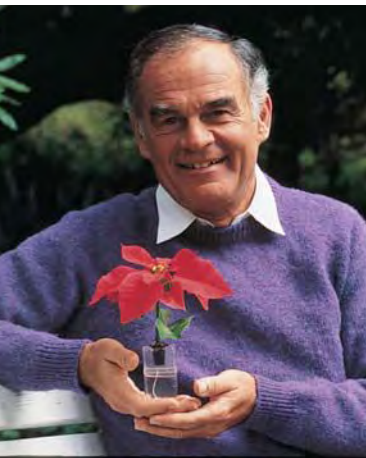
"EarthBox is honored to have a partnership with the AHS, as we are equally dedicated to sharing our love of gardening," says DiPaolo. "Through *The Growing Connection*, we are doing our part to help educate the world's youth about important issues such as hunger, nutrition, and conservation."

After a decade on the market, the EarthBox is getting its first facelift this fall. Casters will be added to the boxes to make them easier to move, DiPaolo says, as well as wide legs with an optional staking system to give the box more stability. ☺

Sheree R. Curry is a journalist based in Minneapolis, Minnesota.

For more information about corporate partnerships with AHS, contact Eva Monheim at emonheim@ahs.org.

the colorful career of “Dr. Purple” H. Marc Cathey

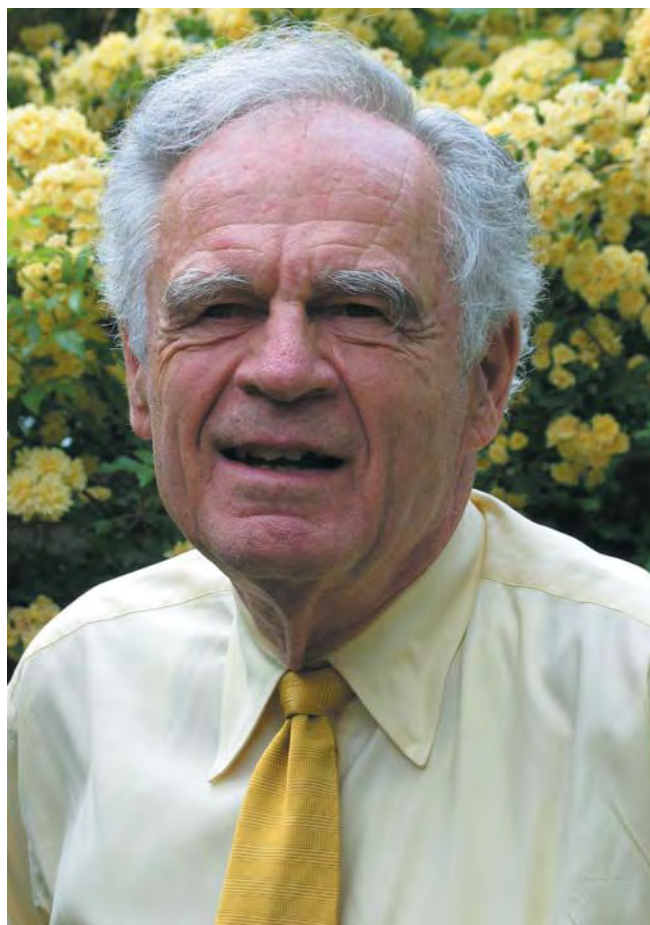


Culminating a career that has spanned over half a century, AHS President Emeritus Dr. H. Marc Cathey, distinguished scientist, accomplished author, promoter of horticultural technology par excellence, and consummate family man, is retiring to his native North Carolina with wife Mary, where he will continue to engage in a variety of horticultural activities, artistic endeavors, and family fun. BY RITA PELCZAR

AS A horticulture graduate student at the University of Maryland circa 1978, the thought of a late-in-the-day seminar on the effects of varying light schedules on flowering crops seemed less than scintillating; but then, I'd never met Dr. Cathey before. Fortunately I did attend the seminar, because the tall, dapper plant physiologist from the USDA's Agricultural Research Service put on quite a show. With his smooth southern drawl, multiple slide projectors, cutting-edge research, and more than a dollop of humor, he wasn't just brilliant, he dazzled! Who knew that poinsettias could be so entertaining?

Over the next quarter century, I have come to know Dr. Cathey as a modern Renaissance man, with wide-ranging interests and talents. I recently caught up with him the day after he returned from Italy, where he led a 10-day garden tour. He regaled me as usual, with great stories, from the construction of violins to Count Parma and his cheese. Then he explained, as he had to his tour companions, the concept of “trinity colors” and how they make a garden “simply vibrate.”

“I have traveled around like a troubadour, spreading stories,” says Dr. Cathey of his long career. In his writings, talks, television appearances, and a long-running syndicated radio show, he has promoted the things he is passionate about, from plant-light



Dr. H. Marc Cathey, AHS president emeritus, retired on June 23, 2005, after an illustrious career spanning over 50 years. Top: Dr. Cathey in the 1980s with a poinsettia, a plant that was at the heart of his research.

interactions to environmental stewardship, color theory, and phytoremediation, with the flourish of a magician and a style all his own.

Known to many of his friends as “Dr. Purple” for his love of color, he has at times coordinated his outfit with the room in which he was to give a presentation. Reflecting on Dr. Cathey's style, Marvin Miller, marketing research manager at Ball Horticultural Company, observes, “It is classic showmanship, something Marc always includes in any presentation, and in a way, any conversation he has with you. You leave feeling entertained and at the same time, educated.”

EARLY CULTIVATION

Dr. Cathey's horticultural education began as a boy in North Carolina, gardening alongside his paternal grandmother, Nancy McAuley Cathey, better known as “Miss Nannie.” The practical lessons she taught him have had a lasting influence. The SMARTGARDEN™ initiative, which Dr. Cathey conceived in 1999, embraces

the same holistic principles he learned as a child, enhanced of course, with the latest scientific knowledge.

Dr. Cathey studied at North Carolina State University, receiving his bachelor of science degree in floriculture in 1950. After working a couple of years as a florist, he went on to earn his doctorate at Cornell University, where he met the eminent

TOP: COURTESY OF PAUL ECKE RANCH; CENTER: MARY YEE

Young Marc Cathey learned early gardening lessons at the side of his paternal grandmother, Nancy McAuley Cathey—“Miss Nannie.”



horticulturist Liberty Hyde Bailey. Dr. Cathey received his PhD in 1955 and spent the following year in the Netherlands pursuing post-doctorate studies on a Fulbright scholarship.

In 1956, he accepted a position with the Agricultural Research Service (ARS) of the U.S. Department of Agriculture in Beltsville, Maryland. He worked with plant physiologist Harry Borthwick, who had been conducting pioneering studies on the effects of light on plants. It was Dr. Cathey's mission to apply the research in practical ways to improve the production of florist and nursery crops.

LABOR'S REWARDS

Dr. Cathey considers his work at ARS experimenting with light and plant growth regulating chemicals the most horticulturally significant of his many accomplishments. He insists, however, that it was a team effort. “None of us creates anything alone,” he says. “If you needed an expert [at ARS], they were usually right down the hall.”

The first chemical growth regulator the team investigated was a germicide called Amo-16-18 that was developed by German scientists during World War II. When applied to poinsettias, it reduced the internodal length—the distance between leaf nodes—producing more compact plants. As more effective chemicals were developed, their applications for the horticulture and floriculture industries expanded. Dr. Cathey explains that these growth retardants “made plants greener and more compact by closing the stomates and increasing the density of the chlorophyll.”



As a horticulturist with the USDA Agricultural Research Service, Dr. Cathey, shown here in 1972, developed a roadmap for poinsettia growers, detailing specific requirements for light and temperature.

THE CATHEY INFLUENCE

Dr. Marc Cathey has inspired and assisted an astounding number of horticulturists throughout his long career. “Marc has been genuinely interested in helping folks coming up through the ranks and in doing everything possible to see that they succeed,” says Marvin Miller of Ball Horticultural Company.

Geneticist Robert Griesbach worked with Dr. Cathey at the Floral and Nursery Plants Research Unit of the U.S. Department of Agriculture, where they conducted “mission oriented” research. “Dr. Cathey helped teach me the meaning of this type of research,” says Griesbach. “His research involved all aspects of a problem from basic to applied.”

“He has certainly been a big part of my success,” says landscape designer James van Sweden, who met Dr. Cathey just after he had become director of the National Arboretum. “There’s no hanging back with Marc,” says van Sweden, who followed Dr. Cathey’s advice to take on larger speaking engagements and to publish a book. “He became my coach for lecturing. He is so charismatic, and he’s incredibly honest, always pushing you to do the best you can.”

As curator of the National Herb Garden, Holly Shimizu, who is now director of the U.S. Botanic Garden, recalls being somewhat reluctant to speak in front of large crowds until Dr. Cathey, who recognized her potential, encouraged her. “He recommended me as a speaker and gave me pointers. He was able to make the whole communication thing fun.”

Mark Miller, currently pursuing his doctorate at Ohio State University, has worked with Dr. Cathey at AHS both as a horticulturist and as deputy director of national programs. “I first met Dr. Cathey when he was the first Kiplinger Chair professor at Ohio State in the early '80s,” recalls Miller. “He took me under his wing and taught me more about how to really live my dreams than anyone ever had.” —R.P.

Dr. Cathey set out to unravel the specifics of light-induced flowering, and to quantify the exact light schedules necessary to have a crop bloom at the desired time. He also researched the effects of light quality and temperature, ultimately providing growers with a roadmap for growing the crop. “It’s all about timing and tailoring,” says Dr. Cathey. “Plants already know the answer, we just have to figure out what they’re trying to say.”

Dr. Cathey, it seems, knew just what to say to people in the horticultural industry to get them to use the products and techniques coming out of the lab. With his grasp of industry needs and skill as a promoter, he was able to convince growers of the merits of the new technologies. According to fellow researcher Robert Griesbach, “Dr. Cathey was the ultimate salesman.”

PULLING OUT THE STOPS

When Dr. Cathey took the helm as director of the U.S. National Arboretum in 1981, the arboretum had a wonderful collection of plants, but few ventured there to appreciate them. That was about to change—Dr. Cathey set out to put it on the map of national attractions.

“Marc realized that if people were ever going to appreciate the arboretum, you had to first entice them to visit. So up went the flags, the signs, the Capitol Columns, and way up went the attendance figures!” recalls Ball Horticultural’s Marvin Miller.

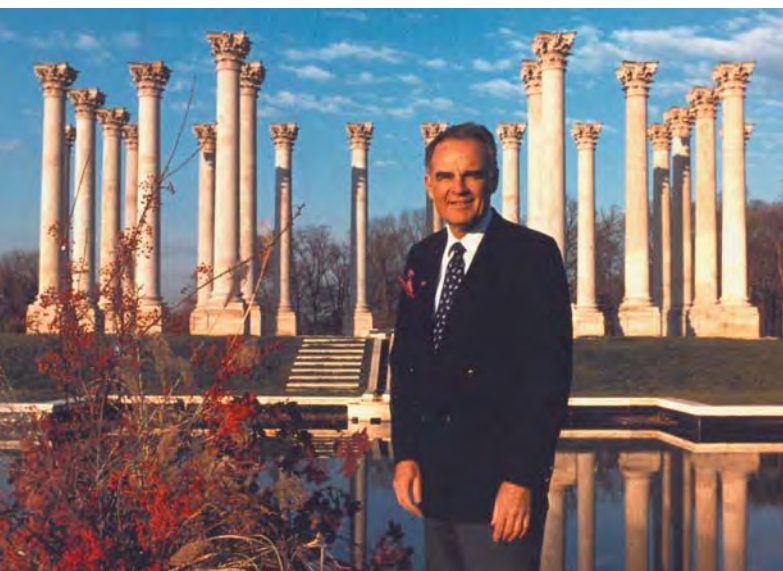
Jacqueline Heriteau, who authored *The National Arboretum Book of Outstanding Garden Plants* with Dr. Cathey’s assistance, says, “Marc is the scientist who, building on the achievements of those who preceded him as director... had the vision and willingness to take risks that brought this national treasure to public attention.”

Holly Shimizu was curator of the arboretum’s National Herb Garden during Dr. Cathey’s tenure as director. She recalls that sometimes she would forget to remove her arboretum badge before leaving at the end of the day, and on her way home people would say, “Oh! You work with Marc Cathey!” Now director of the U.S. Botanic Garden, she has kind words for her former mentor. “He is so good at connecting gardens and people,” she says. “During his tenure he did that for the arboretum, more so than any previous director.”

Dr. Cathey was able to solicit contributions and volunteers to develop many projects while at the arboretum. Among these was the installation of the Capitol Columns—22 thirty-foot columns that were once part of the east portico of the U.S. Capitol building. The volunteer group Friends of the National Arboretum funded the columns’ rescue from what Dr. Cathey called “a weed patch” on the banks of the Anacostia River. They were placed at the arboretum on a stone platform in a meadow above a reflecting pool.

Upon Dr. Cathey’s request, Wolfgang Oehme and James van Sweden designed their “New American Garden” outside the arboretum’s Visitor Center, featuring grasses, long-blooming perennials, and bulbs. It demonstrates a favorite Cathey theme: “tough plants for tough times.”

While at the arboretum, Dr. Cathey also obtained funding to update and produce the USDA Hardiness Zone Map in 1990 using new weather data. Since then, thousands of gardening



As director of the National Arboretum, Cathey oversaw the refurbishing and installation of the Capitol Columns at the arboretum’s reflecting pool.



AHS HEAT ZONE MAP. One of Dr. Cathey’s many horticultural legacies is the AHS Plant Heat Zone map, which helps gardeners select appropriate plants for their region based on heat tolerance. Here he explains the map concept during a seminar at Furman University in Greenville, South Carolina, in 2002.

books, magazines, and catalogs have included a copy of this important gardening reference.

A GUIDING LIGHT AT AHS

As president and CEO of the American Horticultural Society from 1974 to 1978 and again from 1993 to 1997, and as president emeritus since 1998, Dr. Cathey continued his mission to provide people with technological tools they need to be better gardeners.

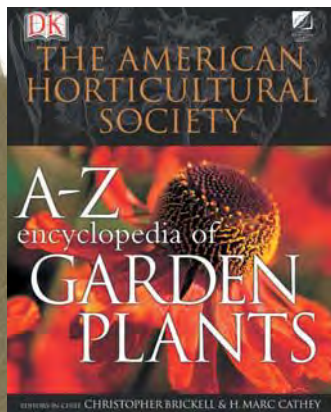
He coordinated and developed the AHS Plant Heat Zone Map, first published in 1997. It is a 12-zone map based on the number of “heat days”—days where temperatures exceed 86 degrees Fahrenheit—to help gardeners select plants that will thrive through their summer’s heat. He also obtained funding for yet another update of the USDA Hardiness Zone Map to reflect data gathered over the last 30 years. Its release is expected later this year.

Another Dr. Cathey initiative while at AHS, which he dubbed the SMARTGARDEN™, combines the latest technology with environmental responsibility to address the real issues gardeners face. It is a pragmatic, science-based approach that promotes effective management and stewardship of natural resources.

Coordinating the coding of plants—not only with respect to heat and hardiness zones, but for other aspects of culture such as light and water requirements—has been an ongoing project, one that Dr. Cathey will continue in retirement. Dr. Cathey recently completed revisions to the comprehensive reference, *The American Horticultural Society A–Z Encyclopedia of Garden Plants* (DK Publishing, 2004), which he co-edited.

In addition to writing and lecturing, Dr. Cathey has led AHS

A Lasting Legacy for AHS



AUTHORITATIVE REFERENCE BOOKS. Among his many publications, Dr. Cathey co-edited the comprehensive *AHS A-Z Encyclopedia of Garden Plants* (DK Publishing, 2004).

PATRIOT™ PILLAR™ 'MARC CATHEY' LANTANA. This tall and stylish lantana from American Daylily & Perennials was released in 2002 to honor a “pillar of the green industry.”



garden tours all over the world, usually accompanied by his wife, Mary, and conducted with typical Cathey flair.

“Dr. Cathey has been the guiding force of the AHS for decades,” says current AHS President Katy Moss Warner, who served on the AHS Board of Directors during Dr. Cathey’s second term as president. “As both accomplished artist and research scientist, as both effective communicator and educator, Dr. Cathey has brought vision and direction to this important na-



Any conversation you have with Dr. Cathey will likely include a mention of the four granddaughters of whom he is so proud. Their nicknames reflect his love of color, left to right: “Miss Emerald” (Elizabeth), “Miss Pink” (Emily), “Miss Ruby” (Sarah), and “Miss Peach” (Ellen).

REFLECTIONS OF A GRANDDAUGHTER

One of Dr. Cathey’s granddaughters, Emily Ewell, aka “Miss Pink,” is currently studying chemical engineering at the University of Virginia. She offers the following thoughts about the influence her grandfather—whom she calls BeauBeau—has had on her life and goals:

BeauBeau has played such an important role in my life. When I was very young he would take me aside and express to me his love for academia and his passion for learning. I specifically remember him saying “you are going to LOVE math and science...and you’re going to be so good at it!” I do, and I am.

When I think of BeauBeau, I am amazed that there are so many sides to him. BeauBeau the scientist, the florist, the author, the artist, the entertainer, the counselor, and the all-around amazing person.

Behind all of his accomplishments, he has the most virtuous and genuine heart. BeauBeau truly loves people—and he knows a lot of them! And, I’d dare to say, he loves them even more than flowers.

“He is brilliant in every sense of the word, incredibly smart, a bright shining light, and a man of remarkable pizzazz!”

—Katy Moss Warner, AHS President

tional organization which represents the broad scope of horticulture in America—from research scientists to the green industry, garden professionals, garden writers, and backyard gardeners. He is brilliant in every sense of the word, incredibly smart, a bright shining light, and a man of remarkable pizzazz!”

SWEET HOME CAROLINA

Dr. Cathey’s immediate plans for retirement include returning to his home town of Davidson, North Carolina, where, among other things, he will rekindle his life-long passion for art—creating miniature sketches of plants and birds.

On the horticultural front, the monumental task of coding plants will continue. And his work with phytoremediation is far from done. “We’ve got to ratchet up our efforts,” Dr. Cathey says about reclaiming the polluted soils of our cities, parks, and farmlands. As a board member of Edenspace Systems Corporation, based in Dulles, Virginia, he will continue to support and explore this technology that uses plants to extract soil contaminants like arsenic and lead.

Another project already in the works is a book about color. “The reason we sell plants for the landscape,” says Dr. Cathey, “is 3-D color. And I have perfect color vision!”

As the Catheys prepare for their move to North Carolina, Katy Moss Warner says, “We will greatly miss Marc’s everyday presence at River Farm, but we hope he will continue to guide us from his new home.”

Rita Pelczar is a contributing editor for The American Gardener.

Must-Have Monardas

For the gardener willing to look beyond the commonly available cultivars, the genus *Monarda* contains several less-familiar species worth knowing and growing.

BY JESSIE KEITH



The two *Monarda* species most familiar to gardeners are *Monarda didyma* and *M. fistulosa*. Clump-forming *M. didyma* produces an abundance of summer flowers in shades of pink, purple, or the above scarlet. The later-blooming *M. fistulosa*, right, bears pink or purple flowers. A number of excellent hybrids have resulted from crosses between these species.



IF I WERE a superhero defender of underdog plants, I'd don my mighty green mask and chlorophyll-enriched cape and shine a dazzling spotlight on the lesser-known members of the genus *Monarda*.

Okay, so maybe that's a *little* over-the-top, but apart from the two species that most gardeners grow—*M. didyma* and *M. fistulosa*, which together comprise nearly 100 recognized cultivars—*Monarda* is truly an ornamentally under-used genus. There are 19 distinct and wonderful *Monarda* species—known by evocative common names such as beebalm, Oswego tea, wild bergamot, ponymint, and horsemint—indigenous to North America. It's time a few of these other species get a little of the limelight, too.

My appreciation for the overlooked members of the genus developed while researching them at Michigan State University in East Lansing. The university's research greenhouses were filled with a bevy of different species and I had two years to become familiar with their different features, cycles, and cultural preferences. All possess showy flowers, attractive growth habits, and spicy scented foliage.

My conversion to a monardaphile was completed after field-collecting many more and growing them in my own garden. Some are perennials and others annuals, but all are easy to grow as long as their cultural requirements are met. And, aside from a few that have very specific bloom times—such as *Monarda bradburiana*, which blooms in late spring to early summer—most monardas flower continuously from summer to fall.

In my opinion, all 19 *Monarda* species are pretty in their own right, but for the purposes of this article, I am going to highlight the 10 most garden-worthy that I have grown and enjoyed. Not all of them are widely available for purchase or bred to perfection yet, but I'm working on that!

FABULOUS FLOWERS

Monardas are members of the mint family (Lamiaceae), and like most mints they have fragrant flowers designed to attract and facilitate a variety of pollinators. Their sweetly scented, colorful, nectar-rich tubular flowers come fully equipped with nectar guides and prominent lower lips that serve as perfect landing platforms.

Apart from the two large red-flowered hummingbird-pollinated species *M. didyma* and *M. pringlei*, all are pollinator generalists, meaning they attract butterflies, moths, bees, beetles, and even wasps to their flowers.

Taxonomists have divided the genus into two groups, or subgenera, based on distinct flower types, growth habits, and life cy-

cles. The 19 species are split almost evenly between the subgenera.

Species in the subgenus *Monarda* have single, terminal flower clusters atop (subtended by) one row of bracts. Individual flowers have prominent straight upper lips. Plants in this subgenus are all herbaceous perennials that—under the right conditions—spread by rhizomes (underground roots) to form clumps. Some may sometimes stray beyond the bounds you intended, but they are not hard to keep in check.

The subgenus *Cheilyctis* includes a combination of annuals and perennials distinguished by multiple elongated tiers of flower clusters, each subtended by a row of bracts. The flowers have curved upper lips. These plants form taproots and don't spread like their rhizomatous counterparts. Most are herbaceous, but one or two develop woody stems and shrubby habits.

SOUTHERLY MONARDAS

Three of the plants on my top-10 list are tough Texas natives that are able to shine in the summer heat and two are equally resilient species from eastern Mexico. Because of their southern heritage, none will reliably survive northern winters, but this does not mean that they aren't useful garden plants in the north. As with other popular tender perennial mints, like certain sages (*Salvia* spp.) or *Agastache* spp., all bloom first year from seed, so they become bushy blooming plants only a few months after germination.

One of the prettiest monardas, *M. fruticulosa* (USDA Hardiness Zones 8–11, AHS Heat Zones 12–1) is technically a shrub; its specific epithet refers to its shrublike (fruticose) habit. Silvery linear leaves, a neat habit, and crisp white flowers lined with pink or white bracts distinguish this species. In the wild it is only found growing in the deep sands along the southern tip of Texas, so it's drought tolerant to boot.

Like most monardas, *M. fruticulosa* requires well-drained soil and a site in full sun, and does best with moderate to low watering. If these requirements are met, it will do well in any garden—



In the author's garden, *Monarda fruticulosa*, foreground, combines with *Rudbeckia fulgida* 'Goldsturm', *Miscanthus sinensis*, and a dark-leaved heuchera for a pleasing contrast of colors and textures.

mine have performed wonderfully in Delaware, Michigan, and Indiana—and should reliably survive winters in USDA Zone 8. In colder zones, plants can also be potted and overwintered in a dry, cool location if not allowed to become bone dry. *M. fruticulosa* is mildew resistant and blooms all summer.

Two other great Texas natives are *M. viridissima* and *M. maritima*, which are both semi-woody perennials. *M. viridissima*

A NEW-WORLD HERB GETS AN OLD-WORLD NAME

Native Americans have used *Monarda* species medicinally and in cookery for thousands of years. *Monarda punctata* was used to relieve fever and stomach ailments, *M. fistulosa* to remedy colds and flavor meats, and *M. didyma* to make a tea. Colonists learned the utility of *Monarda* from Native Americans, and by the 17th century were growing these species as garden plants.

An early account of *Monarda* collection and cultivation occurred when American botanist John Bartram collected *Monarda* near Fort Oswego in upstate New York. These were later cultivated and used to make a spicy tea—hence the common name “Oswego tea.” As with many traditional medicines, the merit of *Monarda* has since been substantiated. The plants contain significant concentrations of thymol, an important antiseptic and local anesthetic used in mouthwash, toothpaste, and lip balm.

Monarda fistulosa was the first member of the genus to be described by Jacques Cornut, a French physician with an interest in New World plants. Cornut included it in his 1635 North American plant treatise, *Historia Canadensium Plantarum*. At that time, the genus *Monarda* had not been established, so Cornut called it *Origanum Fistulosum Canadense*, likening it to its European relative, oregano.

More than 100 years later, Carolus Linnaeus characterized the genus *Monarda*, which he named after Nicholas Monardes (1493–1588), a Spanish botanist and physician, who composed the first volume on New World plants, *Joyfull Newes out of the Newe Founde Worlde*, in 1569.

By 1970, all but one of the currently accepted *Monarda* species had been described. Alan Prather, an assistant professor of plant systematics at Michigan State University, and I named the most recent formally recognized species, the New Mexican endemic, *Monarda humilis*, in 2003.

—J.K.

(Zones 7–10, 11–1) is an exceptional garden plant with bright green linear leaves, white flowers with magenta spots, and rich pink bracts. Like tender *Salvia leucantha*, it blooms from late summer to frost. In the wild it is restricted to a belt of sandy soils, called the Carrizo sands, which cut through east-central Texas, but it has thrived in my loamy soils in northern Delaware.

M. maritima (Zones 8–10, 11–1) is equally nice in the garden with its woolly white stems, and white flowers that have sharply toothed pink or white floral bracts and bloom from late summer to frost. Mature specimens have the added interest of smooth, tan, semi-woody stems that develop cream-colored striations. In the wild these plants only grow within a 100 mile strip of deep coastal sands off the Gulf of Mexico.

M. viridissima and *M. maritima* have the same cultural requirements as *M. fruticulosa*, but their hardiness is unconfirmed. By planting them in very free-draining soils, I have had several overwinter in Delaware (USDA Zone 7). Unfortunately, neither species is available in the trade, which is a real shame considering how well-behaved and pretty they are.

In my garden, I have intermixed both of these late-season bloomers beside complimentary perennials like silvery *Artemisia versicolor* ‘Seafoam’, the purple and rose-hued *Sedum telephium* subsp. *ruprechtii*, magenta *Callirhoe involucrata*, and bright yellow *Solidago rugosa* ‘Fireworks’.



M. viridissima is a well-behaved late-summer bloomer.



M. bartlettii received the 2003 Classic City Garden Award after trials at the University of Georgia. Like most monardas, its nectar-rich flowers attract bees and many other pollinators.

Sources

Easyliving Wildflowers, Willow Springs, MO. (417) 469-2611. www.easywildflowers.com. Catalog online.

Hamilton Seeds Go Native, Elk Creek, MO. (417) 967-2190. www.hamiltonseeds.com. Catalog online.

Seedhunt, Freedom, CA. www.seedhunt.com. Catalog online.

Sweet Briar Nursery and Gardens, Belton, TX. (254) 780-4233. www.vvm.com/~reid/seeds.htm. Catalog online.

There are several tender perennial monardas from south-of-the-border that are as lovely as they are heat tolerant and easy to grow. Among these Mexican beauties are the large-flowered species *M. bartlettii* and *M. pringlei*.

Monarda bartlettii (Zones 8–11, 12–1) is fantastically showy with its thick, almost succulent, dusty dark green to purple foliage, purple stems and prolific magenta flowers. This tender perennial can also take plenty of heat and humidity. In fact, its resilience and horticultural merit won it a 2003 “Classic City Garden Award” after a run through the University of Georgia Trial Gardens.

It is easy to grow from seed, which is fortunate because at the moment it can only be obtained through select seed sources. In my garden I have had great success mixing this species with other heat-tolerant, ever-flowering garden favorites like *Salvia coccinea* ‘White Nymph’, tangerine-colored *Agastache aurantiaca*, and subdued *Cuphea ignea* ‘Lutea’.

The large bright crimson flowers of *M. pringlei* (Zone 8–11, 12–1) challenge those of even the best *M. didyma* cultivars. This hummingbird magnet has thick dark green leaves and shares the same cultural requirements as *M. bartlettii*. Its only downfall is that it is difficult to find through plant and seed catalogs. However, it has become a favored garden plant in Texas and can be easily found in garden centers there—not necessarily good news for the rest of us. Still, there is hope; with so many Texas nurseries carrying it, it’s bound to make it to a mail-order plant catalog soon. For floral magma, plant *M. pringlei* with the orange-flowered, purple-foliaged *Dahlia* ‘Ellen Houston’, golden *Crocosmia xrococsmiiflora* ‘George Davison’, and lantanas.

NORTHERLY MONARDAS

The northerly *Monarda* species are either prairie or woodland natives with far more expansive natural distributions than their exclusively southern counterparts. Most are also perennial, hardy, and capable of naturalizing, if given the chance.

Monarda punctata (Zones 4–10, 10–1), commonly known as horsemint, is one of the most complex and poorly understood species in the genus. Presently it is comprised of eight different varieties, which may be described as either perennials or annuals depending on the variety and the reference you consult. Overall I have found that most horsemints have yel-

A QUICK GUIDE TO MONARDAS

SUBGENUS CHEILYCTIS

Name	Height (in.)	Flower/Bract Color	Foliage Color	Origin	USDA/AHS Zones
<i>M. citriodora</i>	12–30	white-pink/pink	medium green	south-central U.S.	7–10, 10–1
<i>M. fruticulosa</i>	15–40	white-pink/pink	silver green	southern Texas	8–11, 12–1
<i>M. maritima</i>	40–43	white-pink/green-white-pink	pale green	eastern Texas	8–10, 11–1
<i>M. punctata</i>	12–40	yellow-white/pink	light to dark green	coastal to eastern U.S.	4–10, 10–1
<i>M. viridissima</i>	24–30	white and purple/purple	bright green	east-central Texas	7–10, 11–1

SUBGENUS MONARDA

<i>M. bartlettii</i>	24–36	magenta/red-tinted	dark green/purple	northeastern Mexico	8–11, 12–1
<i>M. bradburiana</i>	12–20	white/purple-green	medium to dark green	south-central U.S.	5–8, 10–1
<i>M. clinopodia</i>	20–50	white-green/green	medium green	eastern U.S.	5–8, 8–1
<i>M. didyma</i>	28–45	red/purple-green/pink	medium to dark green	eastern N. America	4–10, 10–1
<i>M. fistulosa</i>	20–45	purple-pink/purple-green	light to medium green	eastern N. America	3–9, 9–1
<i>M. pringlei</i>	20–40	crimson/purple-green	dark green/purple	northeastern Mexico	8–11, 12–1

low flowers with maroon spots, pink to white-green bracts, and northerly selections are short-lived perennials that survive for three to four years.

Common to coastal grasslands and prairies, *M. punctata* is a heavy bloomer that makes an impressive addition to both formal and naturalistic gardens. Last summer I created a naturalistic bed in my backyard where I've encouraged a locally gathered seed strain of *M. punctata* to proliferate among an assortment of native grasses, sedges, and asters.



Above: With its showy bracts and late-summer flowers, *M. punctata*, native to coastal grasslands and prairies, is a good choice for sandy soils. **Left:** The lemon-scented foliage of *M. citriodora* provides a pleasing foil for its ornate summer flowers.

Monarda citriodora (Zones 7–10, 10–1) is most easily characterized by the pungent citrus scent emitted when its leaves are crushed. It has an upright habit, purple to white flowers, and greenish-white to pink or even dark purple bracts. Like horsemint, *M. citriodora* is comprised of several varieties, and it may be listed in references as either an annual or a perennial. In my garden, most have acted as annuals, with the exception of a few that survived single winters. Seed can be easily obtained through many garden seed catalogs, and this hardy, heat-tolerant plant will bloom as quickly as two months after sowing. I am growing this species in my herb garden among thymes, sages, and tarragon.

WOODLAND MONARDAS

A few monardas are adapted to light shade and woodland environments, and two of the nicest and easiest to find are *M. bradburiana* and *M. clinopodia*. *Monarda bradburiana* (Zones 5–8, 8–1) is a clump-forming species with purple-tinged green foliage that is acclimated to the open woodlands of the Midwest and south. In late spring to early summer it becomes covered with delicate white flowers with rose-purple spots.

Sometimes called basil beebalm, *M. clinopodia* (Zones 5–8, 8–1) prefers the moister soils and open woodlands of the eastern United States and tends to spread with gusto. Its subdued greenish-white flowers have purple spots and green bracts and look pretty against the plant's crisp green leaves. Both species are best suited to naturalistic gardens and pair well with other lively woodland fa-



M. clinopodia tends to spread and is well suited for naturalizing.



'Raspberry Wine' is one of several *Monarda* hybrids that offer improved resistance to powdery mildew, a common affliction of the genus.

avorites like the ruby red *Spigelia marilandica*, brazen *Tiarella* 'Iron Butterfly', and textural green *Heuchera richardsonii*.

FAMILIAR BEEBALMS

The monardas most familiar to American gardeners are Oswego tea (*M. didyma*, Zones 4–10, 10–1) and wild bergamot (*M. fistulosa*, Zones 3–9, 9–1), both of which have broad natural ranges in eastern and central North America. They do have some of the largest, most brightly colored flowers in the genus and look great in the garden when healthy, but many selections are susceptible to powdery mildew, and some are aggressive spreaders with ungainly growth habits.

Fortunately, diligent breeding has done much to squelch these ornamental maladies. In fact, many outstanding cultivars have been developed through selection and interspecific hybridization. Also, extensive trials have aided in the identification of the least invasive, most mildew-resistant cultivars with pleasing habits and extended bloom-times. Many popular selections, like 'Gardenview Scarlet', 'Raspberry Wine', and 'Blue Stocking', have come through such trials with high marks.

Other good selections have been products of extensive *Monarda* breeding programs such as the one founded by the late Henry Marshall at the Morden Research Centre in Winnipeg, Quebec, in the early 1970s. Many mildew-resistant varieties were developed there, including the purple-flowered 'Marshall's Delight' (30 inches) and rose-pink dwarf 'Petite Delight' (12 inches).

More recently, Morden has introduced two more of its best, the dark-leaved, rose-flowered *M. didyma* Coral Reef™ ('Baileef'), and lavender-flowered, mound-forming 'Grand Parade'. Two additional notables to hit the market are the cute bushy dwarfs 'Fireball' and 'Pink Supreme', both developed by Dutch plant breeder and nurseryman Herbert Oudshoorn.

CULTIVATION AND CARE

In addition to being easy to grow, monardas are a breeze to propagate from seed, cuttings, or division. On average, their seeds germinate within a week if surface sown and kept evenly moist at temperatures between 70 to 75 degrees Fahrenheit. Under the same conditions, cuttings will take within a couple of weeks if lightly dipped in rooting hormone and set in evenly moist, sterile growing medium. Divide clump-forming monardas in early spring.

Generally speaking, all monardas are happiest in well-drained soils and sun, but some, like *M. clinopodia*, can take a little more moisture and the woodland species can take a little more shade. In my experience, monardas thrive in poorer soils and need little

or no supplemental feeding. Be sure to deadhead spent inflorescences to keep plants looking clean and new flowers coming.

Powdery mildew is the main disease problem to watch out for—particularly with plants in the subgenus *Monarda*. Because powdery mildew only inhabits leaf surfaces and thrives when conditions are hot and dry, it simply helps to keep plants well watered and infected stems pruned out. Maintaining good air circulation is also important, so place plants in open



Thinning out dense clumps of monarda maintains air flow, which discourages powdery mildew.

areas and thin out or divide clumps when they become too dense.

The extended members of the genus *Monarda* are untapped garden wonders that are worth looking and asking for. By bringing them to light, I hope more gardeners and plantspeople will take the time to investigate and refine their landscape potential. Once that's accomplished, I'll be off to champion the cause of yet other underappreciated plants.

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Mighty Mycorrhizae

ARTICLE AND PHOTOGRAPHS
BY DOREEN G. HOWARD



You've probably heard about beneficial soil microbes, but do they really work? Here's one gardener's account of her decade-long experience with mycorrhizae.

I'VE BEEN A mycorrhizal fungi junkie for a decade. After reading about mycorrhizae on an Internet vegetable gardening listserv, I decided to risk \$20 for a jarful. That purchase proved to be a turning point in my gardening life. Fungi saved my gardens when disease, bugs, and weather conspired to destroy everything I grew; they soon became the strongest weapon in my organic arsenal.

PLANT PARTNERS

Undisturbed and organically managed soils are full of soil biota—bacteria,

fungi, and other living organisms that help keep plants healthy. Depleted and overfertilized soils have few biota.

Among these beneficial soil organisms are mycorrhizae, symbiotic fungi that attach to plant roots and absorb some of the plant's carbohydrates; in return, the fungi feed and protect the plant by helping it take up nutrients more effectively. The fungi sprout hyphae, thin threadlike feeding tubes that mine soil and subsoil for phosphorus, trace minerals, and water.

Robert Linderman, a USDA research plant pathologist specializing in mycor-

rhizae in Corvallis, Oregon, describes mycorrhizal fungi as quarterbacks that can call other soil microbes into play as needed. Certain bacteria that associate with mycorrhizae, for example, may produce antibiotic substances that inhibit plant pathogens.

Until recently, mycorrhizal products were available mainly through commercial suppliers and Internet sources. Now,

The author photographs the growth of the plants in her garden to document the effects of mycorrhizae.

Right: Mycorrhizae have helped this three-month-old border in the author's garden look like it's in its second season. **Bottom right:** The left row of 'Waltham Butternut' squash in the author's vegetable garden was not treated with fungi; the right row was. **Opposite top:** This large mycorrhizae-treated tomato transplant is only six weeks old from seed.

however, mycorrhizal fungi are readily available in powder form for coating seeds and plant roots. In addition, potting mixes contain them, nursery stock is inoculated with them, and fertilizer blends incorporate them.

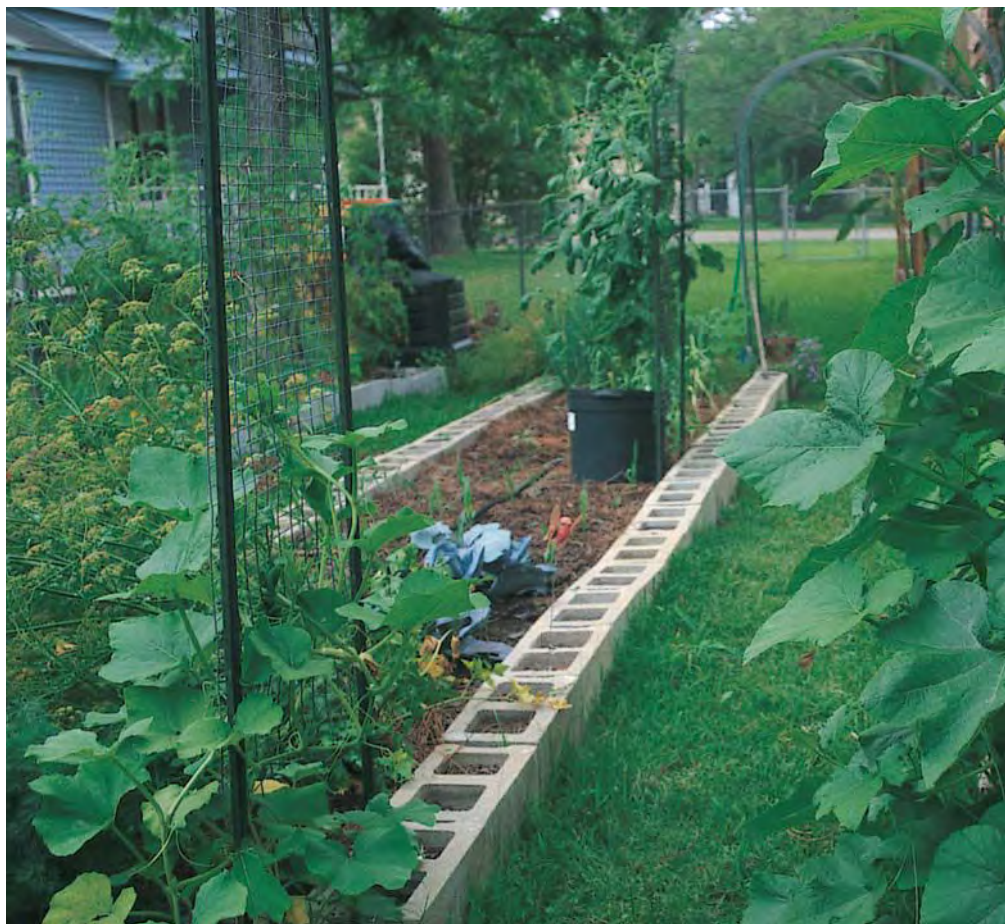
Elaine Ingham, a former researcher at Oregon State University who is now president and director of research at Soil Foodweb, Inc., says, "Mycorrhizae in potting soil will get the last bit of nutrients out of the pot and the fungi will defend the roots from diseases encouraged by overwatering." (To read more about Ingham and her research, see page 44.)

A GARDENER'S DESPAIR

Although I'd always favored organic methods, they weren't working in my new Texas Gulf Coast garden, where heat and humidity were constant companions. The relentless steam bath nurtured diseases I'd never seen in my previous California garden as well as hordes of five-inch-long cockroaches, bagworms by the million, and legions of crop-destroying stink bugs. Drainage was a problem, too. The area was a primordial soup that received six feet of rainfall annually and was only three inches above sea level.

Raised beds were the only way to grow flowers and vegetables, and I planted fruit trees and shrubs on mounds to combat root rot. The native gumbo clay soil, although potentially rich in phosphorus and minerals, consumed organic matter rapidly because of super-heated decomposition and constant rainwater leaching. No soil microbes were present to process phosphorus and trace minerals, so those nutrients were unavailable to plants.

Every three weeks I mulched with compost and manures to get a productive-size plant but then bugs and disease would descend on the pumped-up plants, leaving them ill and distorted. I was so desperate that I dusted my tomato plants with Sevin and nearly caused a microbe massacre.



SEEING IS BELIEVING

I don't believe everything I read, so when my \$20 jar of inoculant arrived, I decided to test the miraculous claims. I used cement blocks to build two raised beds, each eight inches high, 24 feet long, and four feet wide. I spaced the beds six feet apart with a turf aisle between them and filled them with peat, compost, com-

posted manure, decomposed oak leaves, and shredded banana leaves, which I left to rot for four weeks.

Meanwhile, I started two sets of heirloom tomato seeds. I dusted one set of seeds with mycorrhizal fungi inoculant and planted both sets in individual, two-inch plastic pots filled with a commercial potting medium. I planted the control, or un-



treated, seeds first to avoid cross-contamination. The tomato varieties I used were 'Black Plum', 'Garden Peach', 'Schimmeig Stoo', 'Striped German', 'Silvery Fir Tree', 'Green Zebra', and 'Southern Night'.

Three weeks after germination, I potted the plants into six-inch pots. At five weeks, I planted them in the raised beds. At that time, I noticed marked dif-

ferences in the height, stem thickness, and root ball mass of the two groups. The inoculated transplants averaged twice the size of the control plants. I set the inoculated transplants into one bed and the control transplants into the other. Each plant had a five-foot-high wire cage around it and I mulched each bed with a thick layer of straw.

The inoculated plants flowered and set fruit two weeks ahead of the control group. At the end of the season—late June in tropical south Texas—I was amazed at the difference in harvest totals. The inoculated 'Garden Peach' variety produced 103 fruits, whereas the control 'Garden Peach' bore only 28. Even large-fruited 'Southern Night' had 74 tomatoes on the inoculated plant versus 14 on the control. The control plants were infested with early blight (*Alternaria solani*), but the inoculated plants were disease-free.

THE POWER OF FUNGI

My skepticism was now a thing of the past. I began using mycorrhizae on everything, including roses, which are disease-laden in hot, humid climates unless you apply systemic pesticides. I had adopted that practice, rationalizing that I don't eat the roses, therefore I could make an exception to my organic rules.

I bought three new bareroot roses, sprinkled inoculant powder over their roots, and planted them with high hopes. *Rosa* 'Oklahoma', *R.* 'Mirandy', and *R.* 'Medallion' rewarded me with huge flowers just 60 days after planting and no black spot or mildew appeared even though I did not spray.

It's tough to grow standard herbaceous perennials in the South; most don't thrive because there's an insufficient dormant period. So when I moved to the Upper Midwest in 1998, my pent-up gardening mania drove me to grow previously forbidden fruit such as peonies, heucheras, and delphiniums. Not only were mycorrhizae invaluable in helping my perennials get established, they also brought on early bloom. Within 90 days of early spring planting, all my young plants grew significantly and bloomed copiously. The peony I bought in a five-gallon pot even produced two flowers, an unexpected bonus because peonies usually require at least two seasons in-ground to bloom.

My experiences are not unique. Gardener Linda Nitchman of Glen Carbon, Illinois, reports equal success with her peonies. "I tried mycorrhizae when I planted some new bareroot peonies in the fall," Nitchman says. "The next spring, each plant had three to five big, beautiful blooms!" She hasn't done controlled studies, but in informal comparison tests, Nitchman has seen marked differences.

"Using mycorrhizae in my garden has translated into better disease and insect resistance, increased vigor, and more prolific blooms," Nitchman says. "The benefits have been substantial."

Alaskan writer Jeff Lowenfels touts mycorrhizal fungi, compost tea, and other organic products in his weekly newspaper column, which has run for more than 30 years in the *Anchorage Daily News*. He uses mycorrhizae in his own garden and reports the biggest benefits he and his readers see is having to water less when they inoculate with mycorrhizae. Lowenfels also notes that "we have a lot of humus in our soil, but the pH is below 6, so phosphate gets locked in soil particles. Mycorrhizal fungi make [phosphate] available to plants."

FINANCIAL BENEFITS

"A few pennies spent at the beginning can save thousands of dollars when you

PUTTING MYCORRHIZAL INOCULANTS TO THE TEST: AND THE WINNER IS...



To compare brand performance, I tested mycorrhizal inoculants from five companies: Chappy's Power Organics, BioOrganics, Gardens Alive!, T&J Enterprises, and Fedco. I tested them on 'Silvery Fir Tree' tomato seeds because this determinate variety produces a crop in less than 60 days. Six sterilized pots were filled with a commercial seed-starting media that contained .09-.05-.09 fertilizer with peat moss, vermiculite, lime, and a wetting agent. Seeds were dusted with each company's product and planted. I planted the control pot with untreated seeds first to avoid contamination.



The author used 'Silvery Fir Tree' tomatoes in her home experiment.

The BioOrganics-inoculated seeds sprouted first. Two days later, all seeds except the control had germinated. Nine days after planting, the control seeds sprouted. Two weeks after sowing, the BioOrganics plant was largest and had the most extensive root system. The Chappy's plant was second in size, but its root system was smaller. T&J Enterprises' plant was third largest, and it had nearly as large a root system as the BioOrganics plant. The Fedco and Gardens Alive! plants were equal to each other in size and root development. The control plant was 80 percent smaller than the rest and had the fewest roots.

I set plants into the ground four weeks after seeds were sown. The soil was sandy loam that had not been fertilized for at least a decade. No fertilizer was added. Plants were

INOCULANT COMPARISON

Brand	Mature Plant Height (in.)	Tomatoes Harvested
BioOrganics	26.5	15
Chappy's Power Organics	26.5	14
Fedco	16.25	13
Gardens Alive!	19.25	13
T&J Enterprises	17.5	16
Control (no inoculant)	12.75	4

mulched with shredded cedar bark. Two weeks later, all the plants except the control had set fruit. The control plant had not even produced a flower. After a month in the ground, all the inoculated plants were about the same size and were covered with flowers and developing fruit. The control plant was one-third the size of the others, had significantly less foliage, and bore only one fruit.

Because of an early freeze, all plants were harvested 53 days after setout and 96 days after seeding. The table above shows final plant height and number of tomatoes harvested.

My conclusion is that any commercial VAM (vesicular-arbuscular mycorrhizae) inoculant works. BioOrganics and Chappy's produced larger plants more quickly. However, the plant treated with T&J Enterprises' inoculant formed the most massive root system and yielded more tomatoes.

My quick trial was by no means scientific, but the results indicate that mycorrhizal fungi inoculants, together with the microbial associates they encourage, produce bigger, healthier, and more productive plants compared with plants that have no colonized fungi on their roots.

—D.H.

Sources for Inoculant Spores

BioOrganics, La Pine, OR (commercial quantities only). (888) 332-7676. www.bio-organics.com.

Chappy's Power Organics, Malibu, CA. (800) 604-0444. www.rootbooster.com.

Fedco Seeds, Waterville, ME. (207) 873-7333. www.fedcoseeds.com.

Gardens Alive, Lawrenceburg, IN. (513) 354-1482. www.gardensalive.com.

T&J Enterprises, Spokane, WA. (509) 327-7670. www.tandjenterprises.com.

inoculate seeds, transplants, and potted stock with mycorrhizal fungi," says Steve Boulden, owner of S&S Designed Landscaping in Carlsbad, New Mexico. Boulden has been using the inoculant for nearly three years and has seen plant failure decline from around nine percent to less than one percent. "When we go back to check landscapes we've installed, we find everything healthy," Boulden says. "Before I started using mycorrhizae, we'd find dead and marginal plants due to poor nutrient uptake. Now I save money, and so does the customer."

One of the biggest challenges in New Mexico is iron deficiency because of the highly alkaline soil. "We don't see iron deficiency in our gardens since we started using mycorrhizal fungi," Boulden says. He grows lavender (*Lavandula* spp.), *Coreopsis*, Russian sage (*Perovskia atriplicifolia*), red-tipped *Yucca*, and several ornamental grasses in greenhouses for use in the landscapes he designs. He mixes inoculant with potting mix to start seeds and cuttings. "Every aspect of the resulting plant is noticeably better using mycorrhizae," Boulden says.

Monrovia Nurseries in Azusa, California, uses mycorrhizae to produce perennials, shrubs, and trees for consumers. The company adds seven different types of mycorrhizae to its soil mix to stimulate nutrient and water uptake and increase fruit and flower yields. The resulting plants have bigger root systems, better foliage, and grow more vigorously when customers transplant them. The fungi spread to nearby plants, too, enhancing their growth and making them more resistant to pests and diseases. "The main reason we

use mycorrhizal fungi is because plants establish quickly and are more resistant to drought stress and transplant shock," says John Keller, Monrovia's research director.

CHOOSING THE BEST INOCULANT

More than 95 percent of plant species form mycorrhizal associations, and many fungi are specific to certain plants. However, only two types of fungi are commonly sold as inoculants: Ectomycorrhizae are found in forests and hedgerows and aid conifers and some deciduous trees and shrubs; endomycorrhizae are found on the roots of a vast number of herbaceous and woody plants. The latter group also is known as vesicular-arbuscular mycorrhizae (VAM). VAM inoculants are most often the species *Glomus intraradices*, although some are mixtures of several different endomycorrhizae.

Plant-specific strains such as ericaceous (for heathers, rhododendrons, blueberries, and other members of the heath family), orchidaceous (for orchids), and ectomycorrhizae are best used in arboretums and botanical gardens and by plant propagators. The average gardener will benefit most from using VAM inoculants, which colonize the roots of most garden plants.

Inoculants typically come in powdered form. Pulverized clay or yucca powder are the main carriers for the fungal spores. Humic acids and volcanic rock dust are added to a few blends to supply trace elements to plants. Some products have a shelf life of only 90 days; others last as long as a year. All must be stored in a cool, dry place out of direct sunlight, which degrades the spores.

CARE AND FEEDING OF MYCORRHIZAE

If you use mycorrhizae, you may have to change your gardening practices because the excess nitrogen and phosphorus in synthetic fertilizers inhibit soil fungi. Substitute slow-release plant foods such as compost, fishmeal pellets, and alfalfa or kelp meal. Gradual-release synthetics such as Osmocote work well in small amounts. Avoid hot (uncomposted) organic fertilizers such as chicken manure and bat guano, which add huge amounts of nitrogen and phosphorus to the soil all at once, killing mycorrhizae. Bone meal is the preferred source of phosphorus because it breaks down slowly and releases the element gradually.

Learn to mulch, not dig. Disturbing the ground damages the soil food web, of which mycorrhizae are a part. Use three to four inches of organic matter such as



Mulching with organic matter such as shredded leaves helps create a healthy environment for beneficial soil organisms.

shredded leaves, dried grass clippings or straw, or an inch of compost as a mulch. As they break down, mulches feed the soil food web and keep the ground soft, moist, and weed-free. To install new plants, simply push the mulch aside and dig as large a hole as you need for the plant's root ball.

Don't use fungicides. Such products kill mycorrhizae along with the bad fungi. Improved plant health should reduce or eliminate the need for fungicides. If you need one, spray affected foliage using a mixture of baking soda and water. 🌱

Doreen Howard, a former garden editor at Woman's Day, lives in Roscoe, Illinois.

Compact Shrubs

BY PATRICIA ACTON

Shrubs that stay in scale at maturity are a good fit for today's smaller gardens.

SOME OF THE best gifts come in small packages, and many gardeners are discovering that the same holds true for shrubs. Fortunately, for those who garden in small spaces, compact selections of favorite garden shrubs are increasingly available.

There are many reasons why breeders are producing more and better compact shrubs. One is to satisfy the needs of gardeners like me who have relatively small properties. On my one-third acre, I simply don't have room for five or six full-size crape myrtles, or half a dozen winterberry hollies; not, that is, if I want to have room for much else. However, four of the five crape myrtles I am growing are dwarfs, and there is plenty of room in my front yard for the grouping of compact winterberries (*Ilex verticillata* 'Red Sprite'). Not only are my small shrubs beautiful, they allow me much more space to grow other plants.

SMALL IS "IN"

The interest in smaller shrubs is "definitely the way things are going," says Tim Wood, product development manager at Spring Meadow Nursery in Grand Haven, Michigan. "People are buying big houses on smaller lots.

Also, landscapes are much more diverse. It used to be that yards would have some junipers and yews and not much else. Now people are looking for more color and diversity in smaller spaces."

According to Nina Bassuk, professor of urban horticulture at Cornell University in Ithaca, New York, shrubs of all sizes have been undergoing a renaissance. "There's lots of breeding going on here and in Europe, lots of interest in dwarf



In addition to its compact size, 'Red Sprite' winterberry's multiseason interest makes it particularly useful in small spaces. Its scarlet berries remain after its leaves drop in autumn.

stems and purplish-black catkins, which were striking in a vase. What I didn't count on, though, was the work involved in trying to keep the willow from covering the corner window and taking over a sizable part of the front yard. In fact, I got so tired of the constant pruning that I was actually a bit relieved when it succumbed to drought.

"Most people no longer have the time to be trimming and shearing things back. Who wants to have a forsythia that is 10 to 12 feet tall that they're going to have to whack back every three or four years?" asks Wood, rhetorically. Much better, he says, to choose one of the dwarf forsythias now available.

Wood believes the popularity of perennials is also contributing to the interest in smaller shrubs. "People are realizing that smaller shrubs can be worked into peren-

plants and in plants with interesting leaf color," says Bassuk.

Another factor driving the movement toward smaller shrubs is that most homeowners, whether serious gardeners or not, are very interested in anything that will save time and labor. I discovered this for myself after planting black pussy willow (*Salix melanostachys*) at the corner of my house a couple of years ago. I thought it was a great plant, with its dark purplish

nial gardens, but require less care” than perennials, many of which need to be regularly divided or staked.

Small shrubs that work as ground covers are excellent choices for mixed borders agrees Bassuk, noting their effectiveness in reducing weed problems. For this purpose, she particularly recommends low-growing, spreading dogwood (*Cornus racemosa* Muskingum™) and *Forsythia* ‘Courtasol’ (Gold Tide™). The latter, she notes, “really seems to knock weeds out...it’s great on banks or places where it’s hard to mow.”

TRADEOFFS FOR SMALLER PLANTS

Some gardeners question whether nursery owners or breeders, in trying to select or develop compact plants, are at times sacrificing other desirable attributes. The jury still seems to be out on this topic.



Summer Wine™ ninebark grows to only 3 feet and features attractive dark foliage.

“I tend not to think in terms of compromises...there is a lot of talk in gardening circles about trading off fragrance or disease resistance for bigger flowers or brighter colors, but in the area of dwarf shrubs, I have not seen this,” says Dick Bir, a former research horticulturist with the North Carolina State University Horticulture Extension Service.

According to Margaret Pooler, research geneticist at the U.S. National Arboretum in Washington, D.C., there weren’t many tradeoffs in developing ‘Chickasaw’ and ‘Pocomoke’, two miniature crape myrtles released through the arboretum. She says the two cultivars do

THE STORY BEHIND ‘CHICKASAW’ AND ‘POCOMOKE’

Some dwarf plants are a long time in the making. Consider the two miniature crape myrtles, *Lagerstroemia* ‘Pocomoke’ and ‘Chickasaw’, both relatively recent introductions from the U.S. National Arboretum.

The story for both plants is similar. Both were produced and selected by the arboretum’s legendary late plant breeder Donald Egolf. The first cross in the pedigree was made in 1967. Five original plants and their offspring were intercrossed for five generations, with the final cross being made in 1989. Thirty years after the first cross was made, ‘Chickasaw’ was released, with ‘Pocomoke’ following the next year (1998).



‘Chickasaw’ produces abundant lavender-pink blossoms.

Not all plants take 30 years to develop,

but not all plants have the complex pedigrees belonging to ‘Pocomoke’ and ‘Chickasaw’. Then, of course, they had to be carefully evaluated in different growing conditions, and a sufficient number of plants had to be grown before they could be offered to the public. Today, both these crape myrtles are available through mail-order nurseries and at some garden centers.

What can gardeners expect from these crape myrtles? ‘Chickasaw’ is smaller, growing to just 20 inches tall by 26 inches wide after seven years, with lavender-pink blooms for a long period in summer. ‘Pocomoke’ is a bit bigger, about 19 inches tall and three feet wide after eight years, with deep rose-pink flowers and bronze-red fall color. Both are highly resistant to powdery mildew. Both are fully hardy in the southern part of USDA Zone 7, and root hardy to Zone 6. Gardeners in Zone 5 can grow them in containers that can be moved to a garage or other protected spot for the winter. Both will thrive in AHS Heat Zones 9 to 7.

In addition to the dwarfs, many of the mid-sized crape myrtles—including ‘Zuni’, ‘Hopi’, ‘Cheyenne’, and ‘Acoma’—developed by the U.S. National Arboretum are highly mildew resistant. As for further developments in the world of dwarf or semi-dwarf crape myrtles, the arboretum’s Margaret Pooler says several plants in the size range of ‘Pocomoke’ and a bit larger are now under evaluation. —P.A.

tend to bloom a bit later than some standard forms, and that some of the very miniature selections do have a tendency to ‘sport’ or send out reversions (for more on the development of the dwarf crape myrtles, see box above).

Compact or dwarf plants often grow more slowly than standard-sized plants, Bassuk says. Of course, that often is a good thing; if smaller, slower growing forsythias were more widely planted, surely we’d see

fewer of those awful, highly manicured forsythias in spring. In addition to sometimes growing more slowly, dwarf selections “may be slower to establish,” Bassuk says, although that is not always or even usually the case; she notes that ‘Courtasol’ forsythia, for example, establishes quickly.

Even though many gardeners are looking for smaller plants, others still fall prey to trying to “get more bang for your buck” when choosing plants, despite the know-

ledge that bigger plants will soon outgrow their allotted space. Some nurseries don't stock many compact selections because their customers think the smaller plants are a poor value, especially when they are sitting next to larger cultivars.

Wood says that, as a plant hunter, he "travels all over the world, looking for the best plants...we are looking for compact shrubs in all varieties available," he says. That's certainly good news for gardeners, no matter what size their garden.

SOME RECOMMENDED SHRUBS

Here are some dwarf and compact shrubs recommended for a variety of garden sites:

***Clethra alnifolia* 'Hummingbird'** (USDA Hardiness Zones 3–9, AHS Heat Zones 9–1) is a dwarf form of summersweet. Although most cultivars of summersweet mature at six to eight feet, 'Hummingbird' reaches just two-and-a-half to three-and-a-half feet tall with a spreading habit. Its flowers are white and fragrant, blooming for a period of several weeks in late summer. Leaves are a dark, fresh-looking green, turning yellow in fall. In my yard, full-sized summersweets such as 'Pink Spires' and 'Ruby Spice' flower at the same time as 'Hummingbird'. Another low-grower, 'Compacta', has similar flowers but is less spreading.

***Cornus alba* 'Red Gnome'** (Zones 2–8, 8–1) is another shrub dogwood that can be effective as a ground cover; also use as a specimen or in groups. Although a bit larger in stature than Muskingum, 'Red Gnome' has a finer leaf texture. New growth is also reddish, and the stems are bright red in winter.

***Cornus racemosa* Muskingum™** (Zones 4–8, 8–3). A dwarf cultivar of gray dogwood, Muskingum grows three feet tall by four to five feet wide; its spreading habit makes it an excellent ground cover. It bears large white flowers in spring, followed by bluish fruits and beautiful red foliage in fall. The new leaves are also reddish. It's tolerant of a variety of soils, but grows best in sun to light shade.

***Forsythia* 'Courtasol' Gold Tide™** (Zones 5–8, 8–5) is a low-growing, spreading forsythia (two to two-and-a-half feet tall by six feet or more wide) with abundant yellow flowers in spring. Tim Wood describes the foliage as "al-



Clethra alnifolia 'Hummingbird'



Itea virginica Little Henry



Leucophyllum frutescens 'Compactum'

most ferny,” and the leaf color as a light lime green. It serves as an excellent ground cover and suppresses weeds well. Another dwarf forsythia from the same breeder is *F. ×intermedia* **Golden Peep™** which has a more upright shape than **Gold Tide**, growing to about three feet tall or so. Wood says that its size makes it “perfect by the house or deck.”

Hydrangea quercifolia ‘**Pee Wee**’ (Zones 5–9, 9–5) is a very compact form of oakleaf hydrangea, growing to just two to three feet tall with similar spread. The leaves and flowers resemble those of standard oakleaf hydrangeas, but they are much smaller. Its white flower panicles bloom in early summer, and the foliage turns dark red in fall. A bit bigger is *H. quercifolia* ‘**Sikes Dwarf**’, growing two feet tall or so with a spread of four feet. This cultivar also has white flowers and oakleaf foliage, turning purplish in fall. Oakleaf hydrangeas do best in part or dappled shade with plenty of moisture, but they will tolerate deep shade.

Ilex verticillata ‘**Red Sprite**’ (Zones 5–8, 8–5) is a deciduous holly that reaches three to five feet high. That makes it much smaller than full-size winterberries, many of which can grow to 12 feet. Like other winterberries, ‘Red Sprite’ provides loads of bright red berries for a long period in winter. ‘Red Sprite’ is adaptable, preferring moist, acid soils in sun, although it grows well in my garden in part shade. Another compact selection of winterberry is ‘**Maryland Beauty**’, which grows to about five feet high and wide. Both ‘Red Sprite’ and ‘Maryland Beauty’ require a male plant for pollination; use *I. verticillata* ‘**Jim Dandy**’ for ‘Maryland Beauty’ and either ‘Jim Dandy’ or ‘**Apollo**’ for ‘Red Sprite’.

Itea virginica **Little Henry®** (Zones 6–9, 10–7) is a diminutive version of Virginia sweetspire. It has the same lovely spires of white flowers in early summer, and the same excellent red color in fall. Like other sweetspires, Little Henry is an easy-care shrub that tolerates damp to dry soils in full sun or heavy shade. It grows

Resources

Manual of Woody Landscape Plants by Michael A. Dirr. Stipes Publishing, Champaign, Illinois, 1998.

Sunset Western Garden Book, edited by Kathleen Norris Breuzel. Sunset Publishing, Menlo Park, California, 2001.

Sources

Fairweather Gardens, Greenwich, NJ. (856) 451-6261. www.fairweathergardens.com. Catalog \$5 for two years; free online.

Forestfarm, Williams, OR. (541) 846-7269. www.forestfarm.com. Catalog \$5; free online.

Greer Gardens, Eugene, OR. (541) 686-8266. www.greergardens.com. Catalog free.

Roslyn Nursery, Dix Hills, NY. (631) 643-9347. www.roslynnursery.com. Catalog \$3; free online.

about two feet in height and spreads slowly by underground roots. It’s ideal as a ground cover or in a mixed border.

Leucophyllum frutescens ‘**Compactum**’ (Zones 8–9, 9–8) is a Texas ranger cultivar that bears pink flowers over a long period in summer on a plant growing three to five feet tall and wide. Foliage is silvery and evergreen. Native to southwestern Mexico, Texas ranger is very drought resistant and, in fact, is excellent for desert conditions; it will not tolerate wet soils.

Nandina domestica ‘**Harbor Dwarf**’ (Zones 6–II, 12–4) has fine-textured, lacy, evergreen foliage; new growth starts out pinkish or bronzy in spring, turns to green in summer, then turns bright red in fall. Growing to about 18 inches in height, ‘Harbor Dwarf’ spreads by rhizomes to two feet or so. Unlike some dwarf nandinas, with age this one flowers and produces red berries. ‘**Gulf Stream**’ is another compact heavenly bamboo that is more upright, reaching three to four feet in

MORE COMPACT SHRUBS

Name	Height/ Spread (ft.)	Flower Color/ Bloom Time	Other Features	Origin	USDA, AHS Zones
<i>Abelia</i> 'Edward Goucher'	5/6	lilac pink flowers/ May–June till first frost	glossy, dark green leaves trumpet shaped flowers	Himalayas to east Asia	7–9, 9–1
<i>Ceanothus thyrsiflorus</i> 'Skylark' (Blue mountain lilac)	3/3	pale to dark blue/ spring	glossy, mid-green leaves	western North America	7–11, 10–3
<i>Deutzia crenata</i> var. <i>nakaiana</i> 'Nikko'	1–2/5	white/spring to early summer	profuse double white flowers; bright green leaves	Japan	5–8, 8–5
<i>Deutzia gracilis</i> Chardonnay Pearls™	2–3/2–3	white/spring	chartreuse leaves; pearllike flower buds	Himalayas to east Asia	5–8, 8–5
<i>Hydrangea macrophylla</i> 'Pia' (Pink Elf)	1 ¹ / ₂ /2	deep pink flowers/ July through August	young plants flower heavily	Japan	6–9, 9–6
<i>Nerium</i> 'Little White' (Oleander) Also 'Petite Pink' and 'Carnival'	3–6/3–6	white/late spring to fall	all parts are poisonous	Mediterranean to Asia	13–15, 12–1
<i>Physocarpus opulifolius</i> Summer Wine™ (Ninebark)	5–6/5–6	white-pink/May–June	button bloom; dark purple foliage	east Asia and North America	3–8, 8–1
<i>Spiraea japonica</i> 'Shirobana', 'Little Princess', 'Alpina', and 'Magic Carpet' (Japanese spirea)	2–3/2–3	deep rose, pink and white on one flower/ summer	lustrous deep green leaves	China, Japan	4–9, 9–1
<i>Syringa pubescens</i> subsp. <i>patula</i> 'Miss Kim' (Manchurian lilac)	8/10	lilac-blue flowers/ early summer	leaves may turn burgundy in fall	north central China	5–8, 8–3
<i>Viburnum carlesii</i> 'Compactum' (Koreanspice viburnum)	4–8/4–8	white flowers/spring	sweetly fragrant flowers; blue-black fruit	Korea, Japan	5–8, 8–5

height and width. Producing no flowers or fruit, 'Gulf Stream' has bronzy new foliage that turns blue-green in summer and red-orange in fall. **'Firepower'** (Zones 6–II, 12–4), a dwarf cultivar developed in New Zealand, offers lime-green new foliage and brilliant red fall color on a two-by-two-foot plant. All these nandinas grow best in sun to part sun with average soil moisture.

***Rhus aromatica* 'Gro-Low'** (Zones 2–8, 8–I) is a compact form of fragrant sumac. Native to much of eastern North America, the genus is well-suited to the Midwest, too. Like its name implies, 'Gro-Low' stays low, at about two feet, but spreads up to eight feet and makes a great ground cover. It has beautiful, shiny green leaves that turn red in fall; its leaves



Nandina domestica 'Firepower'

color late in the season. Yellow flowers appear in spring, followed by hairy red fruit. It tolerates dry, compacted soils and drought, but doesn't like wet feet.

***Weigela florida* 'Minuet'** (Zones 5–8, 8–4) grows just two to three feet tall, with the weigela's typical funnel-shaped flowers in lavender-pink during May to June. 'Minuet' is one of a series of weigelas named after dance steps. Another in the series, **'Polka'**, is a bit bigger, reaching three to five feet, with thick dark green leaves and two-toned pink flowers. For a truly petite weigela, consider **Midnight Wine™**; this plant grows just eight to 10 inches in height and perhaps twice as wide. It has purple leaves with pink flowers in summer. All these weigelas are easy to grow in a sunny spot with average garden soil.

Free-lance garden writer Patricia Acton lives in Deale, Maryland.

the Great Plains Plantsman



THE SEMINAR at the University of Nebraska was titled “Herbaceous Perennials and Grasses in Sustainable Landscapes—What’s New or Notable.” If anyone could address what is “sustainable” in Nebraska’s challenging climate, it was the speaker, Harlan Hamernik, the founder of Bluebird Nursery Inc., a company with the mantra: “If they’ll grow in Nebraska, they’ll grow anywhere.”

Tall, lean, bearded, and committed to finding and producing plants as tough as the Nebraska plains, Hamernik is the grandson of Czech and German immigrants who first came to Nebraska as rail-

road workers in the 1880s when all was prairie and promise. They took in the sheer, compelling vastness of the place, said Hamernik, and announced, “That’s it; we aren’t going any further.”

They settled in northeast Nebraska, where, later on, the town of Clarkson blossomed on the prairie. But that was only with a little help from its townspeople. With pioneer resourcefulness and determination, they hauled a general store and post office on skids two miles across the plains to move the existing town nearer the freshly-laid train tracks.

It was in Clarkson that Hamernik began his nursery business in 1957, paying

Plant explorer and nursery owner Harlan Hamernik turns out plants as tough as his native Nebraska plains.

BY BOB HILL

PHOTOS BY MICHAEL HAYMAN

Above: Hamernik admires a stand of *Ipomoea leptophylla* flowering during a long Nebraska summer drought. **Top:** *Hibiscus* ‘Pink Cloud’, a Hamernik introduction.

This aerial view shows one of the four greenhouse sites of Bluebird Nursery and the surrounding farmland in the small Nebraska town of Clarkson.



\$3,500 for seven-and-a-half acres, a small house, a garage, a Ford tractor, a plow, and a col- lie. At first, Hamernik sold annual plants wholesale to retail outlets in the smaller towns around Clarkson. Then he got more heavily into perennials in the 1980s, expanding his market to Sioux City, Omaha, and Lincoln, then Kansas City, Denver, and Minneapolis–St. Paul.

With the help of his wife and the couple's three sons, Bluebird Nursery has acquired international stature. Today, 100 full-time employees work in 10 acres of greenhouses filled with almost 12 million perennials, herbs, grasses, and wildflowers, which they ship to the central and eastern parts of the country and Canada.

The fat, informational Bluebird wholesale catalog—and its slimmer “Temperennials” catalog featuring annuals for USDA Zones 7 to 10—has more than 2,000 offerings, including more than 150 *Clematis*, a Hamernik favorite.

PIONEER DETERMINATION

Bluebird is a great success story that almost didn't happen. Hamernik's first move into the business world was an attempt to buy his hometown weekly newspaper in 1956. He discussed the purchase with the owner, went to Lincoln for six months to typographical school, and came home ready to buy.

“That's when the owner told me it was sold,” he recalls.

When he was in Lincoln, however, Hamernik had worked part-time at a nursery and found he enjoyed being around plants. Already married to his wife, Shirley, his Plan B for life became scrounging up some wood, buying some clear plastic, and erecting a 20-foot plastic greenhouse on Shirley's father's farm to grow and sell vegetables and flowers.

The next year he went to an auction in Lincoln and bought a decrepit, 200-foot glass greenhouse. He hauled the first

100 feet of it home in his pickup truck and rebuilt it, repairing all of the loose panes. The destructive hail storm that followed might have discouraged a less determined man.

When he went to the local bank to request a \$500 loan to enlarge his nursery and was turned down because the loan officer doubted the nursery business could succeed, Hamernik's pioneer stubbornness kicked into overdrive.

“When the banker said, ‘You can't do that here,’ it really challenged me,” says

Hamernik. “Then I worked *twice* as hard and sometimes worked through the whole night. After that, he saw I was serious.”

SEEKING OUT GREAT PLANTS

Hamernik's talk at the University of Nebraska was one of many he makes around the country, spreading his message that plants are much more adaptable than current literature may allow. “Too many garden books were written by people who didn't try a plant in (USDA) Zone 4 and couldn't possibly imagine some-



Rancher Paul Allen, right, who collects and sells seeds, consults with Hamernik about the merits of leadplant (*Amorpha canescens*) growing on Allen's ranch on the Niobrara River in northern Nebraska. This tough Plains plant remains green even in drought.

thing so exotic could grow in Nebraska of all damn places,” he says.

His yellow seminar handout sheet describes 70 “newer or notable selections,” including tough, drought- and cold-tolerant, carmine pink *Penstemon barbatus* ‘Navigator Mix’; *Oenothera macrocarpa* ‘Comanche Campfire’, ruby-stemmed with bright yellow flowers; *Astilbe chinensis* ‘Pumila’ with lavender-pink plumes; and the shrub morning glory (*Ipomoea leptophylla*), found on one of his plant hunting trips.

The search for new plants led Hamernik to seek out and become inspired by Claude Barr, another legendary Great Plains plantsman who homesteaded in South Dakota in 1910, then spent 70 years finding prairie natives, many of which appeared in his classic book *Jewels of the Plains*. Like Barr, Hamernik and his fellow explorers haunt open fields and dusty back roads seeking tough, cold-hardy, drought-tolerant plants.

“Two years ago,” he says, “I drove out into the Sand Hills and turned north toward ranch country along an old rough road, and I’ll be damned if I didn’t come across a red yucca. Needless to say, I took a cutting.” That cutting has now multiplied into 1,500 plants in one-gallon containers. Hamernik will plant them out seeking the very best red yucca of them all.

The lure of new plants has also taken him overseas, to China, Tibet, and beyond. But while plant exploration may have led Hamernik to crawl around the wilds of Inner Mongolia—magnifying glass in hand—searching for tiny seeds of *Scabiosa superba* and *Allium senescens* var. *senescens*, it’s the people back home he shared the results with that have earned him the most respect in the plant world.

“I’ve heard him say many times that ‘we are searching for plants that make you more successful in the garden,’” says Bob Henrickson, assistant director of horticulture programs at the Nebraska Statewide Arboretum in Lincoln. Henrickson is also coordinator of

Visiting Bluebird

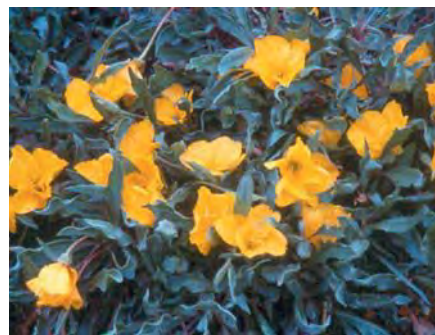
Bluebird Nursery (www.bluebirdnursery.com) only sells plants wholesale, but its demonstration gardens are open to visitors. Gardenland, its retail arm in Clarkson, offers a wide variety of plants for on-site sales.

Gardenland, 521 Linden Street
Clarkson, NE 68629-4009.
(402) 892-3442.

■ Open 8 a.m. to 5 p.m weekdays; also limited hours on weekends from April through June. Call for additional information.

the GreatPlants program, a joint effort by the Nebraska Nursery and Landscape Association and the Nebraska Statewide Arboretum to find, evaluate, and promote the best plants for the Great Plains.

“Harlan has certainly been an icon in the perennial industry,” says Steven Still, an Ohio State University horticulture professor and director of the Perennial Plant Association. “He is simply a great ambassador for perennials, especially with native plants of the Great Plains.”



Among the many plants Bluebird Nursery has introduced to American gardens are *Pardancanda* ‘Dazzler Series’ (above left), *Oenothera macrocarpa* ‘Comanche Campfire’ (top right), and *Tricyrtis hirta* ‘Moonlight’ (bottom right).

Hamernik and Bluebird are credited with nearly 40 specific introductions ranging from *Ajuga tenorii* ‘Emerald Chip’ to *Pardancanda* ‘Dazzler Series’ and *Tricyrtis hirta* ‘Moonlight’ (see “Bluebird Introductions” on page 36).

Those who have benefited most from his introductions, his Great Plains neighbors, sometimes help him out by bringing him unusual plants. “It’s not uncommon,” he says, “for somebody from western Nebraska on their way to Omaha to drop something off and ask me what it is.”

GREAT PLAINS MECCA

Bluebird, the town’s biggest employer, has made Clarkson a Great Plains Mecca for gardeners, offering the greatest variety of plants in what has to be the smallest, most out-of-the-way venue in North America.

“We frequently host nationally prominent speakers for gardening lectures and symposia here at the University of Nebraska–Lincoln, and it is always fun to drive them up to visit Bluebird Nursery,” says James H. Locklear, director of the Nebraska Statewide Arboretum. “Invariably, they’re blown away by the huge diversity of plants Bluebird offers, the state-of-the-art greenhouse facilities, wonderful display gardens scattered throughout town, and a

BLUEBIRD INTRODUCTIONS

Bluebird Nursery introductions tend to be tough plains natives or environmentally friendly plants that thrive with little watering and other pampering. For this reason, some 12 of Bluebird's 38 introductions to date have been selected as GreatPlants®, a joint effort of the Nebraska Nursery & Landscape Association and the Nebraska Statewide Arboretum to select and promote plants that are not only exceptionally ornamental, but reliable, hardy, and easy to maintain (<http://arboretum.unl.edu/greatplants.html>).

Two Bluebird introductions have also been tapped for the Plant Select® program, administered by Denver Botanic Gardens and Colorado State University Cooperative Extension. The goal of this program is to seek out and distribute the very best plants for the high plains to the intermountain region (www.ext.colostate.edu/psel/).

A few of the notable Bluebird introductions are:

***Callirhoe alcaeoides* 'Logan Calhoun'**, a Nebraska native, was named to honor its discoverer, the late Texas plantsman. It produces white wine cups on foot-tall plants that spread to four feet (USDA Zones 4–9, AHS Zones 9–1).

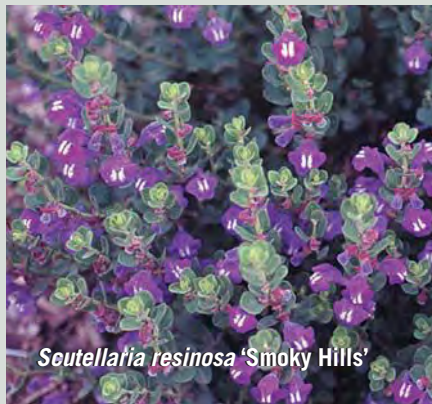
***Delosperma* 'Kelaidis'** (Mesa Verde™), an alpine ice plant with South African forebears, was discovered at Denver Botanic Gardens (DBG). Named for DBG horticulturist Panayoti Kelaidis, it has salmon pink flowers on two-inch succulent foliage (Zones 4–9, 9–6).

***Deschampsia cespitosa* 'Northern Lights'** is a form of a one-foot clumping grass, native to cool, temperate regions around the world. It features variegated leaves that are blush pink when emerging and in cool weather (Zones 5–9, 9–1).

***Penstemon grandiflorus* 'War Axe'**—which bears pink, maroon, red, and purple flowers on four-foot plants—is a Nebraska native and 2005 GreatPlants release. Hamernik found it at the War Axe Wildlife Management Area in south central Nebraska (Zones 4–9, 9–4).

***Scutellaria resinosa* 'Smoky Hills'** is a native prairie skullcap and 2004 GreatPlants release. It bears deep blue-purple flowers on foot-tall grayish plants (Zones 4–8, 8–1).

—Carole Ottesen, Associate Editor



reference library that would rival the horticultural collections of most university libraries. On the drive back there is usually little conversation, as folks recover from what we call a 'Bluebird Headache' brought on by horticultural overload."

The nursery, the Hamernik family, and tiny but vibrant Clarkson have become so intertwined that Hamernik and his sons have variously served as town mayor and on local and state school boards.

Belonging to the Clarkson Fire & Rescue Squad means that they might have to drop family business to rush to an accident or take someone from the nursing home to the hospital. Company equipment is used to keep the local high school football field in good condition. "We feel we have a responsibility here," says Hamernik.



Hamernik grooms a bed of *Echinacea purpurea* 'Alba' at one of Bluebird Nursery's large display gardens in Clarkson.

When Hamernik isn't traveling the country giving lectures, working with Nebraska horticulturists, or writing a "Prairie Wildflower Stars" column for *The Iowa Horticulturist* magazine, he starts his work day at about 6 a.m. over a cup of coffee and the *Omaha World-Herald* crossword puzzle at the Clarkson Bakery, where the aroma of fresh-baked bread and rolls hangs lightly over morning conversation.

Then, it's off to the sprawling, 40-acre Bluebird operation with its long rows of vintage red-brick buildings. Over on Cherry Street thousands of labeled, well-tended flowers are on display in an All America Selections (AAS) garden—managed by Shirley Hamernik. There's also an AAS display garden and one of the many Bluebird trial gardens with their whimsi-



Nursery owners often visit Bluebird to see Hamernik's latest offerings. Here, Hamernik gives Roy Klehm a late-winter tour of his greenhouses. Klehm's Song Sparrow nursery in Wisconsin offers an extensive selection of herbaceous plants and woodies.

cal, flower-covered creatures such as peacocks and dragons and what's become the nursery mascot, Buford the Buffalo, decorated in buffalo grass.

There's a clematis garden, another mostly for herbs, others for grasses, vegetables, ground covers, hostas, and lilies. Also open to the public, a huge greenhouse landscaped with rock and running water brims with about 470 newer and notable

plants including penstemons, sedges, sedums, bamboos, salvias, and leadwort.

For the benefit of tourists eager to buy some of what they see, Bluebird operates Gardenland, a retail nursery at the edge of town (see "Visiting Bluebird," page 35). The locals shop there, too, only a little more carefully. "Out here people still want that three-inch pot," says Hamernik. "They don't want to spend \$14 for a gal-



Buford the Buffalo, the company mascot, roams in one of Bluebird's trial gardens.

lon plant. They'd rather spend 98 cents and get 10 or 12 of something."

A FAMILY AFFAIR

Introducing the best plants for his Great Plains climate is a mission Hamernik takes personally. Lined up outside one of his buildings is his "fledgling tree liner nursery"—thousands of pots arranged in a big square containing tiny oaks, cotoneasters, amur chokecherries, and redbuds that Hamernik is evaluating.

"If I can find a redbud tree in northern Nebraska that looks like it's 60, 70, 80 years old and has produced a lot of flowers and looks healthy, I'm going to collect some seeds off it and go with it," he says.

Standing at the edge of 10 acres of computerized, climate-controlled, propane-heated greenhouses, the cement and flat earthen areas around them filled with more plants under evaluation, Hamernik surveys the complex operation that is Bluebird. The task of coordinating the nursery has distributed itself nicely among family members. One son, Tom Hamernik, oversees the hiring, some management, the buying of trucks, and the physical plant. Chuck Hamernik handles bookkeeping and computer programming. Mike Hamernik takes charge of much of the sales and customer relations. Along with maintaining the AAS garden site, Shirley works on the catalog.

Hamernik watches over all this and constantly seeks and evaluates new plants. His philosophy is that he prefers having colleagues in the plant business instead of competitors. Friends and associates from around the world send him seeds to germinate and evaluate. Stored in boxes, envelopes, and bags, they fill a huge room.

Standing in that room, wearing an old coat he hasn't worn for a year, he reaches in a pocket and pulls out an envelope containing wild rose seeds collected on a trip to Denver. He'd forgotten they were there, but believes they are still viable and pledges to plant them out to see what he will find.

Bob Hill is garden columnist with the Louisville Courier-Journal. He and photographer Michael Hayman, also from the Louisville area, collaborated on an article about the Klehm nursery for The American Gardener in September/October 2003.

Little-grown California fuchsias are adaptable to a wide range of garden settings.

Zauschnerias

BY ROBERT NOLD

ACCORDING TO *my* version of what happened, I was dragged to Colorado kicking and screaming when my parents decided to move from California many years ago. Already immersed in gardening, I got a glimpse of what I was in for when four inches of snow fell on the third of September the very first year in our new house. In the ensuing 40-plus years I've slowly begun to adapt to my new environment.

So it is with plants, many of which are also dragged, with more silent screams and less obvious kicking, to new locations, though, of course, they are given much less time to adapt. The surprising thing is how well many plants do in climates completely different from the ones in which they grow naturally.

California fuchsias or zauschnerias (*Zauschneria* spp.) are a good example of this ability. These shrubby semi-evergreen perennials are primarily native to California—as the common name suggests—but range into several other Western states from New Mexico and Arizona north to Idaho and Oregon.

Zauschnerias are probably most prized as magnets for hummingbirds, but they are also valued for their fiery late season flowers and as tough plants that will tolerate dry, rocky sites. In regions with mild winters they retain their leaves year round, but where temperatures drop much below freezing they tend to die back to the crown in winter.

PROVING ADAPTABLE

The climate in the Denver region does resemble parts of California's in vague ways—glaring sunshine, low rainfall, and plenty of smog—but in other ways it couldn't



be more different. Denver's rainy seasons, winters are sunny, dry, and—sometimes—cold. Yet zauschnerias not only survive in the Rockies, they love it here.

The plants endure –25 degrees Fahrenheit here as though they were reading about it while stuck in traffic on the Hollywood Freeway. Zauschnerias are now

routine offerings at almost every garden center in the state and are favorites of gardeners like me who desperately need plants smothered with brightly colored flowers in late summer and early autumn.

Inevitably, the cachet of being Californian caused zauschnerias to be labeled as “xeric” or drought tolerant, which has led American gardeners to assume that the plants must have scorching sun, end-

less heat, and prolonged drought. Yet *zauschnerias* feel right at home in the British Isles—one form, ‘Glasnevin’, is named for the famous botanical garden in Dublin, a city not generally known for scorching sun, endless heat, or prolonged drought.

It’s true that your average *zauschneria* will not die during periods of drought, but neither will a lot of other plants that no one insists are “xeric.” On the other hand, I grew about a dozen different kinds in the dryland garden in my front yard until the severe drought of 2002 carried them off. As I slowly replace them, I’m putting them in the back garden, where they receive, and rejoice in, regular summer watering.

Given their adaptability in Colorado and the British Isles, *zauschnerias* are worth trying further east of the Rockies. In her book *Hardy Californians* (Macmillan, 1936), garden writer Lester Rowntree suggested that *Zauschneria latifolia* var. *tomentella* “ought to enjoy the cold winters and hot summers of the northeastern states and a well-grown specimen would be something for a New England gardener to display with pride.”

IDENTITY CRISIS

Zauschnerias are members of the evening primrose family (Onagraceae). Depending on your viewpoint, there are either an almost infinite number of

PLAYING THE NAME GAME

California fuchsias are listed by a confusing variety of names in catalogs and reference books. Here is a basic cross reference to the names, including the selections usually listed under each botanical name. Hybrids of uncertain parentage are listed at the bottom.

—R.N.

Epilobium canum* subsp. *canum* = *Z. californica* or *Z. cana (cultivars ‘Albiflora’, ‘Bowman’, ‘Calistoga’, ‘Cloverdale’, ‘Glasnevin’ (‘Dublin’), ‘Roger’s Hybrid’, ‘Solidarity Pink’).

E. canum* subsp. *garrettii* = *Z. garrettii (cultivars Orange Carpet™).

E. canum* subsp. *latifolium* = *Z. latifolia*, *Z. californica*, or *Z. arizonica (cultivars ‘Arizonica’, ‘Big Crimson’, ‘Everett’s Choice’).

E. septentrionale* = *Zauschneria septentrionalis (cultivar ‘Wayne’s Silver’).
Hybrids: ‘Chaparral Silver’, ‘Etteri’, ‘Mattole Select’.



‘Everett’s Choice’

species, or just a couple. Before we look too deeply into this taxonomic can of worms, let me first say that, for gardeners who aren’t sentimentally attached to names, the news is all good, and that there really is no conceivable justification for having a hundred botanical names for *zauschnerias*.

In the mid-1970s *zauschnerias* were

moved into the genus *Epilobium*, where—in the eyes of American botanists—they have remained.

Taxonomists lumped the *zauschnerias* into two species, *Epilobium canum* and *E. septentrionale*, with flowers very similar in shape and color. The first species, extremely variable in leaf shape, has three subspecies. *Epilobium canum* subsp. *canum* has narrow, gray leaves, is usually not sticky (glandular) to the touch, and grows anywhere from eight inches to three feet tall and about as wide. *Epilobium canum* subsp. *latifolium* has wider green leaves, is sticky to the touch, and grows from about four inches to two feet tall. Both of these are found from southern Oregon into northern Mexico and east to New Mexico.

E. canum subsp. *garrettii* is similar to *E. canum* subsp. *latifolium* but the leaves are relatively leathery and more conspicuously toothed. This one grows from six inches to two feet tall and is native to Utah, southern Idaho, western Wyoming, and northern Arizona.

The other species, *E. septentrionale*, is a mat-former that grows to one inch tall and spreads two or more feet wide. Found in Humboldt and Mendocino counties in northern California, it has woolly white or silvery leaves that are sticky to the touch.



In the author’s garden, *Zauschneria latifolia* mingles with dwarf conifers.

So far so good. Two species. Now try ordering them from a catalog. You will find *E. septentrionale* listed under its old name, *Zauschneria septentrionalis*. *Epilobium canum* subsp. *canum* may be offered as *Z. cana* or *Z. californica*, or some combination like that. *Epilobium canum* subsp. *latifolia* may be offered as *Z. latifolia* or *Z. californica*, or even *Z. arizonica*. *Epilobium canum* subsp. *garrettii* will be offered as—thank goodness—*Z. garrettii*.

Here's the good news I mentioned: Even though some of the people who insist on retaining the name *zauschneria* say they do so because the plants were readily identifiable under the old names, you won't find any plants available in the trade that actually fit the descriptions of the old species and subspecies.

A specimen of *Z. latifolia* from one nursery can be quite different from one sold by another nursery. You can order one from 10 different nurseries and get 10 different plants. By now, it may have dawned on the seriously-addicted gardeners among you that I'm saying, yes, go ahead and buy them all.

This is a case of horticulture being at once thoroughly misguided in insisting that there are plants that can readily be identified using the old names attached to the genus *Zauschneria*, and at the same time showing complete understanding of the true nature of the situation in naming hundreds of selections.

SELECTIONS

You may think I'm exaggerating when I say hundreds of selections, but visit any West Coast nursery and you'll find a dizzying array of offerings. Some of the newest have been introduced through the arboretums at the Santa Cruz and Davis campuses of the University of California; others are the products of individual plant breeders and nursery owners. Only about 15 to 20 cultivars and forms are commonly available, however, and the selection dwindles as you move eastward.

Zauschnerias are so varied in leaf shape that I am steadfastly dubious



Above: *Zauschneria septentrionalis* is a mat former that can spread to two feet or more. **Left:** 'Roger's Hybrid' is an upright selection with reddish orange flowers.

about the purported parentage of many named varieties.

For instance, the beautiful low (eight to 10 inch) 'Mattole Select' looks like it derived its silvery leaves (and habit) from *Z. septentrionalis*. This may or may not be the same as the one sold by several California nurseries under the name 'Mattole River'; again, I would recommend buying anything and everything just to see if there are any differences.

Another one that seems quick to betray its parentage is 'Etteri', for, assuming my plant is correctly named, this has the narrowly linear, silver-gray leaves of *Z. cana*; for me this one gets wider only when summers bring ample rainfall.

A curious *zauschneria*, looking more like a rosemary crossed with a pine tree, until it blooms, is 'Bowman Hybrid No. 1' (or just 'Bowman'); this has very narrow gray-green leaves, grows to about two feet tall and three feet wide. It was a plant I treasured and cosseted until the drought of 2002 killed it.

Another one that died during the same summer was as utterly unlike Bowman's as any *zauschneria*: a seedling purchased from a local nursery that had (I swear)

leaves exactly like a miniature lambs' ears (*Stachys byzantina*). I probably should have visited both of them with the watering can more times than I did.

Speaking of woolly leaves, there is another variety with distinctly downy, gray-silver leaves, somewhat oval and about half an inch wide, called 'Calistoga'; this one is said to grow about a foot tall and a couple of feet wide, although, of course, all of this depends on the amount of summer rainfall.

One selection that definitely varies with the amount of summer rain is Orange Car-

form—offered as *Z. californica*, *Z. latifolia*, *Z. arizonica*, or any conceivable combination of these names—is an easy and accommodating plant.

A white form, sometimes called 'Albiflora' (or just "the white one") is occasionally available, though the white flowers make a somewhat less effective plant. It seems to have more impact if planted in association with the red ones; if not next to them, then at least in the same area. 'Solidarity Pink', named for a mine in California near where it was found, has pink flowers that some people find unattractive.



'Albiflora' provides a cool contrast to the usual fiery red and orange flowers of the genus.

pet[®], said to be a dwarf form—to four inches—of *Zauschneria garrettii* found in Idaho. But at Denver Botanic Gardens this year, I saw plants that were easily almost three feet tall and even wider than that. I don't see that this selection differs much from the regular subspecies *garrettii*, but then my eyesight is notoriously dim. *Z. garrettii* is said to be the hardiest of *zauschnerias*, but I find nothing in my experience to substantiate that. It certainly seems to need at least a little more summer water than the others, if it's to look its best.

The larger *zauschnerias*, with greener leaves, have a number of selections too. The aforementioned 'Glasnevin' (sometimes listed as 'Dublin') is maybe an 18-by-18-inch plant, but most of the others are taller, growing to two-and-a-half by three feet in a good (rainy) summer. The usual

GROWING ZAUSCHNERIAS

For the most part I am skeptical of those who suggest that growing plants requires some special skill; if I can grow something, then anyone can. The one important piece of advice I can impart about growing *zauschnerias*, however, is that they are best planted in spring. This gives them time to get their roots down deep into the soil just in case something untoward happens in winter.

I grow all my plants in plain clay soil. No amendments, no fertilizer, no orientation to the trade winds or special rocks to imitate their native habitat. Most of my plants get at least four hours of full sun a day (which, due to the elevation, is equivalent to 50 straight hours of full sun a day anywhere else), and they do quite well.

Resources

Sunset Western Garden Book, edited by Kathleen Norris Brenzel. Sunset Publishing Corp., Menlo Park, California, 2001.

Sources

Goodwin Creek Gardens, Williams, OR. (800) 846-7359. www.goodwincreekgardens.com. Catalog \$2; free online.

Las Pilitas Nursery, Santa Margarita, CA. (805) 438-5992. www.laspilitas.com. Catalog \$8; free online.

Siskiyou Rare Plant Nursery, Medford, OR. (541) 772-6846. www.srpn.net. Catalog \$3; free online.

A number of other West Coast nurseries offer a dazzling variety of *zauschnerias* for purchase on site only. One example is **Cistus Nursery**, 22711 NW Gillhan Road, Sauvie Island, OR 97231. (503) 621-2233. www.cistus.com.

Because *zauschnerias* tend to look a bit scruffy at certain times of the year, usually winter, they are often recommended for informal gardens or as ground covers for banks. Some are prone to spread by underground roots, and they will also reseed themselves given the chance. Many references recommend cutting them back after flowering or before new growth commences to encourage more bloom and keep them a bit tidier.

But when they begin to bloom—some time in mid- to late July here, or slightly later elsewhere—then, of course, the gardener is pleased, but more to the point, the plants reveal their real purpose for existence—to entice that most wonderful of garden visitors, the hummingbird. 🐝

Robert Nold is the author of books on penstemons and columbines. He and his wife, Cindy, garden in Lakewood, Colorado.

Put Color in Its Place

This is the tenth article of an ongoing series on garden design.

COLOR IS ONE OF the most obvious, appealing, and seductive of all garden design elements. Yet, successfully using color in the garden seems to confuse (and fascinate) the average person—as evidenced by the proliferation of writing on this topic. If color were as simple as dogma and paint-by-numbers, would not one or several guides have satisfied the needs of the perplexed?

The difficulty lies in the nature of color itself and its horticultural sources. Light, the medium of color, changes continuously with the time of day and the weather, so that one color never looks the same twice. A subtle shadow can cause a chromatic shift and full cloud cover changes the look of an entire garden. As a further complication, the angle of light changes with both season and time of day.

Our beloved plants also refuse to conform to our expectations. The foliage and flower color of individual plants often changes over the course of the growing season and the plants' life cycle. New growth is often a very different color than mature foliage and autumnal foliage. Flowers are often one color in bud, another when they open, and yet another as they fade. The nutrient content of soils and other environmental conditions also affect the color of foliage and flowers—think of hydrangea blossoms, which can range from pink to blue depending on soil acidity or alkalinity.

NOT BLACK AND WHITE

In short, gardeners can no more control color than they can control light, climate, and plant physiology. Hence, there are no color rules since rules are predicated on a nonexistent regularity and authority. Color theory may work for painters because the artist is able both to determine pigment content and to control the lighting in which people view the work. Gardeners lack such luxuries.

These limitations are only really a problem, however, if one is attempting to achieve a perfect painterly border or bedding composition like those championed by the Grande Dame of English garden design, Gertrude Jekyll, and her devotees.

Besides lacking the resources for such an endeavor, I find the lack of rules to be liberating. I have come to realize color is only one part of a successful garden, albeit a very critical component.

THE GARDEN AS COLOR

Color is in many ways the aristocracy of the garden—beautiful, charming, elite, and completely useless, yet oh so necessary. However, the aristocracy can only exist if an entire society supports its extravagant pageantry. Line, form, mass, texture, space—these are the garden's peasantry and working class. Without the structure they provide a design, a garden is a jumble of pointless beauty.

Color needs to be more than a superficial gloss; it should support a design's architecture and choreography. Using examples taken from my garden and others, here are some ways color can be used to support the overall design process.

Color celebrates and marks seasonal change, making the eternal patterns and sequences of time visible. You can design plantings to highlight spring, summer, autumn, winter, and the transitions between them. In my garden, I use the lavender *Cro-*



TOM CLIFTON

OTHER COLOR ELEMENTS

Plants are a key source of color in gardens and are usually the easiest element to change. But take time to inventory and consider other color sources in the garden that you can control. Think about how they can synergistically work with your plants.

Wall and Hardscape Materials. Concrete, brick, stone, and other wall or hardscape materials are fairly permanent—and sometimes pricey—garden elements that contribute their colors throughout the year. Materials such as marble or granite often contain ranges of colors within themselves. Other materials change color or take on a patina as they age. Carefully consider how flower and foliage will mix with existing or proposed materials.

Structures. Your house and any outbuildings are usually the largest sources of color in the garden. They provide an extensive backdrop to plantings and cast shadows that may affect color. Select a garden color scheme to complement the color of your buildings, or consider repainting your home to complement your plantings (those paint chips can be matched up against your flowers as well as your china).

Accessories. Containers, statuary, sundials, and other garden *objets d'art* can provide mobile and easily modified elements in a color composition. Try rotating containers in and out of plantings to highlight the seasonal shades.

Region and Geology. Local landscapes each have their own distinct color schemes dictated by the native flora, soil, rock, and climate. Mulch colors can even vary regionally depending upon local materials. New Mexico is not New Hampshire. ☺

cus tommasinianus to mark the initiation of spring and the white late-spring *Narcissus* 'Thalia' to signal the end. I await the lavender-blue *Aster tataricus* and the salmon-pink *Chrysanthemum* 'Sheffield Pink' every year to remind me high autumn is nigh.

Color helps structure journeys. Focal points and attractors can employ color to draw people into and subtly guide them through a garden. This is especially effective if the color repeats (possibly even in a gradation of shades) throughout the spaces to

add a comforting continuity. I use plants with white and bluish foliage as "signposts" throughout my garden. *Cornus alba* 'Elegantissima' points to an opening in a hedge guarded by blue-leaved *Maclaeya cordata*. Silvery *Athyrium nipponicum* 'Pictum' heralds the entry to the next section of the garden, and *Polygonatum odoratum* 'Variegatum' continues the sequence. I set off the silvers against dark green foliage to strengthen their potency.

Color emphasizes and defines spaces. A friend of mine has an entire walk full of green, white, gray, and silver plants that immerse the visitor in a distinct space of reflections and shadows. A gateway of purple-leaved beech (*Fagus sylvatica* 'Riversii') abruptly delineates the entrance to the next area, which is a world of yellows, purples, and oranges. Here color is far more than decorative; it literally makes the space.

Color creates emotional reactions. People usually associate certain feelings and/or ideas with color. Blues and silvers that seem cool and refreshing in the summer may seem frigid in cooler weather. Greens are usually soothing, but some people consider the dark greens of plants like *Taxus x media* 'Hicksii' to be moody and oppressive. To most people, yellows are cheerful, especially on a dark day. The trick is to select colors *you* associate with the emotions *you* want to evoke.

Remember, every garden component has color, and learning how to combine them creatively is one of the biggest challenges of garden design. Harness the ephemeral—know the place of color and put color in its place.

In the next issue, I will discuss the often perplexing world of plant selection. ☺

Tres Fromme is a landscape designer at Longwood Gardens in Kennett Square, Pennsylvania.

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Elaine Ingham, Soil Biologist

by Lynda DeWitt

IN RECENT YEARS, we've all heard about the critical role that soil microbes play in the growth and health of plants. It's a complicated relationship soil biologist Elaine Ingham has studied for years. An internationally known champion for healthy soil and sustainable agriculture, she is also founder, director of research, and president of Soil Foodweb, Inc., a consulting firm headquartered in Corvallis, Oregon, with commercial laboratories in the United States and abroad.

In this interview with garden writer Lynda DeWitt, Ingham describes how compost and compost tea help increase the amount of organic matter and beneficial organisms in soil.

Lynda DeWitt: Gardeners worry about pests and diseases, but isn't it true that infertile soil, or soil with little organic matter, is responsible for most plant problems?

Elaine Ingham: It's true that pests and diseases occur in large part because of unhealthy soil. All nutrients except sunlight and carbon dioxide come through a plant's root system. If the life in the soil is not in proper balance, the plant will not receive adequate nutrition, which can lead to stress and susceptibility to disease. Beneficial microorganisms are *absolutely* critical to soil health. You can't build soil structure without the presence of beneficial, filamentous fungi; you can't make nutrients available to plants without the presence of protozoa and beneficial nematodes.

Keep in mind that beneficial organisms and the whole soil food web—the interconnected community of organisms living all or part of their lives in the soil—can be destroyed by pesticides, overtilling, and high levels of inorganic fertilizer.

How does compost and compost tea help build the soil's food web?

Compost and compost tea can add the proper organisms, the foods to feed the organisms, and the mini-habitats that the organisms need to grow and prosper.

A single application of compost has been shown to have a beneficial effect on plant yield—the number of plants that grow in an area—for as long as five years after application.



However, compost tea does not have the long-term food resources and non-soluble nutrients of compost, so the benefit from a single application of compost tea is less than can be obtained from compost. On the other hand, the cost of compost tea is generally significantly less, and it is much easier to apply than compost.

You can increase compost tea's long-term benefits with the addition of humic acid. Humic acids are a complex mixture of partially decomposed and otherwise transformed organic materials. When buying or making compost tea, try to assess the concentration of humic acid—the darker the brown color, the more humic acid is present. A good concentration of humic acid is about 10 to 20 percent.

How often is application necessary?

The most intensive applications of com-

post and/or compost tea will usually be required during the first 12 months of converting a highly maintained landscape to one that is sustainable (maintained with minimal artificial input). The best time to start is in the autumn. Apply tea (20 gallons to one acre or one teaspoon to five pounds of soil) or compost (one ton per acre or one teaspoon per two pounds of soil) then and again the following spring. If disease, pests, or nutrient deficiencies are apparent, then foliar (leaf) applications of compost tea are recommended throughout the summer.

Typically, five gallons of compost tea per acre or one teaspoon of tea (diluted in water) per plant should be applied three times: at first true leaf stage, just before flowering, and about a month later for annuals and turfgrasses. For perennials, foliar applications are made at bud break, and then monthly until all signs of disease are gone.

How can gardeners determine the amount of organic matter in their soil?

To assess soil health, soil samples are typically taken in the autumn or in the spring. You'll want to find a lab that tests for organic matter, or just use the following flotation method for a rough estimate of organic matter: Measure a pound of soil, dry it overnight, and then put it in a bucket of water. Organic matter should float on the water surface. Remove the floating material, dry it, weigh it, and compare the weight to the

original amount of the soil. A rate of about three to five percent organic matter is considered a healthy level for feeding microbes.

If construction or other disturbances occur—and soil biology is typically impacted negatively by a disturbance—then applications will have to be made to remediate the loss of organisms. But once the proper biology is present, applications of compost or tea will be minimal. In lawns, for example, after a year or two with typical family use, the only application of tea that may be needed is in the autumn to maintain soil nutrient levels.

Can gardeners tell by looking if their soil is rich in organic matter, particularly humic acid?

Typically, soil color can be assessed to get an idea of the amount of humic acid present. First, however, you have to find out the original color of the parent material in the soil—the rock from which the sand, silt, and clay were derived. To do that, you would need to dig down six to ten feet and look at the soil color there.

For more information about Soil Foodweb, Inc., and its testing services, visit www.soilfoodweb.com.

Then you would compare that layer's color with the color of the top six inches of soil, which is where most plants will grow. The darker the color of the top samples in relation to the deeper samples, the more humic acid and organic matter is present in your soil.

But beware of the color black, which indicates that organic matter has taken a turn into anaerobic—oxygen-less—conditions. This is bad for beneficial organisms—and for your plants' roots, too.

In general, ideal soil color is a deep, rich brown, not black.

You're involved in numerous projects in the U.S. and elsewhere. Describe some of your research efforts, and what new findings may be coming our way.

We're just beginning to establish the "correct" density of fungal biomass, or amount of fungal activity, for various soils, climates, conditions, and plant species. Soil

Foodweb has done testing over the years, and we know vegetables are bacterial-dominated. Row crops such as corn, wheat, and barley require about equal concentrations of bacteria and fungi. Perennials and deciduous trees are all fungal-dominated. When I use the term "dominated," it doesn't mean the other kind of organisms are not present, just that one group is more heavily represented.

We are doing experiments with agricultural consultants and companies around the world, from Lismore and Perth in Australia, to Pietersberg and Mooketsei in South Africa, to Culiacan in Mexico, and Hana in Hawaii. We have established laboratories in England, Spain, and Canada to document how various plants improve when certain sets of organisms are added. The goal is to clearly state for growers what the soil food web needs to be for maximum production with least cost for a variety of individual plants.

Free-lance writer Lynda DeWitt lives in Bethesda, Maryland.



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the Northern Plains *and* Prairies

Grasses and drought-tolerant forbs predominate. BY JOANNE WOLFE

GARDENING CAN be challenging in the Upper Midwest, more specifically the northern plains and prairies, which include eastern North and South Dakota, western Minnesota, Nebraska, Iowa, Missouri, and a portion of Illinois. The region is characterized by extreme weather conditions and strong winds, so success in creating a habitat garden requires an understanding of how native plants have adapted to your area's tough growing conditions over time. The staple plants of the plains and prairies, and therefore the best anchors of your habitat garden, are grasses.

THE POETRY OF PRAIRIE

Author Patricia Armstrong summed up the beauty of the region's native plant systems when she wrote, "the poetry of prairie is written in grass." Grasses bend and flow with the winds that sweep across the open steppes, adding color and movement to the landscape. Even more important than their beauty, their deep, strong root systems make native grasses highly drought-tolerant and hold them firmly in place no matter how strong the winds.

Grasses support and shelter other prairie plants and provide nesting habitat and food for birds. Their seeds are an important food source for small mammals and insects, which in turn support larger wildlife species. The choice of grass species is seemingly endless, so you'll need to do some local research and observe whether your soil tends to be dry, damp, or wet. Note seasonal variations: You may have a boggy site in spring and dry, cracked clay in summer.

Drought-tolerant, long-lived big bluestem (*Andropogon gerardii*) offers blue-to-green stems in summer that turn purplish red to russet in fall and seed heads that re-



Prairie dropseed, here with butterfly weed, provides a dramatic windswept look for a small garden.

semble a turkey's foot. It spreads by rhizomes and can be aggressive in small gardens, so start with one plant and cut it back hard as needed to keep it in check. Little bluestem (*Schizachyrium scoparium* var. *scoparium*) grows only two to three feet tall. It sports fuzzy, silvery seed heads for six months of the year and its stem colors are similar to those of its taller cousin.

A dramatic garden anchor, Indiangrass

(*Sorghastrum nutans*), grows as tall as five feet and shows off blue stems topped by large, golden plumes heavy with seeds favored by finches and sparrows. Although it spreads by rhizomes, Indiangrass is nonaggressive, making it a good choice for beginning habitat gardeners.

Blue grama (*Bouteloua gracilis*) and black grama (*B. eriopoda*) resemble heads of curly, unruly hair. These drought-toler-

ant bunch grasses prefer full sun but will tolerate light shade at the base of shrubs. Three-foot-tall sideoats grama (*B. curtipendula*) has seeds running up one side of each stem and is a favorite of juncos. *B. curtipendula* var. *caespitosa* is an especially heavy seed producer.

Prairie dropseed (*Sporobolus heterolepis*) is my favorite prairie grass for small gardens; it makes a finely textured clump of knee-high, drooping blades on which the flowers and seeds are an added attraction. It has a lovely smell, similar to freshly popped corn. The silvery plumes of Junegrass (*Koeleria macrantha*) make it another winning garden addition. Junegrass grows one to two feet tall and prefers the same dry growing conditions as little bluestem and prairie dropseed.

Sedges (*Carex* spp.) are low-growing grasslike plants that prefer shady or damp sites. Brown fox sedge (*C. vulpinoidea*) has short striped stems and is easily grown from seed. Prairie sedge (*C. bicknellii*) sports coppery oval fruits at the tip of slender round stems from one to four feet tall.

FLOWERING PLANTS

A multitude of native flowers weave through prairie grasses, using them as support structures to keep flower stems upright when strong winds scour the plains. My favorites include the goldenrods (*Solidago* spp.)—especially knee-high showy goldenrod (*S. speciosa*) and tall goldenrod (*S. canadensis*)—the distinctive round blooms of rattlesnake master (*Eryngium yuccifolium*), brilliant orange butterflyweed (*Asclepias tuberosa*) and purple milkweed



Blazing star pairs well with rudbeckias.

(*A. purpurascens*), tall purple blazing star (*Liatris* spp.), and the many species of *Phlox* and asters. All attract bees, butterflies, and other beneficial insects; phlox attracts hummingbirds and hawk moths.

No prairie garden would be complete without purple prairie clover (*Dalea purpurea*)—which fixes nitrogen in soil—cup plant (*Silphium perfoliatum*), and compass plant (*S. laciniatum*). Moisture-loving cup plant holds rainwater in its cup-shaped leaves; compass plant grows four to eight feet and its leaves orient on a north–south axis.

FOOD AND SHELTER

Small trees and shrubs such as wild plum (*Prunus americana*), chokecherry (*Prunus virginiana*), Western wild rose (*Rosa woodsii*) or pasture rose (*R. carolina*), and viburnums such as nannyberry (*Viburnum lentago*) and blackhaw (*V. prunifolium*) create thickets where a multitude of birds and other wildlife can find sanctuary.



Western wild rose forms thickets for wildlife.

Meadowlarks, buntings, red-winged blackbirds, goldfinches, shrikes, bluebirds, lark and savannah sparrows, catbirds, cardinals, dickcissals, and others enjoy the fruits, seeds, and insects a thicket provides. Thickets also offer birds and other wildlife protection from the often-harsh elements; small mammals burrow beneath and between the root systems of woody plants and frogs shelter in the cool moist earth.

Other native plants that grow well in moist thickets include false indigo (*Amorpha fruticosa*) and leadplant (*Amorpha canescens*). Both have single-petal flowers of deep purple; false indigo also has brilliant orange anthers and can grow as tall as 10 feet under ideal conditions. Both team well with big bluestem.

Resources

Gardening with Prairie Plants by Sally Wasowski. University of Minnesota Press, Minneapolis, Minnesota, 2002.

Wildflowers of the Northern Great Plains, third ed., by F.R. Vance, J.R. Jowsey, J.S. McLean, and F.A. Switzer. University of Minnesota Press, Minneapolis, Minnesota, 1999.

Sources

Missouri Wildflower Nursery, Jefferson City, MO. (573) 496-3492. www.mowildflowers.net. Catalog free.

Prairie Moon Nursery, Winona, MN. (866) 417-8156. www.prairie-moon.com. Catalog free.

Prairie Nursery, Westfield, WI. (800) 476-9453. www.prairie-nursery.com. Catalog free.

PRAIRIE POTHOLES

Be sure to include a water source in your prairie habitat garden. Historically, retreating glaciers left millions of circular depressions that collected rainwater and melted snow all across the dry plains. Those pools, known as prairie potholes, were essential water sources for wildlife.

For a natural-looking water source in your garden, dig a small hole a couple of feet deep and line it with heavy clay that will allow water to drain slowly over several days. Plant moisture-loving grasses and sedges around the hole and one or two rushes in it; replenish the water as needed. Nonaggressive rushes include dark green bulrush (*Scirpus atrovirens*) and spikerushes (*Eleocharis* spp.).

Floating a mosquito ring in the pothole will prevent those winged pests from hatching.

Joanne Wolfe is a contributing editor for The American Gardener and a key voice in the habitat gardening movement. Her native habitat is the Pacific Coast of Oregon.

Horticultural News and Research Important to American Gardeners

PLANT PICKS FOR THE ROCKIES

Looking for ideas for what to grow if you live in the Rocky Mountain region? Plant Select®, a program administered by Denver Botanic Gardens and Colorado State University Cooperative Extension, has seven new suggestions for you! Here are its 2005 picks for plants that thrive in the region's hot summers and variable winters.

***Arctostaphylos ×coloradoensis* (mock-bearberry manzanita).** A native, broad-leaf evergreen shrub with urn-shaped, white to pink flowers in early spring followed by red berries.



Mock-bearberry manzanita

***Penstemon linarioides* var. *coloradoensis* Silverton™ (blumat penstemon).** A perennial with evergreen, silvery leaves and lavender-blue flowers in May and June.

***Salvia greggii* 'Furman's Red' (Furman's red sage).** An ever-blooming woody perennial with crimson to scarlet flowers from June to October.

***Salvia greggii* Wild Thing™ (Wild Thing™ sage).** A sage with semi-evergreen foliage covered with hot pink flowers throughout the growing season.

***Salvia pachyphylla* (Mojave sage).** A shrubby perennial that blooms from June to November with mauve bracts surrounding the flowers. The evergreen leaves are intensely aromatic.



Mojave sage

***Seseli gummiferum* (moon carrot).** A biennial or short-lived perennial that produces a basal rosette of succulent, silver-blue foliage. The second year, pink flowers form in mid-summer to fall, then fade to white.

***Verbena bipinnatifida* Valley Lavender™ (Plains verbena).** A perennial that blooms from May to October. Lavender flower clusters are held above spreading stems with deeply cut leaves.

Most of these plants prefer a sunny site and moderate soil moisture. To learn more about Plant Select® and other award-winning or noteworthy plants for various regions of the United States, please view the Web special linked to the online version of this issue at www.ahs.org.

PLANTS CONTRADICT LAWS OF HEREDITY

According to a study recently published in the journal *Nature*, researchers at Purdue University in West Lafayette, Indiana, found that some plants exhibit normal traits carried by their grandparents rather than display abnormalities carried by both parents.

This discovery may not sound terribly earth-shaking except that it contradicts the scientific laws of heredity first described by Gregor Mendel, whose work in the mid-1800s provided the foundation of modern genetics.

“While Mendel’s laws that we learned in high school still are fundamentally correct, they’re not absolute,” says Robert Pruitt, a molecular geneticist in the Department of Botany and Plant Pathology at Purdue University. “We’ve done a lot of experiments that show none of the simple explanations account for this skipping of generations by an inherited trait.”

More research is needed to further understand this genetic phenomenon, but this knowledge may one day enable scientists to modify genes in both plants and animals in order to correct mutations that cause diseases or other detrimental abnormalities.

REVIVING HEIRLOOM PETUNIAS

These days, petunias come in an overwhelming assortment of garishly colored, double-flowered, ruffled, and trademarked varieties, with new ones being introduced every year. Thanks to researchers at the Ornamental Plant Germplasm Center (OPGC) at the Ohio State University in Columbus, perhaps rare heirloom petunias will one day rejoin the selection.



OSU Horticulture and Crop Science student Joseph Tychonievich, who works with the OPGC, hand pollinates heirloom petunias.

The OPGC scientists are trying to revive seed that has been kept in storage by the USDA for the last 40 years. So far, five of these open-pollinated varieties have been restored; another 25 are being worked on.

“Our hope is that once the viability is restored, seed companies will be interested in evaluating these petunias,” says OPGC Curator Susan Stieve, “and if there is a trait of value, they might put the cultivar back into commercial production or incorporate it into their breeding programs.”

As a cooperative effort between The Ohio State University and the USDA’s Agricultural Research Service, the OPGC was created to build a herbaceous ornamental plant gene bank for research, development, and educational purposes. To learn more about the center’s work, visit <http://opgc.osu.edu>.

EXCESS NITROGEN ENDANGERS RARE PLANTS

Every gardener knows that nitrogen is an essential nutrient for plants. However, researchers at the University of California,

PEOPLE and PLACES in the NEWS

World-Renowned Horticulturist Alan Bloom Dies

A well-respected horticulturist around the world, Alan Bloom died on March 31 at the age of 98. Bloom founded the Blooms of Bressingham Nursery in Norfolk,



England, in the 1940s. Here, he developed nearly 200 perennials, many of which are still popular today such as *Achillea* ‘Moonshine’, *Astilbe* ‘Sprite’, and *Crocosmia* ‘Lucifer’ (shown, left). Bloom also created the famous Dell Garden at Bressingham, which features more than 5,000 plants in 47 island beds. In 1971, the Royal Horticultural Society recognized Bloom’s achievements by giving him its highest award, the Victoria Memorial Medal.

Irvine, have found that an excess amount of nitrogen can cause some plants to out-compete others, resulting in a loss of biodiversity. Through experiments conducted across nine ecosystems in North America, which included 967 plant species, biologist Katharine Suding and colleagues discovered that rare plant species are six times more likely than abundant species to be lost due to excess nitrogen.

“Driven by an increase in the use of fertilizers and the burning of fossil fuels, the amount of nitrogen available to plants at any given time has more than doubled since the 1940s,” explains Suding, an assistant professor of ecology and evolutionary biology. “This high level of nitrogen addition appears to be having a very large, negative impact on diversity, jeopardizing the existence of some types of species.”



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In many cases, the researchers found that plentiful nitrogen helped aggressive exotic species to shade out native plants of shorter stature. “This work will help us identify species most at risk and point to management strategies to protect our ecosystems,” adds Suding.

SPRUCING UP THE SOUTH

Several *Picea* species have shown “tremendous promise” for the South, ac-



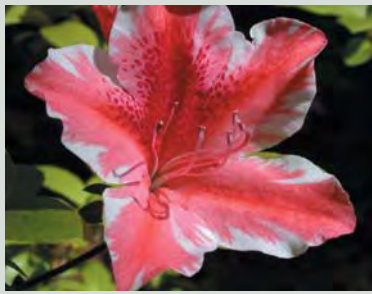
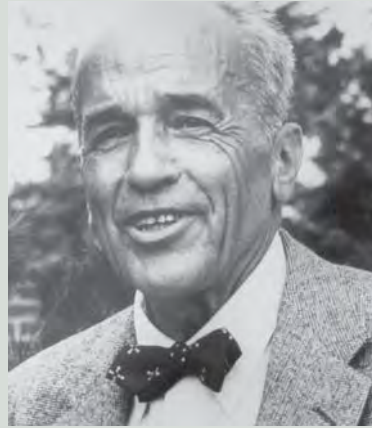
‘Iseli Foxtail’ is a heat-tolerant cultivar of Colorado spruce.

According to F. Todd Lasseigne, executive director of the Paul J. Ciener Botanical Garden in Kernersville, North Carolina. Prior to moving on to his current position last year, Lasseigne had been evaluating spruce species for use in hot, humid climates for 15 years at the JC Raulston Arboretum of North Carolina State University in Raleigh.

Lasseigne notes that four spruce species performed particularly well at the JC Raulston Arboretum. Dragon spruce (*P. asperata*) stood out for its vigor; Oriental spruce (*P. orientalis*) produced an attractive, densely layered form but grew slowly; Nuevo Leon spruce (*P. martinensis*), a rare species from Mexico, grew well and resisted diseases and insect pests; and tiger tail spruce (*P. torano* syn. *P. polita*) showed “no signs of disease, insect predation, or landscape stress.”

HORTICULTURAL HISTORY: A LOOK BACK

Fifty years ago, the *National Horticultural Magazine*, a predecessor to *The American Gardener*, had a similar section to this one called “The Gardener’s Pocketbook” that consisted of short scientific or newsy pieces. In the July 1955 issue, B.Y. Morrison, the legendary longtime editor of the magazine—and an eminent azalea breeder—contributed the following:



B.Y. Morrison and his namesake azalea

An Old Azalea, ‘Emperor’

Some years ago, when I was establishing my collection of all the named clones I could discover of the so-called Southern Indicas, this azalea was among those bought from the Fruitlands Nurseries. It did not survive in my Takoma Park, Maryland, garden but it has grown well here in Pass Christian, Mississippi, and now in mid May is at peak of bloom. In habit and general style it is obviously of “macrantha” derivation, with the same twiggy growth, narrow leaves, and moundlike style of bush. Here it is in flower at the same time as the Glenn Dale clone ‘Buccaneer’, and is almost identical in color with that variety, though it is perhaps a little more pink a red, or less scarlet a red [sic], whichever way one wishes to put it. Here there is no need for both, but for the northern gardener who might wish to duplicate southern effects, this close approach is worth noting.

Fast forwarding to the present: ‘Emperor’ azalea is not available in the industry anymore, but ‘Buccaneer’ can still be found. Also, Morrison’s namesake azalea, ‘Ben Morrison’, which bears pink and white flowers, is available from various sources including HarvesTime Nursery in Mobile, Alabama, at (877) 728-7854 or www.harvestimenursery.com.

On a related note, Fruitlands Nurseries, from which Morrison obtained ‘Emperor’, was considered a world-class experimental station and botanical garden in its day. In 1931, the property was purchased and became the Augusta National Golf Club, which hosts the Masters Golf Tournament every year. Each hole is named after a plant, including the 13th hole, which is “Azalea.”

—V.N.

In addition to these four species, Lasseigne observed that several cultivars of Norway spruce (*P. abies*) performed quite well.

Of the seven cultivars grown at the arboretum, ‘Clanbrassiliana Stricta’, ‘Compacta Asselyn’, ‘Echiniformis’, and ‘Pumila’ are “exceptionally beautiful plants, worthy of use in any garden,” he says.

One cultivar of *P. pungens* (Colorado spruce) also caught Lasseigne’s attention: ‘Iseli Foxtail’. “Not all Colorado spruces will grow this magnificently in Raleigh,” he says, noting that it also showed good tolerance for high nighttime temperatures.

Written by Assistant Editor Viveka Neveln.



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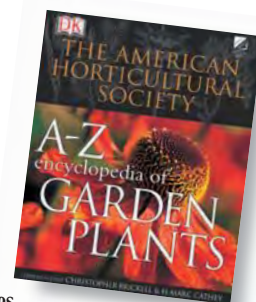
Heat Tolerance Map In 1997, AHS introduced the AHS Plant Heat Zone Map, which has revolutionized the way American gardeners select region-appropriate plants.

Book Program AHS and DK Publishing, Inc., have teamed up to create a definitive horticultural reference library for the 21st century.

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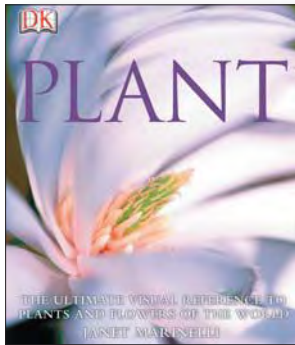
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Recommendations for Your Gardening Library

Plant: the Ultimate Visual Reference to Plants and Flowers of the World

Editor-in-Chief Janet Marinelli. DK Publishing, Inc., in association with Brooklyn Botanic Garden, New York, New York, 2005. 512 pages. Publisher's price, hardcover: \$50.

A UNIQUE reference on the diversity and conservation of plants from a gardener's perspective, *Plant* is an endless goldmine of information for responsible gardeners, science educators, and plant scientists. Befitting of DK Publishing's reputation for combining comprehensive information and superb design, this book excels with the editorial guidance of the internationally respected ecological and horticultural visionary, Janet Marinelli.



Director of publishing at Brooklyn Botanic Garden and a leader in urban restoration ecology, Marinelli encourages gardeners to embrace ecological garden design and plant conservation because, "As wilderness shrinks and garden acreage increases, gardeners play an increasingly critical ecological role."

Marinelli warns that if current trends continue, two-thirds of all plant species are likely to disappear by the end of the 21st century as part of a modern mass extinction episode "that could rival anything in evolutionary history, including the demise of the dinosaurs 65 million years ago."

Plant begins as a primer on the origins of plant diversity on Earth, plant classification, how plants are necessary for our survival, and provides captivating examples of local and global actions to preserve plant species in the wild and in our own gardens. The second section surveys the major global habitats and how each relates to the home garden or conservatory. The third section describes over 2,000 imperiled plants and their rarity, classification, distribution, habitat, and cultivation requirements. Each page explodes with color images that illustrate fascinating details about propagation tips, plant-wildlife inter-relationships, ethnobotany, mythology, history, and more.

Marinelli, a leader in invasive species management, devotes the fifth section to an exceptionally useful encyclopedia of invasive plants. This section should be required reading for all gardeners, horticulturists, landscape architects, and botanists as invasive plants, many of which are widely available for landscaping, are exposed for what they are. The appendices provide an extensive directory of information sources and experts, maps showing the Earth's biodiversity hotspots, and summaries of

current plant conservation regulations and strategies. Finally, readers will appreciate the extensive glossary and index listing common and scientific names and subjects.

Plant is endorsed by Botanic Gardens Conservation International and the World Wildlife Fund, and owes its impeccable detail to Marinelli's collaboration with the world's most renowned botanical institutions and conservation organizations. This book is a fascinating conservation encyclopedia combined with the real-life experiences of gardeners and conservationists, and without a doubt, will find a spot close at hand as one of my most useful references.

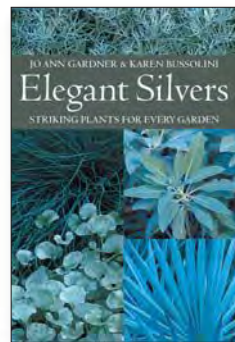
—Anita A. Tiller

A botanist at Mercer Arboretum and Botanic Gardens in Humble, Texas, Anita A. Tiller coordinates plant conservation efforts in east Texas and the Upper Gulf Coast for the Center for Plant Conservation.

Elegant Silvers: Striking Plants for Every Garden

Jo Ann Gardener and Karen Bussolini. Timber Press, Portland, Oregon, 2005. 311 pages. Publisher's price, hardcover: \$34.95.

SILVER FOLIAGE IS the great unifier, linking and harmonizing pastel colors to create soothing planting combinations and softening bolder shades so they can co-exist companionably in the same border. Of course, silver also has its own unique beauty; it hardly needs its neighbors to make it special. Every aspect of plants with silver foliage is covered in this valuable new book.



And how we've waited for a new book on silvers. In 1971, Mrs. Desmond Underwood published the classic *Grey and Silver Plants*, which featured a select few. Here is a much wider range—from *Agave* and *Artemisia* to *Veronica*, *Yucca*, and

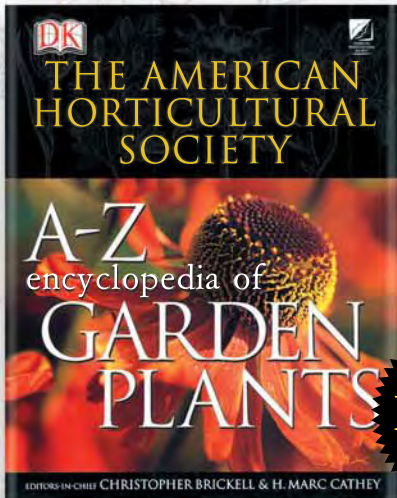
Zauschneria—which is both a strength and a weakness of the book. Covering annuals, tropicals, shrubs, alpiners, palms, perennials, and trees in one alphabetical list showcases the breadth of possibilities but choices for any given climate or situation are limited.

However, a book depends not only on its coverage but on good writing and good photography. Here the writing is both detailed and accessible—a combination which defeats many writers—and, like all the best gardening books, when you look up something in particular, you'll find yourself reading on. The advice on choosing silvers is wise and based on experience. The account of the de-



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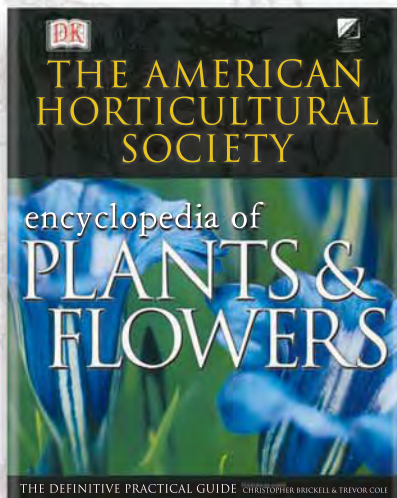
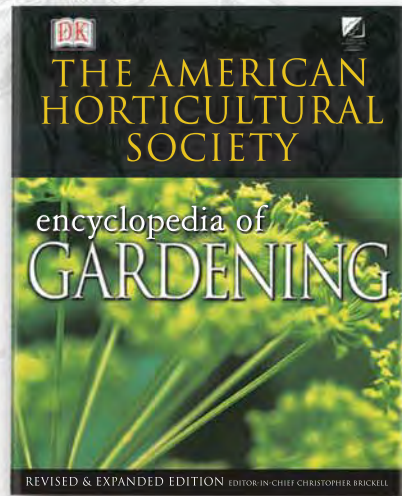
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velopment of gardening with silvers and the connection with xeriscaping is fascinating. Plants and their needs are described well although there are some nomenclatural eccentricities.

The photographs by Karen Bussolini are excellent but the elegance of these silvers would have been shown off more effectively in a book in a larger format; the pictures suffer from being shoe-horned into narrow, upright pages.

Even still, as the first book on the subject for many years, *Elegant Silvers* will tempt both the skeptical and the *cognoscenti*. And I hope it will be followed by both a fat encyclopedia of silvers and a more sumptuous book on using silvers in planting combinations.

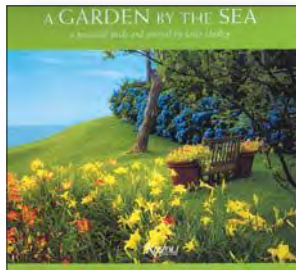
—Graham Rice

Graham Rice is a member of a number of Royal Horticultural Society committees, the winner of five awards for garden writing, and the author of The Sweet Pea Book (Timber Press).

A Garden By the Sea: A Practical Guide and Journal

Leila Hadley. Rizzoli International Publications, Inc., New York, New York, 2005. 217 pages. Publisher's price, hardcover: \$35.

WHAT HAPPENS when a world traveler, sophisticated author, and garden enthusiast stays home and plants her own beachfront? If she's Leila Hadley, she writes a witty, informative book.



And it's about time, as the last coastline classic—Daniel J. Foley's *Gardening by the Sea*—appeared in 1965.

But beyond filling a void, Hadley provides gardeners—no matter their locale—with an astonishing range of advice, from design basics, which, she cautions “isn't about what other

people have done, but what's right for your site—and you,” to spreading salt in winter: “a disaster for all things you hope to see green...and champion stain maker when tracked indoors.”

Nearly two dozen chapters focus ostensibly on such subjects as spring bulbs, white gardens, or fruiting trees. But each is really a discourse well beyond its title, since Hadley is curious about everything and shares what she's learned. The sight of a hummingbird in her garden, for example, is a reminder to plant ‘Summer Breeze’ anise hyssop whose peach-pink blooms are filled with nectar. A rumination on a dearth of dandelions (her husband had them removed) segues from the British pronunciation of the French *dent de lion* into the plants' historic herbal uses. While Queen Anne's lace, she notes, is a “reliable signifier of poor soil.”

Hadley's plant lists also reflect personal enthusiasms: Native species for pollinating insects, drought-resistant species, and shrubs prized by birds. The eternal optimist, her successes seem a natural product of disaster; after a hurricane felled large trees, a new path to a formerly obscured water vista results in discovery of two rare wildflowers, *Angelica lucida* and *Chenopodium rubrum*.

A voracious reader, she enjoys quoting a variety of wits, from Samuel Johnson (“All wonder is the effect of novelty upon ignorance”) to Milton Berle (“A thing of beauty is a job forever”). And so this erudite author of general literature has moved smoothly into garden writing. Maybe it helps that Gertrude Jekyll was her grandmother's friend.

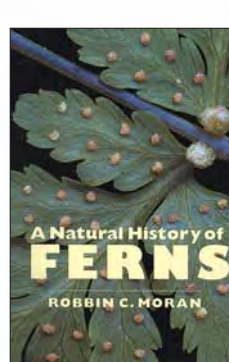
—Linda Yang

Linda Yang, a former garden writer for The New York Times, is author of several garden books including The City Gardener's Handbook (Storey Publications).

A Natural History of Ferns

Robbin C. Moran, introduction by Oliver Sacks. Timber Press, Portland, Oregon, 2004. 301 pages. Publisher's price, hardcover: \$29.95.

FINE WRITING needs to transcend genre and *A Natural History of Ferns* succeeds on many levels—so much so that the Garden Writers Association awarded the book a silver Garden



Media Award for best talent in writing. Moran, a fern curator at the New York Botanical Garden, enralls and educates the reader with a well crafted, many layered story, one that winds through 340 million years of survival and adaptation.

This collection of essays, which can be read one satisfying morsel at a time and in no particular order, delves into the fascinating world of ferns. Some of the twelve thousand fern species alive today include floating ferns, others that grow on trees, and some that become trees—not to mention forests of giant horsetails, a primitive fern that dwarfed the botanists who discovered them in their swampy habitat of multihued muck.

Each essay begins with a captivating story or literary reference that entices you to read on. We learn about the historic roles of ferns, and, as unlikely as it may seem, about ferns in movies. The book describes remarkable fern adaptations such as fern scale trees that can breathe through their roots, tree fern roots that can hold their own against mangling chain saws, and poisonous bracken ferns Moran calls “the Lucrezia Borgia of the fern world.” He waxes rhapsodic about the joy of observing spores discharging from leaves, which he says is like “watching popcorn popping.” There's also an intriguing chapter, “The Asexual Revolution,” that explains why fern chastity (“the most peculiar...of all sexual aberrations”) has not stopped reproduction in its tracks.

These masterfully written tales and the solid science behind them make this a terrific book for fern enthusiasts or anyone interested in our natural world.

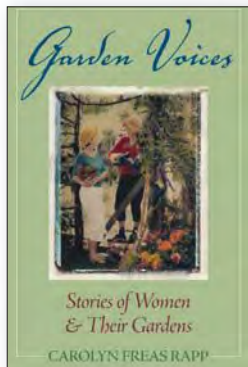
—Darrell Trout

Darrell Trout is a garden writer, lecturer, director of the Garden Writers Association, and a judge for America in Bloom, a national beautification contest. His fourth book is First Garden: Getting Started in Northeast Gardening (Cool Springs Press).

Summer Reading

DURING THE dog days of summer, the heat can drive even the most devoted gardener indoors. Fortunately, there's plenty of vicarious gardening to do by reading about it. Here's a selection of books published within the last year with a decidedly literary bent, sure to provide ideas and inspiration for your own garden.

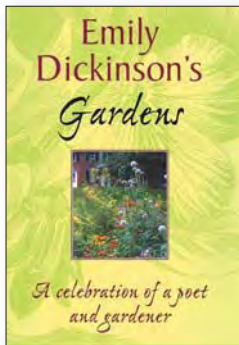
Most of us have a story about how we got into gardening or what our gardens mean to us. If you're curious about other people's experiences, *Garden Voices: Stories of Women & Their Gardens* (Water



Dance Press, 2005, \$14.95) by Carolyn Freas Rapp shares the stories of 12 women who find joy, peace, purpose, healing, and many other intangible benefits in their gardens. Along with cultivating

the soil, through their gardens, these women cultivate everything from lifelong friendships to a better understanding of themselves. Together, their stories are a testament to the power of gardens to enrich our lives in myriad ways.

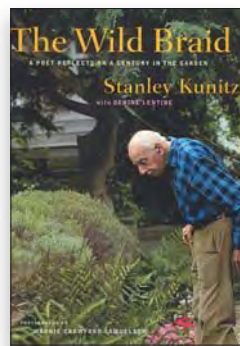
In the case of one particularly famous woman, Emily Dickinson, her gardens often inspired her poetry. *Emily Dickinson's Gardens: A Celebration of a Poet and Gardener* (McGraw Hill,



2004, \$18.95) by Marta McDowell takes readers on a seasonal tour of Dickinson's gardens at the Homestead in Amherst, Massachusetts. This well-re-

searched book is a unique biography of Dickinson as a gardener rather than a poet. It describes the plants she grew and includes interesting tidbits on how she used certain plants. For example, "When Emily baked gingerbread, she used [pan-sies] to decorate the flat shiny tops." Many of her poems inspired by plants and her gardens accompany the text.

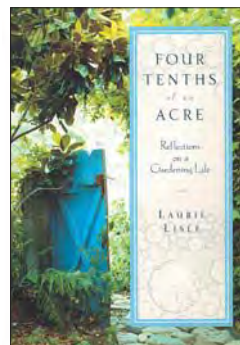
According to Pulitzer Prize winning poet Stanley Kunitz, a garden is a form of poetry, as he explains in *The Wild Braid: A Poet Reflects on a Century in the Garden* (W.W. Norton & Company, Inc., 2005, \$23.95) written with Genine Lentine. Approaching his 100th birthday this July, Kunitz reflects on his lifelong love of plants and words. Prose interspersed with poems and charming photo-



graphs share Kunitz's unique perspective; he weaves together the art forms of gardens and poems as a celebration of the natural world and life itself. "I think of garden-

ing as an extension of one's own being, something as deeply personal and intimate as writing a poem," he writes.

Memoir fans may enjoy *Four Tenths of an Acre* (Random House, 2005, hardcover, \$24.95) by Laurie Lisle. This book is "a modern



pastoral, part garden book and part memoir, which celebrates the role of nature in contemporary life," Lisle explains. Moving from New York City to a prop-

erty in a little village in Connecticut after a divorce, she chronicles the triumphs and tribulations she experiences—both in her garden and in her life—during the next 20 years she spends there.

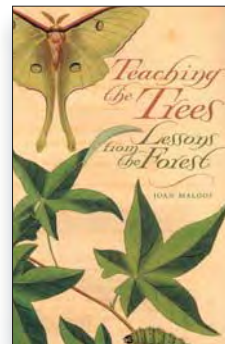
On the historical side, there's *Oak: The Frame of Civilization* (W.W. Norton & Company, Inc., 2005, \$24.95) by William Bryant Logan. An arborist, Logan authoritatively approaches this insightful profile of one of the world's most ubiq-



uitous and important trees. Addressing how oaks have supported and sustained civilization through the ages, sometimes in surprising ways, he explores topics

ranging from balaniculture (acorn-eating) to the many uses of their strong wood. Logan also delves into the biology and ecology of the *Quercus* genus as well as fascinating legends and lore.

In *Teaching the Trees: Lessons from the Forest* (University of Georgia Press, 2005, \$24.95) author Joan Maloof focuses on several tree species in a series of essays that blend natural history with



memoir. A professor of biology and environmental studies, she skillfully explains the virtues of various tree species and their intricate ecological niches. As an ardent admirer of all things ar-

boreal, Maloof eloquently entices readers to share her passion for preserving and appreciating them.

—Viveka Neveln, Assistant Editor



REGIONAL HAPPENINGS

Horticultural Events from Around the Country

NORTHEAST

CT, MA, ME, NH, NY, RI, VT

JULY 21. **Blue Hill Garden Tour.** Blue Hill Garden Club. Blue Hill, Maine. (207) 374-9933.

RAP JULY 30. **Massachusetts Marketplace Festival.** Massachusetts Horticultural Society. Wellesley, Massachusetts. (617) 933-4982. www.massshort.org.

JULY 31. **2005 Benefit Plant Sale.** Friends of the Horticulture Farm—University of Vermont. Burlington, Vermont. (802) 658-9166. pss.uvm.edu/dept/hort_farm.

RAP AUG. 6. **Drought-Resistant Gardening.** Garden walk. Wave Hill. Bronx, New York. (718) 549-3200. www.wavehill.org.

AUG. 6. **Norfolk-Aton Forest Field Trip.** Connecticut Botanical Society. New Haven, Connecticut. (860) 633-7557. www.ct-botanical-society.org.

Looking ahead

SEPT. 14. **Making and Maintaining a Meadow.** Class. New York Botanical Garden. New Canaan, Connecticut. (718) 817-8747. www.nybg.org.

SEPT. 16 & 17. **Invasive Plant Summit.** New England Wildflower Society. Framingham, Massachusetts. (508) 877-7630. www.newfs.org.

MID-ATLANTIC

PA, NJ, VA, MD, DE, WV, DC

JULY 23. **Invasive Plants Workshop.** Monticello. Charlottesville, Virginia. (434) 984-9822. www.monticello.org.

JULY 26–28. **Penn Atlantic Nursery Show (PANTS).** Fort Washington, Pennsylvania. (800) 898-3411. www.plan.com.

JULY 30 & 31. **Summer Orchid Fest.** Parkside Orchid Nursery. Ottsville, Pennsylvania. (610) 847-8039. www.parksideorchids.com.

AUG. 4. **Franklinia Lecture.** Bartram's Garden. Philadelphia, Pennsylvania. (215) 729-5281. www.bartramsgarden.org.

RAP AUG. 5. **Shade Plants that Dazzle.** Class. Green Spring Gardens Park.

Events sponsored by or including official participation by AHS or AHS staff members are identified with the **AHS** symbol.

Events hosted by botanical gardens and arboreta that participate in AHS's Reciprocal Admissions Program are identified with the **RAP** symbol. Current AHS members showing a valid membership card are eligible for free or discounted admission to the garden or other benefits. Special events may not be included; contact the host site for details or visit www.ahs.org/events/reciprocal_events.htm.

Alexandria, Virginia. (703) 642-5173. www.greenspring.org.

AUG. 13. **Daylily Sale.** Brookside Gardens. Wheaton, Maryland. (301) 962-1400. www.brooksidegardens.org.

AUG. 21. **New Jersey Tomato Festival.** Camden, New Jersey. (856) 384-8182. www.njtomatofestival.org.

RAP AUG. 23. **Glorious Groundcovers.** Lecture. Scott Arboretum. Swarthmore, Pennsylvania. (610) 328-8023. www.scottarboretum.org.

AHS AUG. 26–28. **In the Garden with the Experts.** Weekend Seminar. Homestead Resorts. Hot Springs, Virginia. (800) 838-1766. www.thehomestead.com.

AUG. 30. **Gardens in Healthcare: Making Environments of Care Even More Caring.** Lecture. United States Botanic Garden. Washington, D.C. (202) 225-8333. www.usbg.gov.

SOUTHEAST

AL, FL, GA, KY, NC, SC, TN

JULY 17–24. **Perennial Plant Symposium.** Perennial Plant Association. Knoxville, Tennessee. (641) 771-8431. www.perennialplant.org.

JULY 24. **Wild Herb Weekend.** Workshop and plant sale. North Carolina Herb Association. Fletcher, North Carolina. (336) 854-4365. www.ncherb.org.

RAP AUG. 10. **Saturday Walking Tours at Smithgall Arboretum.** Atlanta Botanical Gar-

den. Gainesville, Georgia. (404) 876-5859. www.atlantabotanicalgarden.org.

RAP AUG. 11. **Garden Mixer: Mint and Mojitos.** Garden social. Birmingham Botanical Garden. Birmingham, Alabama. (205) 414-3900. www.bbgardens.org.

AUG. 11–13. **Southern Nursery Association Researcher's Conference and Trade Show.** Atlanta, Georgia. (770) 953-3311. www.sna.org.

AUG. 16. **Hellebores: An American Passion.** Lecture. Georgia Perennial Plant Association. Atlanta, Georgia. (404) 814-4000. www.georgiaperennial.org/meetings.

AUG. 16. **Soil.** Class. Hatcher Garden & Woodland Preserve. Spartanburg, South Carolina. (864) 574-7724. www.hatchergarden.org.

AUG. 17–19. **Summer Green Show.** Wholesale nursery trade show. North Carolina Association of Nurserymen. Greensboro, North Carolina. (336) 373-7400. www.ncan.com.

Looking ahead

OCT. 7–10. **American Society of Landscape Architects Annual Meeting and Expo.** Fort Lauderdale, Florida. (202) 898-2444. www.asla.org.

NORTH CENTRAL

IA, IL, IN, MI, MN, ND, NE, OH, SD, WI

RAP JULY 20–AUG. 14. **Olbrich's Blooming Butterflies.** Festival. Olbrich Botanical Garden. Madison, Wisconsin. (608) 246-4550. www.olbrich.org.

JULY 23. **Parade of Ponds.** Self-guided tour. Scenic Specialties Landscape Center. St. Joseph, Minnesota. (320) 363-1757. www.scenicspecialties.com.

AUG. 13. **Art in Bloom Festival.** Lauritzen Gardens. Omaha, Nebraska. (402) 346-4002. www.omahabotanicalgardens.org.

AUG. 14. **CoHort Plant Sale.** Reiman Gardens. Iowa State University. Ames, Iowa. (515) 294-2710. www.reimangardens.iastate.edu.

AUG. 16. **Divide and Conquer—The Art of Dividing Plants.** Class and walking tour. Friends of Boerner Botanical Gardens. Hales

Corner, Wisconsin. (414) 525-5653.
www.boernerbotanicalgardens.org.

AUG. 27 & 28. **Horticulture Show and International Quilt Show and Sale.** International Peace Garden. Dunseith, North Dakota. (701) 263-4390. www.peacegarden.com.

Looking ahead

SEPT. 10 & 11. **Festival of Gourds.** Illinois Gourd Society. Chicago Botanic Gardens. Glencoe, Illinois. (847) 299-0041.
www.chicagobotanic.org.

SOUTH CENTRAL

AR, KS, LA, MO, MS, OK, TX

JULY 16–24. **Henry Shaw Cactus Society's 63rd Annual Show and Sale.** Missouri Botanical Garden. St. Louis, Missouri. (618) 656-1803. www.hsacactus.org.

RAP JULY 30. **Passion for Plumeria Sale and Seminar.** Corpus Christi Botanical Gardens and Nature Center. Corpus Christi, Texas. (361) 852-2100. www.cbobotanicalgardens.org.

RAP AUG. 13. **Photographing the Gardens.** Workshop. Botanica, The Wichita Gardens. Wichita, Kansas. (316) 264-0448.
www.botanica.org.

RAP AUG. 13. **Wetland Wonders.** Family workshop. Ladybird Johnson Wildflower Center. Austin, Texas. (512) 292-4100.
www.wildflower.org.

AUG. 19–21. **Nursery/Landscape Expo.** Texas Nursery and Landscape Association. (800) 880-0343. www.tnlaonline.org.

AUG. 27. **End of Summer Plant Sale.** New Orleans Botanical Garden and City Park. New Orleans, Louisiana. (504) 483-9386.
www.neworleanscitypark.com.

RAP AUG. 27. **Summer Wildflower Walk.** Crosby Arboretum—Mississippi State University. Picayune, Mississippi. (601) 799-2311. www.msstate.edu.

SEPT. 2. **Water Saving Landscape.** Seminar. Will Rogers Horticultural Center. Oklahoma City, Oklahoma. (405) 744-5414.
www.okstate.edu/ag/asnr/hortla.

SOUTHWEST

AZ, NM, CO, UT

RAP JULY 24. **Penstemon Festival.** Arboretum at Flagstaff. Flagstaff, Arizona. (928) 774-1442. www.thearb.org.

RAP AUG. 4 & 6. **Wildflower Tours on Mt. Goliath.** Denver Botanic Garden. Denver, Colorado. (720) 865-3533. www.botanicgardens.org.

New Garden Highlights Ozark Native Plants

IN BENTONVILLE, ARKANSAS, in the shadow of Sam Walton's Wal-Mart headquarters, another Arkansan, the late physician and naturalist Dr. Neil Compton, has left a different legacy. Three years after Compton's death in 1999, the Walton Family Foundation funded the purchase of his property by the Peel House Foundation.



Compton Gardens includes a woodland waterfall.

Since then, the home has been renovated into a modern conference center and the six acres of grounds have been dedicated to Ozark native plants, for which Compton had great affection.

Designed by Karen Rollet-Crocker, University of Arkansas Professor of Landscape Architecture, Compton Gardens opened its trails in May, but the official grand opening ceremony for both the gardens and conference center was held in June. Several events are already planned at the new gardens, including "Plein Air Painters of the Ozarks Paintout" on July 20 and 27, and monthly meetings of the Ozark Society, which was started by Compton himself in 1962.

Scott Starr, horticulturist and site manager, has spent two years removing non-native plants and directing the installation of paths and other hardscapes, in addition to selecting and planting the plants. "We selected the planting list by using nursery catalogs of natives and checking them against the reference books of Ozark plants," says Starr. "Almost 350 Ozark species of trees, shrubs, vines, wildflowers, and grasses are planted, labeled on 20 foot corridors along the paths."

Among the many notable plants at the site are four state Champion trees, including the state's largest native yellowwood (*Cladrastis kentukea*).

Compton Gardens is open daily from dawn to dusk. Admission is free. For more information, call (479) 254-3870 or visit www.comptongardens.org.

—Russell Studebaker,
special to The American Gardener, Tulsa Oklahoma

AUG. 6. **Taos Garden and Home Tour.** Los Jardineros Garden Club of Taos. Taos, New Mexico. (505) 776-2275.
www.gardencluboftaos.com.

AUG. 16–19. **Association of Professional Landscape Designers Annual Conference.** Salt Lake City, Utah. (717) 238-9780.
www.apld.org.

RAP AUG. 25. **"Herban" Wildlife Gardening.** Class. Desert Botanical Garden. Phoenix, Arizona (480) 941-1225. www.dbg.org.

RAP AUG. 27 & 28. **Dahlia Society Show.** Denver Botanic Garden. Denver, Colorado. (720) 865-3533. www.botanicgardens.org.

Looking ahead

SEPT. 5. **Gardening in the Desert: Get The Facts.** Lecture. Valley of the Sun Garden Club. Phoenix, Arizona. (480) 636-6515.
www.phoenixgardeners.org.

RAP SEPT. 11. **Local Farms and Edible**

Gardens Tour. Arboretum at Flagstaff, and Center for Sustainable Environments. Flagstaff, Arizona. (928) 774-1442.
www.thearb.org.

WEST COAST

CA, NV, HI

RAP AUG. 6. **Summer Gardening Fair.** San Francisco Botanical Garden Society. San Francisco, California. (415) 661-1316.
www.sfbotanicalgarden.org.

RAP AUG. 10. **Lotusland Tour.** Descanso Gardens. La Cañada Flintridge, California. (818) 949-4200. www.descansogardens.org.

AUG. 17. **Water Resources/Conservation/Permaculture.** Workshop. Wilbur D. May Center. Reno, Nevada. (775) 785-4153.
www.maycenter.com.

AUG. 26–28. **Botanica.** Garden festival. Copia. Napa, California. (707) 265-5941.
www.copia.org/pages/ediblegardens.asp.

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The National Arbor Day Foundation

arborday.org

Cactus and Succulent Society Celebrates 75 Years

SUCCULENTS AND CACTI comprise a great variety of unique and interesting plants from different families. Founded by a small group of dedicated hobbyists in California in 1929, the Cactus and Succulent Society of America (CSSA) has worked to promote and conserve this fascinating group of plants for the last 75 years.

"Members of CSSA often come to succulents with the idea that they are easy plants to grow, and, of course, many are," says Russell Wagner, editor of the organization's *Cactus and Succulent Journal*. "But sustained interest in growing plants comes from the challenges, and with at least 10,000 succulent species—not to mention hybrids—to choose from, the range of experience and knowledge that can be tapped into and obtained is nearly limitless."

From August 5 through August 10, the Central Arizona Cactus and Succulent Society will host its 31st biennial CSSA Convention in Scottsdale, Arizona. Speakers include notable experts such as curators from the Desert Botanical Garden in Phoenix, Arizona, and several CSSA Fellows. They will give lectures and workshops on various aspects of growing cacti and succulents from around the world. The convention will also feature field trips to local botanic gardens, desert habitats, and museums.

On August 6, 7, 9, and 10, the convention will have a sale open to the public as well as registrants. Several specialty plant vendors will offer succulents and cacti for purchase, including unusual, rare, and collectible specimens.

For more information, visit www.cssainc.org.

—Jessica Rozmus, Editorial Intern



AUG. 27 & 28. **Fall Plant Sale.** Occidental Arts and Ecology Center. Occidental, California. (707) 874-1557. www.oaec.org.

Looking ahead

SEPT. 3 & 4. **Fern and Exotic Plant Show and Sale.** Los Angeles International Fern Society. Arcadia, California. (562) 809-3243.

SEPT 11. **Carmel TomatoFest.** Quail Lodge. Carmel, California. (800) 965-4827. www.TomatoFest.com.

NORTHWEST

AK, ID, MT, OR, WA, WY

RAP AUG. 4. **Alaskan Frontier Gardens, Hillside.** Tour. Alaska Botanical Garden. Anchorage, Alaska. (907) 770-3692. www.alaskabg.org.

AUG. 25–27. **Black Hills Orchid Society Festival.** Rapid City, South Dakota. (605) 348-7165.

AUG. 25–27. **The Farwest Show.** Trade show. Association of Nurserymen. Portland, Oregon. (800) 342-6401. www.farwestshow.com.

RAP AUG. 27. **Fall Blooming Perennials.** Garden tour. Cheyenne Botanic Gardens. Cheyenne, Wyoming. (307) 637-6458. www.botanic.org.

Looking ahead

RAP SEPT. 8. **Rare Plant Auction.** Bellevue Botanical Gardens. Bellevue, Washington. (425) 451-3755. www.bellevuebotanical.org.

CANADA

JULY 24. **City Garden Circuit with Barry Parker.** Course. Toronto Botanical Garden. Toronto, Ontario. (416) 397-1340. www.civicgardencentre.org.

JULY 24–27. **International Master Gardener Conference.** University of Saskatchewan. Saskatoon, Saskatchewan. (306) 966-5749. www.mastergardener2005.usak.ca.

Looking ahead

RAP SEPT. 10. **Plant Sale.** The Arboretum University of Guelph. Guelph, Ontario. (519) 824-4120. www.uoguelph.ca/arboretum.

Call for Nominations...



the GREAT AMERICAN GARDENERS AWARDS

SINCE 1953, the American Horticultural Society Great American Gardeners Award Program has recognized individuals and institutions that have made significant contributions to American horticulture. Nominations are now being accepted for 2006. Nominate your “horticultural hero”—a memorable professor, a favorite garden book author, or the driving force behind an incredible community project! The 2006 award categories are listed below. See if one of them brings to mind someone who has inspired you to garden greatness!

Award recipients will be profiled in *The American Gardener* magazine and have their awards presented to them at River Farm, the Society’s headquarters in Alexandria, Virginia, in June 2006.

Nomination forms are available on the American Horticultural Society Web site at www.ahs.org or by calling (703) 768-5700 ext. 121.

The deadline for nominations is September 1, 2005.



Julie Moir Messervy, center, accepts the 2005 Landscape Design Award from AHS Board Chair Arabella Dana, left, and AHS President Katy Moss Warner, right.

the 2006 AWARDS

Liberty Hyde Bailey Award. Recipients of this award reside in North America and must have made significant contributions in at least three of the following areas of horticultural activity: teaching, research, writing, plant exploration, administration, art, business, and leadership.

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

Paul Ecke Jr. Commercial Award. Given to an individual or institution committed to the highest standards of excellence in the field of commercial horticulture.

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

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

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

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

Professional Award. Awarded to an individual who makes a living as a director of an arboretum or botanical garden whose career achievements represent a significant contribution to horticulture.

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

Jane L. Taylor Award. Awarded to an individual, organization or program that has inspired and nurtured future horticulturists through children’s and youth gardens.

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

Urban Beautification Award. Awarded to an individual or institution for significant contributions to urban horticulture.

GARDEN MARKET

CLASSIFIED AD RATES: All classified advertising must be prepaid. \$2.75 per word; minimum \$66 per insertion. Copy and prepayment must be received by the 20th of the month three months prior to publication date. To place an ad, call (703) 768-5700 ext. 120.

BOOKS

Hortica: Color Cyclopedia of Garden Flora with Hardiness Zones and Indoor Plants, 8,100 color photos by Dr. A. B. Graf, \$195
SPECIAL PRICE \$125

Tropica 5th ed: 7,000 color photos of plants and trees for warm environments, \$185

Exotic House Plants: 1,200 photos, 150 in color, with keys to care, \$8.95
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fax (732) 938-3075. www.roehrsco.com.

EMPLOYMENT

SUPERVISOR, NURSERY MGR., propagate, care for exotic plants applying knowl of horticulture, environ contrls, plant cult, nutrition, irrigation, injection type fertilizers & gardening tools; pest & disease contrl; supv employees in planting, treating plants, control soil moisture levels. 2 yrs exp. Res: Manas Wholesale Flowers & Growers, 14890 SW 16 St, Miami, FL 33170

EMPLOYMENT

AREA EXTENSION SPECIALIST, HORTICULTURE. University of Nevada Cooperative Extension Western Area is seeking candidates for a full time twelve-month tenure-track faculty position. This position provides leadership and educational programming on horticulture-related issues in Douglas, Storey and Washoe Counties and Carson City. The focus of this position is Extension outreach community education, research and service. This position is responsible for assessing needs, designing and conducting educational programs, measuring program impact, maintaining a record of scholarly work and providing service to the University, profession and community. For a complete description and requirements, view at www.unce.unr.edu and http://jobs.unr.edu or contact: Penny Jenkins, Search Coordinator, at (775) 784-4848. Applications received by July 31, 2005, will receive full consideration. EEO/AA Women and under-represented groups are encouraged to apply.

TO PLACE YOUR AD HERE
call *The American Gardener*
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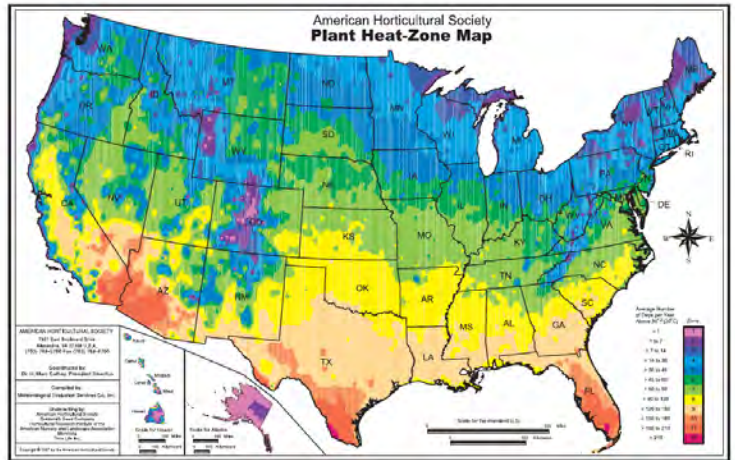
FORM 270

PRONUNCIATIONS AND PLANTING ZONES

Most of the cultivated plants described in this issue are listed here with their pronunciations, USDA Plant Hardiness Zones and AHS Plant Heat Zones. These zones suggest a range of locations where temperatures are appropriate—both in winter and summer—for growing each plant.

While the zones are a good place to start in determining plant adaptability in your region, factors such as exposure, moisture, snow cover, and humidity also play an important role in plant survival. The codes tend to be conservative; plants may grow outside the ranges indicated. A USDA zone rating of 0–0 means that the plant is a true annual and completes its life cycle in a year or less.

To purchase a two-by-three-foot glossy AHS Plant Heat Zone Map for \$9.95, call (800) 777-7931 or visit www.ahs.org. Hardiness and Heat zone codes are generated by AHS and documented in the Showtime® database, owned by Arabella Dane.



A–E

- Asclepias purpurascens** as-KLEE-pee-us per-per-ASS-enz (USDA 5–8, AHS 8–5)
- A. tuberosa** A. too-bur-O-suh (4–9, 9–2)
- Agastache aurantiaca** ah-GAH-stah-she aw-ran-tee-AY-kuh (7–10, 10–7)
- Ajuga tenorii** uh-JOO-guh ten-OR-ee-eye (3–9, 9–1)
- Amorpha canescens** uh-MOR-fuh kuh-NES-senz (2–8, 8–1)
- A. fruticosa** A. froo-tih-KO-suh (2–8, 8–1)
- Andropogon gerardii** an-dro-PO-gon jeh-RAR-dee-eye (2–7, 7–1)
- Artemisia versicolor** ar-teh-MEEZ-yuh vur-SIK-uh-lur (3–7, 7–1)
- Astilbe chinensis** uh-STIL-bee chy-NEN-sis (4–8, 8–2)
- Bouteloua curtipendula** boo-teh-LOO-uh kur-tih-PEN-dyew-luh (5–9, 9–5)
- B. curtipendula** var. **caespitosa** B. kur-tih-PEN-dyew-luh var. sez-pih-TOH-suh (6–8, 8–1)
- B. eriopoda** B. air-ee-O-po-duh (6–8, 8–1)
- B. gracilis** B. GRUH-sih-liss (5–9, 9–5)
- Callirhoe alcaeoides** kah-LIR-o-ee al-kay-OY-deez (4–9, 9–1)
- C. involucrata** C. in-vol-yew-KRAY-tuh (4–6, 7–1)
- Carex bicknellii** KAIR-eks bick-NEL-ee-eye (8–10, 10–8)
- C. vulpinoidea** C. vul-pin-OY-dee-uh (7–10, 10–7)
- Clematis fruticosa** KLEM-uh-tiss froo-tih-KO-suh (5–9, 9–1)
- Clethra alnifolia** KLETH-ruh al-nih-FO-lee-uh (3–9, 9–1)

- Cornus alba** KOR-nus AL-buh (2–8, 8–1)
- C. racemosa** C. ras-eh-MO-suh (4–8, 8–3)
- Cuphea ignea** KOO-fee-uh IG-nee-uh (10–11, 12–6)
- Dalea purpurea** DAY-lee-uh per-PER-ee-uh (4–9, 9–5)
- Deschampsia cespitosa** deh-SHAMP-see-uh sez-pih-TOH-suh (5–9, 9–1)
- Epilobium canum** subsp. **canum** eh-pih-LO-bee-um KAY-num (8–11, 12–8)
- E. canum** subsp. **garrettii** E. KAY-num subsp. guh-RET-tee-eye (5–8, 8–5)
- E. canum** subsp. **latifolium** E. KAY-num subsp. lat-ih-FO-lee-um (7–10, 11–7)
- E. septentrionale** E. sep-ten-tree-o-NAL-ee (8–9, 9–8)
- Eryngium yuccifolium** ee-RIN-jee-um yuk-ih-FO-lee-um (4–9, 12–1)

F–M

- Forsythia ×intermedia** for-SITH-ee-uh in-ter-MEE-dee-uh (6–9, 9–6)
- Heuchera richardsonii** HYEW-kur-uh rih-char-d-SOWN-ee-eye (4–8, 8–1)
- Hydrangea quercifolia** hy-DRAN-juh kwer-sih-FO-lee-uh (5–9, 9–5)
- Ilex verticillata** EYE-leks vur-tih-sih-LAY-tuh (5–8, 8–5)
- Ipomoea leptophylla** ih-po-ME-uh lep-toh-FIL-uh (4–8, 8–6)
- Itea virginica** eye-TEE-uh vir-JIN-ih-kuh (6–9, 10–7)
- Koeleria macrantha** kel-LEE-ree-uh muh-KRAN-thuh (2–8, 8–1)
- Leucophyllum frutescens** loo-ko-FIL-lum froo-TES-enz (8–9, 9–8)

- Monarda bartlettii** moh-NAR-duh bart-LET-te-eye (8–11, 12–1)
- M. bradburiana** M. brad-bur-ee-AN-uh (5–8, 8–1)
- M. citriodora** M. sih-tree-o-DOR-uh (7–10, 10–1)
- M. clinopodia** M. klih-no-PO-dee-uh (5–8, 8–1)
- M. didyma** M. DID-ih-muh (4–10, 10–1)
- M. fistulosa** M. fis-tyew-LO-suh (3–9, 9–1)
- M. fruticulosa** M. froo-tik-yew-LO-suh (8–11, 12–1)
- M. maritima** M. muh-WRIT-ih-muh (8–10, 11–1)
- M. pringlei** M. PRING-glee-eye (8–11, 12–1)
- M. punctata** M. punk-TAY-tuh (4–10, 9–2)
- M. viridissima** M. VEER-ih-diss-ih-muh (7–10, 11–1)

N–R


- Nandina domestica** nan-DEE-nuh do-MES-tih-kuh (6–11, 12–4)
- Oenothera macrocarpa** ee-NOTH-ur-uh mak-ro-KAR-puh (4–8, 8–3)
- Panicum virgatum** PAN-ih-kum vur-GAY-tum (5–9, 9–1)
- Penstemon barbatus** PEN-steh-mon bar-BAY-tus (4–9, 9–2)
- Prunus americana** PREW-nus uh-mair-ih-KAN-uh (3–8, 8–1)
- P. virginiana** P. vir-jin-ee-AN-uh (3–8, 8–1)
- Rhus aromatica** RUS ah-ro-MAT-ih-kuh (2–8, 8–1)
- Rosa carolina** RO-zuh kair-o-LIE-nuh (4–9, 9–1)
- R. woodsii** R. WOODS-ee-eye (4–9, 9–1)

S–Z

- Salvia coccinea** SAL-vee-uh kok-SIN-ee-uh (11, 12–1)
- S. leucantha** S. loo-KAN-thuh (9–11, 12–4)
- Schizachyrium scoparium** var. **scoparium** skits-ah-KEER-ee-um sko-PAR-ee-um var. sko-PAR-ee-um (2–7, 7–1)
- Scirpus atrovirens** SKEER-pus at-ro-VY-renz (7–9, 9–7)
- Scutellaria resinosa** skoo-tuh-LAIR-ee-uh rez-ih-NO-suh (4–8, 8–1)
- Sedum telephium** subsp. **ruprechtii** SEE-dum tuh-LEF-ee-um subsp. rew-PREK-tee-eye (4–9, 9–1)
- Silphium laciniatum** SIL-fee-um lah-syn-ee-AY-tum (5–9, 9–5)
- S. perfoliatum** S. per-fo-lee-AY-tum (5–9, 9–5)
- Solidago canadensis** sol-ih-DAY-go kan-uh-DEN-siss (5–9, 9–1)
- S. rugosa** S. roo-GO-suh (5–9, 9–1)
- Sorghastrum nutans** sorg-ASS-trum NOO-tanz (4–9, 9–1)
- Spigelia marilandica** spy-JEE-lee-uh mair-ih-LAN-dih-kuh (5–9, 9–2)
- Sporobolus heterolepis** spor-OB-olus het-ur-o-LEP-siss (3–8, 10–2)
- Viburnum lentago** vy-BER-num len-TAY-go (2–8, 8–1)
- V. prunifolium** V. proo-nih-FO-lee-um (3–9, 9–1)
- Weigela florida** wy-JEEL-yuh FLOR-ih-duh (5–8, 8–4)
- Zauschneria californica** zowsh-NAIR-ee-uh kal-ih-FORN-ih-kuh (see *Epilobium canum* subsp. **canum**)
- Z. septentrionalis** Z. sep-ten-tree-o-NAL-is (see *E. septentrionale*)

Summer Sizzle



NOTHING SAYS SUMMER like the hot hues of red and yellow. In a bed by River Farm's estate house, the jewellike, scarlet seedpods of castor bean (*Ricinus communis* 'Carmencita', Zones 11–14, 12–1) glimmer among the plant's smoky-red leaves. Purple fountain grass (*Pennisetum setaceum* 'Rubrum', Zones 9–11, 12–8) makes a complementary bedfellow with its maroon, straplike foliage and reddish plumes. The contrasting chartreuse leaves of 'Gay's Delight' Sunlover coleus (*Solenostemon scutellarioides*, Zones 11–12, 12–1) sport striking burgundy veins that harmonize with the tones of its dark-leaved neighbors. 



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