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The Magazine of the American Horticultural Society

May / June 2015

Classic Hydrangeas

Adding Zest with Irises

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and Rooftop Gardens



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NOTES FROM RIVER FARM

ONE OF THE things I enjoy most about gardening is that no matter how much you know, there's always more to learn. I was reminded of this earlier this spring while attending the Colonial Williamsburg Garden Symposium in Williamsburg, Virginia, an exceptional annual event the AHS has been connected with since 1965. Among the many terrific speakers at this symposium, I was particularly inspired by Rick Darke and Doug Tallamy, two nationally recognized authors and speakers whose work has been acknowledged with our own AHS Book Awards. Their passion for plants and gardens—expressed through their exceptional images and stories—is truly infectious. And their message about a garden's role in providing critical habitat and meshing with the natural world is a valuable one for all gardeners.

This symposium is but one of many such programs taking place throughout the year and all over the country that offer the opportunity for gardeners to expand their knowledge and skills. If you're looking for some top-notch horticultural events to attend this year, be sure to check out the AHS national events calendar on page 9 and the "Regional Happenings" section on page 56 of this issue of *The American Gardener*.

For the AHS, our own National Children & Youth Garden Symposium happening this July in Austin, Texas, will be a highlight of the summer. There's something about the collaborative camaraderie among the teachers, designers, youth group leaders, parents, and others as they share ideas for connecting kids with plants that makes this event especially refreshing and energizing. To learn more about our upcoming symposium, turn to page 10.

We also hope you'll consider attending various events around the country that the AHS sponsors or where we will have a booth. We're always thrilled to meet members or to personally welcome new members to the organization! One that I'll be at in August is the "In the Garden Weekend," hosted by gardening radio personality André Viette in Hot Springs, Virginia. Like the Colonial Williamsburg Garden Symposium, the AHS has been a proud sponsor of this event for many years, and I am looking forward to hearing from a variety of horticultural experts while enjoying the picturesque Homestead Resort.

While the many diverse programs across the country can help you learn and grow as a gardener, *The American Gardener* offers an immediate opportunity to do so. All you need to do is turn the page to begin! This issue will introduce you to an extraordinary horticulturist who is practicing his craft in the gardens at the University of Tennessee, and to the Seed Saver's Exchange's Heritage Farm in Iowa, where a 40th anniversary celebration is underway. You'll get tips for creating gardens on patios, balconies, and rooftops, and you'll expand your plant knowledge with in-depth articles about hydrangeas and irises. To top it off, an article exploring the fascinating connection between native *Yucca* species and a pollinating moth is sure to leave you marveling at nature's wonders.

Happy gardening!

Tom Underwood
Executive Director



Tom Underwood

The American GARDENER

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MORE ON LILACS

I want to offer some thoughts on Patricia Taylor's article about lilacs (March/April). I have monitored the genus for many years as part of my research for editions of *Manual of Woody Landscape Plants*. More recently, the company I co-founded, Plant Introductions, Inc., began evaluating and breeding lilacs because the demand for a compact, fragrant, heat tolerant lilac with clean foliage and rebloom capabilities is enormous.

As noted in the article, the introduction of Bloomerang changed expectations for lilacs, not only in the south, but nationally. The subsequent introductions from Spring Meadow Nursery have built on the Bloomerang foundation and may prove better. However, at a trial area set up at Plant Introductions' site in Watkinsville, Georgia, Bloomerang has been a less-than-stellar performer, reblooming minimally.

Before we established the breeding program, I visited the Arnold Arboretum's lilac collection, where the collection's curator, Jack Alexander, shared numerous insights about the genus and introduced me to a selection called 'Lilac Sunday'. I also digested Father John Fiala's seminal *Lilacs*, joined the International Lilac Society, and picked many brains about the potential for a quality lilac for southern gardens.

Based on this "homework," Plant Introductions assembled more than 50 lilac species and cultivars for the trial in 2009–2010. The only performers with any cachet were Josée, 'Lilac Sunday', *S. julianae* 'Hers', *S. laciniata*, and 'Red Pixie' (an open-pollinated seedling of 'Hers'). We hybridized between the best, with crosses between 'Red Pixie' and Josée yielding superior progeny.

Overall, nothing has come close to 'Red Pixie' in terms of performance. This cultivar is worthy of a place in the garden in USDA Zones 7 and 8 and is cold hardy to Zone 5.

Another lilac species that Alexander and I believe could aid in the development of heat tolerant selections is *Syringa protolaciniata*. A selection called 'Kabul'



'Red Pixie' was among the top performers in a recent lilac trial in Watkinsville, Georgia.

that was developed in Afghanistan—which portends heat tolerance—is currently growing at the Arnold Arboretum.

Michael A. Dirr
Bogart, Georgia

BALANCED DISCUSSION OF GENETIC ENGINEERING FOR GARDENERS

I appreciated Scott Aker's thoughtful and balanced article about genetic engineering in the January/February issue. I am usually asked to deliver several programs on gardening a year; your discussion of genetic engineering (GE) gave me the courage to make it the subject of an upcoming program. I hope that by conveying information rather than opinion, I will encourage listeners to think dispassionately about this topic.

Some tend to see GE only from a commercial standpoint, but not all businesses are driven solely by profit. Nor is the profit motive necessarily evil. Tackling global challenges such as overpopulation, famine, and pollution may require the problem-solving abilities of the for-profit sector.

Recently I saw a news item describing a GE project that would, if successful, allow people with gluten intolerance to eat wheat. This is the other side of the GE coin. Continuing education on the

subject of genetic engineering should help people to balance its promise with their fears of the unknown.

Molly Hackett
Victor, Montana

CORRECTIONS

Western Native Hemlocks A key word—"eastern"—was omitted from the news article about hemlock conservation efforts in the March/April "Gardener's Notebook" column. In addition to the two species native to eastern North America mentioned, there are two species native to western North America: Western hemlock (*Tsuga heterophylla*) and mountain hemlock (*T. mertensiana*).

Ella May T. Wulff
Philomath, Oregon

Accessible Gardening Website The website for the accessible gardening online resource highlighted in the March/April "Gardener's Notebook" (page 52) should have been www.accessiblegardening.org.

PLEASE WRITE US! Address letters to Editor, *The American Gardener*, 7931 East Boulevard Drive, Alexandria, VA 22308. Send e-mails to editor@ahs.org (note Letter to Editor in subject line). Letters we print may be edited for length and clarity.

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NATIONAL CHILDREN & YOUTH GARDEN SYMPOSIUM For information about the Society's annual National Children & Youth Garden Symposium, e-mail education@ahs.org or visit www.ahs.org/ncygs.

RECIPROCAL ADMISSIONS PROGRAM The AHS Reciprocal Admissions Program offers members free admission and other discounts to nearly 300 botanical gardens and other horticultural destinations throughout North America. A list of participating gardens can be found on www.ahs.org/rap. For more information, call (800) 777-7931 ext. 119.

RIVER FARM The AHS headquarters at River Farm is open 9 a.m. to 5 p.m. weekdays year-round (except Federal holidays), and 9 a.m. to 1 p.m. Saturdays from April through September. For information about events, rentals, and directions, visit the About River Farm section of www.ahs.org.

TRAVEL STUDY PROGRAM Visit spectacular private and public gardens around the world through the Society's acclaimed Travel Study Program. For information about upcoming trips, call (703) 768-5700 ext. 127, e-mail development@ahs.org, or visit the Gardening Programs section of www.ahs.org.

WEBSITE: www.ahs.org The AHS website is a valuable source of information about the Society's programs and activities. Users must set up a username and password to access the member's-only sections.

News from the AHS

May / June 2015

PROGRAMS • EVENTS • ANNOUNCEMENTS

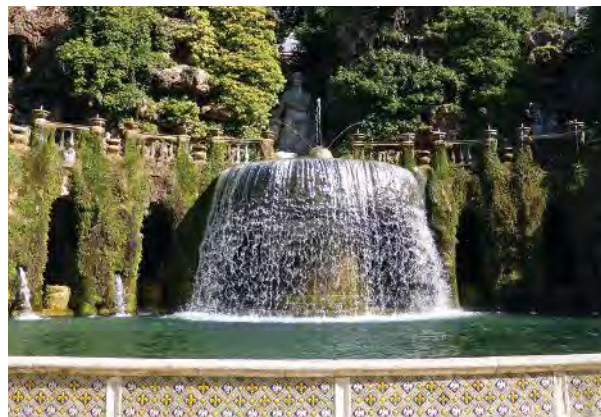
GARDENING ON THE WEB INITIATIVE

AS PART OF its "Gardening on the Web" initiative, the American Horticultural Society (AHS) now produces the *Youth Gardening Gazette* (YGG), an online aggregation of news pertaining to gardens, projects, and research that involve children and youth. This "newspaper" is updated five days a week at http://paper.li/AHS_NCYGS/1404763592 as part of the AHS youth gardening Twitter account, @AHS_ncygs, and it is free to subscribe.

Another new addition to the AHS's online presence is co-hosting a monthly chat on Twitter with its corporate member **Corona Tools** on Mondays at 1 p.m. Eastern time. Use the hashtag #plantchat to "tune in" to the live discussion about various topics, such as gardening with kids on May 18, and roses on June 22. Follow @AHS_gardening on Twitter for more information.

ROMAN HOLIDAY WITH THE AHS

BRUSH UP ON your Italian for the AHS's Travel Study Program, "Gardens In and Around Rome" from October 7 to 15. Among the trip's highlights are the organic



Top: The Tivoli Fountain in the garden at Villa d'Este. Above: St. Peter's Basilica, view from Vatican Gardens.

gardens at the American Academy in Rome; Villa Farnese, perhaps the greatest masterpiece of Italian landscape design; and the romantic Gardens of Ninfa, which is laid out among the ruins of a small town. Also on the itinerary is Landriana, an informal modern garden that was created by the Marchesa Lavinia Taverna, an amateur gardener, with assistance from the notable British designer Russell Page. Many of the gardens on the tour are privately owned and only open by special invitation.

Of course, fine gardens are just one of the glories of Rome. Tour participants will have plenty of opportunities to explore the city's distinguished architecture, renowned works of art, and world-class cuisine.

For example, a visit to one of the city's largest public parks, Villa Borghese, will allow time for strolling the 226-acre grounds, which includes an art gallery featuring masterpieces by Raphael, Caravaggio, Rubens, and Titian.

Tour host **Landon Reeve**, an AHS Board member and owner of one of the country's largest full-service landscaping firms, brings a wealth of knowledge and a passion for horticulture.

Visit www.ahs.org/gardening-programs/travel-study/rome2015 for more information about the trip and to make a reservation.

HORTICULTURAL HORIZONS IN THE HEARTLAND

THE AHS is a sponsor for the 2015 International Master Gardener Conference, which will be held September 22 to 25 in Council Bluffs, Iowa. The event is open not only to active Master Gardeners, but to anyone with an interest in gardening. Jointly coordinated by the University of Nebraska–Lincoln Extension, Nebraska Master Gardeners, Iowa State University Extension, and Iowa State Master Gardeners, the conference will feature numerous tours, more than 70 speakers, an extensive trade show, and a variety of other activities. Visit <http://mastergardener.unl.edu/imgc2015> for more details.

SUNSET CELEBRATION WEEKEND

ON JUNE 6 and 7, the AHS will be represented at Sunset Celebration Weekend at the iconic *Sunset* magazine headquarters and garden in Menlo Park, California. This annual event, which attracts about 20,000 people, is all about West Coast outdoor living, with information and demonstrations on gardening, cooking, wines, home design, and travel. The AHS and its corporate member **Corona Tools** will offer gardening information for Western climates as well as an hourly drawing for special prizes such as memberships and pruning tools.

This year's Celebration Weekend will be the last at Sunset's seven-acre headquarters, designed by renowned western landscape architect Thomas Church. Since 1998, the colorful gardens attracted visitors from around the world. The property now belongs to a real estate development firm and the magazine will move to new offices by the end of 2015.

For more information about the Celebration Weekend, go to www.sunset.com/cw.

SAVE THIS DATE: AHS GALA AT RIVER FARM

THIS YEAR'S AHS Gala will take place on September 19 at the American Horticultural Society's 25-acre River Farm headquarters in Alexandria, Virginia. This year's theme, "Reflections of River Farm: A Step Back in Time," invites guests to take a romantic walk down the garden path of times past and enjoy a delightful evening inspired by the gracious life that prevailed when River Farm was a private residence in the early 20th century. Guests will enjoy a sophisticated, stimulating evening while savoring formal fine dining, conversation, and the opportunity to stroll the gardens at night. Returning this year is the popular silent auction and online auction featuring one-of-a-kind items and tour packages. All proceeds from this event support the stewardship of River Farm and the Society's outreach programs.

For more information about the gala, including sponsorship opportunities, contact **Susan Klejst** at sklejst@ahs.org or at (703) 768-5700 ext. 127.

News written by Editorial Intern Mary S. Chaddock.



AHS NATIONAL EVENTS 2015 CALENDAR

Mark your calendar for these upcoming events that are sponsored or co-sponsored by the AHS. Visit www.ahs.org or call (703) 768-5700 for more information.

- JUNE 4. **Great American Gardeners and AHS Book Awards Ceremony and Banquet.** River Farm, Alexandria, Virginia.
- JUNE 9–21. **Discovering Gardens in the Netherlands.** AHS Travel Study Program.
- JUNE 17–19. **Coalition of American Plant Societies Meeting.** Cleveland, Ohio.
- JUNE 21–25. **President's Council Trip.** Boothbay Harbor, Maine.
- JUNE 25–27. **The Gardeners of America/Men's Garden Clubs of America 2015 National Annual Convention.** Clear Lake, Iowa.
- JULY 9–11. **AHS National Children & Youth Garden Symposium.** Austin, Texas.
- AUG. 14–16. **The Homestead Resort's "In the Garden" Weekend Symposium.** Hot Springs, Virginia.
- SEPT. 19. **Annual AHS Gala.** River Farm, Alexandria, Virginia.
- SEPT. 22–25. **International Master Gardener Conference.** Council Bluffs, Iowa.
- SEPT. 24–26. **America in Bloom Symposium and Awards Program.** Holland, Michigan.
- OCT. 7–15. **Gardens in and Around Rome, Italy.** AHS Travel Study Program.

Gifts of Note

In addition to vital support through membership dues, the American Horticultural Society relies on grants, bequests, and other gifts to support its programs. We would like to thank the following donors for gifts received between March 1 and April 30, 2015.

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AHS NEWS SPECIAL:

National Children & Youth Garden Symposium Heading to Lone Star State

by Ping Honzay



During a tour of the Lady Bird Johnson Wildflower Center, attendees will enjoy the Hill Country Grotto, left, in the Luci and Ian Family Garden, as well as colorful native plantings in the Seed Silo Garden, above.

EACH SUMMER, the American Horticultural Society's National Children & Youth Garden Symposium (NCYGS) takes place in a different city, where participants from all over the country come together to learn about engaging children with plants, gardening, and nature. Austin, the capital of Texas and a renowned hub for cultural and recreational activities, will be the host site for this year's symposium from July 9 to 11.

"People are doing incredible things with kids and gardens all over the country," says AHS Executive Director **Tom Underwood**. "Each symposium is designed to give participants a window into these worlds to inspire their own new or existing efforts. The world-class gardens, programs, and organizations that call Austin home are sure to spark plenty of fresh ideas for this year's NCYGS attendees."

LOCAL EXPLORATIONS

The **Lady Bird Johnson Wildflower Center** and the **International Junior Master Gardener** program are this year's

symposium hosts. Known for its gardens highlighting Texas native plants and its focus on sustainability, the Wildflower Center also actively educates youngsters about horticulture and the environment in a variety of ways. Last year, it opened the Luci and Ian Family Garden, which is designed to encourage nature play and opportunities for learning for kids and their families.

"By introducing children to gardens and gardening," says **Lee Clippard**, direc-

tor of communications for the Wildflower Center, "we open their eyes to unseen worlds full of complexity, rich with biodiversity, and with surprises around every corner." NCYGS attendees will have a chance to explore this garden and enjoy an *alfresco* dinner there during the second evening of the event.

Symposium participants also will get a look at the Junior Master Gardener program's new "Learn, Grow, Eat & GO!" (LGEG) youth gardening and nutrition curriculum. Part of the Texas Cooperative Extension network, this organization provides young people all over the country and world with hands-on learning experiences that promote a love of gardening.

"Learn, Grow, Eat & GO!" is a new kind of garden curriculum," explains **Randy Seagraves**, Extension program specialist and Junior Master Gardener curriculum coordinator. "Created by teachers, it empowers students to understand plants' and peoples' needs and how gardens can provide for both." A track of four sessions at the symposium

NATIONAL CHILDREN & YOUTH GARDEN SYMPOSIUM
JULY 9-11, 2015 • AUSTIN, TX
AMERICAN HORTICULTURAL SOCIETY

For more details about the 2015 symposium and to register, visit the AHS website at www.ahs.org/ncygs. Plus get updates by following @AHS_ncygs on Twitter.

OPTIONAL TRIPS BEFORE AND AFTER THE SYMPOSIUM

Optional pre- and post-symposium tours will showcase a few more of the area's exceptional programs and gardens. On July 8, staff from the **Sustainable Food Center's Grow Local** program will lead attendees on a pre-symposium tour of school and community gardens throughout Austin that the organization works with to provide residents knowledge and resources to grow their own food.



One pre-symposium tour option is the San Antonio Botanical Garden

Another pre-symposium tour option will be a full-day visit to the **San Antonio Botanical Garden**, about an hour-and-a-half southwest of Austin. This garden provides innovative educational programs for children and adults, and is in the midst of a major expansion effort, including a future Family Adventure Garden, that will increase its offerings. In addition to exploring how the garden's resources are used for education, participants will investigate some of the plant world's patterns, angles, and symmetry during a hands-on "math in the garden" workshop.

Capping off the symposium experience on July 11 will be a post-symposium trip to the **Thinkery**, an evolution of the Austin Children's Museum "where people connect with ideas by doing, making, and experiencing." Participants will discover how the Thinkery integrates learning and play with interactive exhibits and educational programming. The evening will conclude with dinner at **Alta's Cafe**, a restaurant that partners with local artisans to provide a unique, environmentally conscious, and delicious menu.

—P.H.

will explore the LGEG curriculum, and attendees will receive their own copies of the curriculum.

INSIGHTS FROM EXPERTS

The symposium also allows an exchange of ideas not typically possible across the diverse disciplines participants represent. For example, school teachers and admin-

istrators gain insight from garden designers and public garden staff forge collaborations with educators to reinforce curricula. More than 50 educational sessions facilitate this exchange, focusing on topics such as garden design, curriculum and activity ideas, program management, and growing practices.

Punctuating these sessions will be three keynote presentations. The first presenta-

tion, by **Lisa Whittlesey** with the Junior Master Gardener program and **Alexandra Evans** with the University of Texas School of Public Health in Houston, will explore the research-based benefits of increasing integration of youth gardening curricula in schools, using the LGEG curriculum as a model. Next, **Whitney Cohen**, education director at California-based Life Lab, will address how school garden programs are changing the nature of education across the country. **Nate Erwin** will present the final keynote, during which he will share insights from his many years of experience as an entomologist, natural history communicator, museum consultant, and habitat rehabilitator.

PLENTY TO OFFER

Austin may be most famous for its South by Southwest music and film festivals and as the home of the University of Texas Longhorns, but the city has a rich gardening and environmental scene that will be on view during this summer's NCYGS. Anyone whose goal is enhancing children's lives through plants and gardens will pick up ideas and inspiration in this vibrant city!



From participating in a variety of plant-themed activities, these elementary school students are learning about edible gardening through the Junior Master Gardener program.

Ping Honzay is the member programs associate with the American Horticultural Society.

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dark, and
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AHS MEMBERS MAKING A DIFFERENCE: John Karel

by Mary S. Chadduck

AN AMERICAN Horticultural Society member since 1998, John Karel traces his passion for the natural world to his father, a devoted vegetable gardener and lover of trees.



John Karel

"We all grew up watching things grow, so nurturing plants is really part of our family legacy," he says. He fondly remembers childhood camping trips and exploring natural areas as a youth, so it not

surprising that his career path reflected these early interests. Karel recently retired after 27 years as director of Tower Grove Park in St. Louis, Missouri.

PRESERVING GREEN SPACE

When Karel joined Tower Grove in 1987, the 289-acre park was in decline. It had been donated to the city in 1868 by Henry Shaw, founder of the adjacent Missouri Botanical Garden, to provide citizens respite from industrialization. During the 1970s and '80s, however, as urbanites relocated to the suburbs, the park's declining revenue led to its decay. Karel orchestrated numerous improvements that brought the park back into alignment with Shaw's original vision.



The renovated Music Stand at Tower Grove, built in 1872, still hosts summer concerts.

Thousands of trees were planted, along with renovations of ponds, fountains, and trails. Karel also added events, such as festivals and a farmers market, to attract more visitors.

The revitalization paid off, with visitor numbers increasing from 500,000 annually at the start of his tenure to more than two million at the time of his retirement last year. "It was an eye-opener for me to really understand at an on-the-ground level the importance of urban parks in the lives of so many people," says Karel. These achievements earned the park National Historic Landmark status and garnered recognition from organizations such as the Garden Club of America and the Sierra Club.

In addition to his work at Tower Grove, Karel has served for more than a decade as board president of the L-A-D Foundation, a nonprofit that protects more than 140,000 acres of natural areas in southeastern Missouri. He is particularly proud of the organization's largest property, Pioneer Forest, located in the Missouri Ozarks. The sustainably managed land "shows conservative forestry is a viable economic program that protects conservation values like wildlife, water quality, and scenic beauty," he says.

MOVING ON

On retirement, Karel moved to St. Genevieve, Missouri, a small town located south of St. Louis. Here he is contemplating additions to his own garden, especially boxwoods, which are one of his favorites. Just as he did during his professional career, he regularly refers to *The American Gardener* for horticultural inspiration and information.

Now, he also has time to work on an updated edition of *Exploring Missouri's Legacy: State Parks and Historic Sites*, a guide to the state's diverse park system that he originally collaborated on in 1992. For this project, Karel is looking forward to revisiting many of the parks mentioned in the book so he can share their attributes with a new generation of nature-lovers.

Mary S. Chadduck is an editorial intern for *The American Gardener*.

COURTESY OF TOWER GROVE PARK (2)

THE AMERICAN
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23RD ANNUAL

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SYMPOSIUM ATTENDEES WILL BE ABLE TO:

- Explore topics ranging from curriculum to program management to garden design and maintenance during three dynamic days of educational sessions, field trips, and expert keynote presentations.
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- Share ideas, success stories, and inspiration with like-minded colleagues from across the nation.

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**Co-hosted by the Lady Bird Johnson Wildflower Center
and the International Junior Master Gardener Program,
with sessions held at the Radisson Austin Downtown**

The American Horticultural Society's National Children & Youth Garden Symposium is a one-of-a-kind event for educators, landscape architects, program coordinators, community leaders, and others dedicated to connecting kids to plants and the natural world. Join us for three days of sharing best practices and achievements in the field of youth gardening education.

The 2015 Symposium will be held in Austin, Texas, in a region rich with gardening history and innovation, as exemplified by local hosts the Lady Bird Johnson Wildflower Center and the International Junior Master Gardener Program. While experiencing Texan local foods and native plants, you'll also gather new tools, activities, and skills to take back home to your own gardening programs.

Gardens can be endless sources of wonder, fun, and imagination for children, as well as invaluable resources for learning about the world around them. Join us as we work to make them a vital and accessible part of every child's life experience.



a Kaleidoscope of Irises

Whether used in starring or supporting roles, irises add zest to a variety of garden styles and situations.

ADAPTABLE, DIVERSE, and alluringly beautiful, irises are among the most colorful perennials gardeners can grow in temperate zones. However, one principal flaw—their relatively short period of bloom—has limited their use in contemporary gardens. In comparison to other perennials with better floral mileage, such as daylilies or coneflowers, the flowers of even the most long-blooming irises last only three weeks on an established clump.

But gardens without ephemeral moments like those featuring irises tend to run together in a season-long blur of the same players slowly wearing out the ensemble. Grown among more persistent perennial companions, irises alleviate monotony in spring and summer gardens with both their flowers and foliage.

FLORAL AND FOLIAR FLAIR

The genus *Iris* contains more than 300 species, a modest number by botanical standards. Yet the diversity within this genus—hailing from far-flung provenances such as the Israeli desert and the swamps of Louisiana—has allowed for an incredible proliferation of garden worthy plants with wide applications in many climates and zones. Irises have an assortment of aesthetic elements to offer, not the least of which are their flowers, wrought in every color of the rainbow except true spectrum red, as well as a dizzying array of patterns, shapes, and forms.

While iris flowers effortlessly inspire fawning admiration from their viewers, the rest of the plant often gets short shrift. Yet



the persistent foliage of irises—grassy in its finest condition and switchblade sharp at its coarsest—can readily serve as a cool green backdrop for bright summer flowers or as a visual disruption between convergent textures. While the foliage of some varieties begins to brown before summer's show is over, when appropriately layered with other perennials, this is a minor nuisance.

Variegation lends even further impact in the garden. Leaves widely margined in silver, yellow, or white on standbys

like *Iris pallida* 'Argentea Variegata' and 'Zebra' turn heads, particularly in mid-summer when the flowers have become just a memory. Modern cultivars like 'Zebra Blueze', a tall bearded iris with ruffled blue flowers, offer wider leaf blades with linear streaks of cream and gold that are particularly vibrant in early spring. Among the newest selections, 'Variegated Wonder' advances the floral impact of variegated irises with more ruffled and rounded blossoms.

for Every Garden

BY KELLY D. NORRIS



Left: The yellow-and-purple hues of 'Loreley' bearded iris in the foreground of Gail Gee's Maryland garden mingle with 'Bartzella' peony to the left of it and 'Carolina Moonlight' baptisia on the right. A few blooms of wine-and-yellow 'Rodeo Girl' tall bearded iris echo the color scheme, while the ruffled dark purple flowers of 'Dusky Challenger' bearded iris add a cool accent. Above: The variegated foliage of *Iris pallida* 'Zebra' gives it extra panache even after its soft purple blooms have faded.

THE MIXED BORDER

Traditionally, irises have played fundamental roles in mixed, predominantly herbaceous borders of gardens in northern latitudes. Irises from the mid-size intermediate bearded all the way through to tall bearded, Siberian, and spurias form robust clumps whose stature determines their placement anywhere from the front to the back of a border.

For example, I've often planted dwarf bearded irises as a vigorous boundary be-

tween a lawn or pathway and an ornamental bed. Here, they combine easily with lower-growing perennials such as nodding columbines (*Aquilegia* spp.) and *Allium schubertii*. Stems of yellow-flowered 'Holden Clough', a mild-mannered hybrid of the invasive yellow flag iris (*I. pseudacorus*, USDA Hardiness Zones 4–9, AHS Heat Zones 9–3), is a perfect mid-border denizen, where its spears of foliage grow up through romping masses of quamash (*Camassia* spp.) or stand

tall behind drifts of Japanese primroses (*Primula japonica*). Ascendant spires of false indigo (*Baptisia* spp.) and clouds of *Thalictrum* 'Black Stockings' layer naturally with the overtly three-dimensional construction of spuria irises, which earn their keep with their relatively long-lasting blooms in colors that are rare in the iris realm—metallic brown, bronze, blazing yellow, and sultry cherry.

Tall bearded irises cheerfully provide spring's final encore when massed toward

the back of the border in front of shrubs like ninebarks (*Physocarpus* spp.) and lilacs (*Syringa* spp.) or underneath the gentle arch of small trees such as redbuds (*Cercis* spp.) or fringe trees (*Chionanthus* spp.). Following on the heels of bearded irises, Siberian irises extend the floral display well into midsummer, adding cool blue hues or colors as rich as the sunrise—bright yellows, warm fruity blends, and gradations in between. Their fine, erect foliage, which in some varieties fades to bright yellow and chartreuse in autumn, adds a contrasting texture.

THE ROCK GARDEN

With the gardening world fascinated lately with plants on a miniature scale, diminutive irises for rock gardens and hypertufa troughs seem poised for a renaissance. The compact size of these species and their hybrids ensure that gardens of all sizes can accommodate even a few clumps of irises.

The group commonly known as Juno irises has a reputation for being difficult to grow. While this is not entirely unfounded—some are best left to collectors with gravel beds under glass—rich soils with good drainage are key to their success. Of the species in this group, *I. bucharica* (Zones 5–9, 9–5) is one of the less challenging ones to grow. With yellow flowers and a common name like corn leaf iris, it should be growing in every corn-belt garden alongside the blues of spring—grape hyacinths (*Muscari* spp.), prostrate veronicas (*Veronica prostrata*), and perennial flax (*Linum perenne*)—for a vintage color pairing. The species is both drought-tolerant and quick to colonize, particularly in soils with superb drainage.

Though not exclusively limited to rock garden culture, the more familiar reticulated irises (*I. reticulata*, Zones 3–9, 9–1) do best in well-drained soils. They mingle well with snowdrops (*Galanthus nivalis*), crocuses, and winter aconites (*Eranthis hyemalis*) in that ephemeral refrain that heralds spring. These bulbous irises can be forced in containers for jolts of easy spring color wherever you need it.

In the bearded iris category, *I. pumila* (Zones 4–9, 9–1) is the natural starting point because it is the primary parent of the races of miniature bearded irises that enjoyed mid-20th-century popularity and even the patronage of their own specialist iris society. In its wild European form, *I.*



'Jesse's Song' is a popular tall bearded iris that produces ruffled blooms in early summer.

pumila has yellow or dark purple flowers. American gardeners became familiar with it as 'Atroviolacea', a sterile 19th-century hybrid that seems to have found its way across eastern and central North America as the country expanded westward. It's a common iris of abandoned homesteads across

the Midwest, often found in the dry shade of eastern juniper (*Juniperus virginiana*), an indicator of where to site it in the garden.

The hybrids—vigorous and floriferous—offer many more colors and additional patterns that contrast arrestingly with perennial groundcovers

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such as creeping phlox (*Phlox subulata*) and wall rock cress (*Arabis alpina* subsp. *caucasica*). Two of my favorite dwarf bearded irises include ‘Flashing Neon’, for its gorgeous chestnut-and-lime-colored flowers, and ‘Trifle’ for its sweet fragrance and exceptional growth. Recent introductions like ‘Keep Off’, with pink-and-violet flowers, and ‘Hot Coals’, a molten orange bicolor, ratchet up the color palette beyond the more common purples, browns, and greenish whites.

THE WOODLAND

Underneath the tree canopy grows a whole assortment of crested irises—beardless irises with a pronounced ridge along the crest of each fall. Chief among this tribe and among the easiest of all irises to grow is dwarf crested iris (*I. cristata*, Zones 4–8, 8–1). This Southeast native flowers freely in dry shade in hues grading in intensity from nearly navy (‘Navy Blue Gem’) to immaculate white (‘Tennessee White’). In

Top: In this rock garden, dwarf irises (*I. pumila*) blend well with other low-growing plants, such as alliums, that have overlapping bloom times. **Bottom:** In addition to varieties with pure white flowers, dwarf crested irises (*I. cristata*), like these at Mt. Cuba Center in Delaware, bloom in all shades of blue.



the groundcover category, few irises grow with such well-mannered abundance.

Unlike their bearded relatives, crested irises generally don’t mind overhead shading. The species naturally assimilates with shady cohorts such as dwarf Solomon’s seal (*Polygonatum humile*) and balm-leaved deadnettle (*Lamium orvala*) and even ferns and sedges. Southern gardeners have likely encountered *I. japonica* (Zones 7–9, 9–7), an Asian cousin of *I. cristata*. Its chief distinction is more delicate, lacy flowers and evergreen foliage with similarly vigorous spread.

Another shade-tolerant Asian species is the Japanese roof iris (*I. tectorum*, Zones 5–9, 9–3). Though it has grown on thatched rooftops in Asia for hundreds of years, a roof isn’t required to grow it. Reaching 12 to 16 inches tall when in bloom, it’s quite content to run along the edge of the shade garden in company with barrenworts (*Epimedium* spp.), woodland phlox (*Phlox divaricata*), and bugleweed

(*Ajuga reptans*). Early summer flowers come in blue, primarily, with lavender and violet stippling. The all-white 'Alba' is an elegant alternative.

An often overlooked iris for shade is *I. koreana* (Zones 5–8, 8–5), a spritely woodland species from northeastern Asia that resembles a dwarf, yellow version of *I. cristata*. It grows well in humus-rich soils and flowers at eight to 10 inches tall. It's ideal along the garden path, where its delicate features may be admired at close range. Over time it will spread to form



The sunny yellow flowers of *Iris koreana* brighten up woodland gardens in spring.

a clump almost four feet wide. It's an amiable companion for epimediums and spring vetch (*Lathyrus vernus*).

IRISES FOR WET PLACES

A great number of irises thrive in wet soils, usually at the margins of bogs or water gardens and rarely under more than a few inches of water. *Iris virginica* (Zones 5–9, 9–5) and *I. versicolor* (Zones 3–9, 9–1) are favorites of native plant enthusiasts for their North American provenance, but I also admire their versatility. They grow equally as well as marginal plants for the water garden and in mixed borders. 'Gerald Darby', a hybrid of the two, is particularly popular, thanks to its purple emergent foliage in early spring. The flowers, intermediate blue in color and slightly larger than those of both parents, join the greening leaves in early summer on lithe purple stems, just as Japanese primroses (*Primula japonica*)



Iris laevigata is one of the few iris species that will grow when submerged in shallow water. It thrives when planted close to the edges of ponds or in consistently moist soil.

come into flower. Even into early autumn, its statuesque clumps remain rigid and upright.

In wet conditions, many gardeners default to *I. fulva* (Zones 7–10, 10–7), the chief among the so-called Louisiana irises. This handsome plant vigorously colonizes the zones where water meets land to form soil-stabilizing belts of lush green foliage up to three feet tall. In mid-spring, it boasts rusty-red-and orange flowers. Cultivars include ‘Lois’, a particularly striking selection with bright yellow flowers.



One of the most classic of water irises, *I. laevis* (Zones 3–9, 9–1) seems strangely absent from American gardens. This Asian native thrives in shallow water, so is perfect for the margins of ponds. It does best in slightly acidic soils (pH 5.5 to 6.0). Its crisp green, two-foot-tall blades give rise to saucer-sized flowers in shades of blue, purple, and white. They are strong players in a diverse and

colorful water garden scene, joining smartweeds (*Polygonum capitatum*) and monkeyflower (*Mimulus ringens*) for a lush and layered presentation.

THE XERIC LANDSCAPE

Aril irises and their hybrids are some of the most arresting and exotic-looking irises. While the arid provenance of their wild ancestors limits the horticultural versatility of arils to an extent, the modern arilbred hybrids (phonetically derived from “aril” and “bearded”) are generally

Another iris with an affinity for drier conditions hails from the interior mountains and plains of Asia. *Iris lactea* (Zones 4–8, 8–1) grows handsome upright foliage, up to 12 inches tall and is adorned in mid-spring with fragrant, steely blue flowers. While drought tolerant and rugged in constitution, it isn’t limited to growing in steppe environments, flowering readily in cold climate gardens with more winter moisture. It flowers early enough to join late-season daffodils and introduce the tide of Oriental poppies (*Papaver ori-*



Left: Native to swampy areas in the southeastern United States, *Iris fulva* boasts rusty red spring blooms that attract hummingbirds. Above: Arilbred irises such as ‘Jallab’ come in a wide variety of eye-catching color combinations and patterns.

entale) that follow it in spring succession. It’s even amenable to treatment as a low hedge, rounding out the corners of beds and borders or flanking a garden gate.

DELIGHTFUL DIVERSITY

Despite their reputation for brief blooming periods, irises keep gardens brimming with interest throughout the season. Starting with the earliest appearance of bulbous reticulated irises and ending with the re-blooming spikes of tall bearded irises late in the autumn, this diverse genus offers literally thousands of possibilities for adding splashes of color and bold textures in a variety of garden conditions.

An author and avid iris grower, Kelly D. Norris is the horticulture manager at the Greater Des Moines Botanical Garden, a 14-acre public garden in Iowa.



Master of Whimsy

With the help of creative and occasionally over-the-top art installations, horticulturist Jason Reeves is not only making people smile, but also getting them interested in gardening. BY LINDA ASKEY

TAKE AN energetic, creative, self-professed country boy, and put him where he has the comforts of home and the pulpit of a garden evangelist. What do you get? In the case of what's been happening at the West Tennessee AgResearch and Education Center in Jackson, the answer is horticultural magic. It is here that Jason Reeves has been crafting a garden and dream-

ing up outlandish art displays that draw thousands of visitors to the center's field day each year.

Although internships took him as far as the Missouri Botanical Garden in St. Louis, Longwood Gardens in Pennsylvania, and even Paloma Gardens in New Zealand, Tennessee has always been home to Reeves. "I was a farm boy," he says, "and I didn't want to go very far away."

Schooled in grounds management and finishing with a master's degree from the University of Tennessee (UT) in ornamental horticulture and landscape design, he became research associate and curator of UT Gardens-Jackson in 2002. Ever since, he has been transforming the garden and grounds with his keen focus, youthful energy, and innovative approach to connecting people with plants.



Opposite page: Jason Reeves stands in front of a 40-foot bottle wall he created at the University of Tennessee’s AgResearch Center garden. This page: The bottle wall, above, and other bottle-themed displays, right, impressed visitors at last year’s Summer Celebration field day.

A GEM IN JACKSON

Despite its proximity to a four-lane highway and more than 67,000 residents, Jackson, which is about 70 miles northeast of Memphis, has that small town feeling where everyone knows their neighbors.

And although the AgResearch Center has been in the community for over 100 years, its programs are the result of continuous updates to accommodate a diverse population. “We are at the interface of modern agriculture and urban living,” explains its director Robert Hayes. “We have our agricultural clientele that come here for information, and then we have urban clientele that we need to serve as well.”

This interface is physically manifested for Reeves each morning on his way into work when he turns onto the long driveway that leads through vast farm fields into the AgResearch Center. The road bends around the main building and runs past curving beds of colorful ornamental



plants, which contrast starkly with the surrounding row crops planted in perfectly straight lines.

He pulls into the parking lot and it is immediately clear that a horticultural adventure awaits. Visitors are exuberantly greeted, not by pedestrian annuals, but by surprising plant choices and combinations, such as the succulent snake plant (*Sansevieria cylindrica*) growing through Dahlberg daisy (*Thymophylla tenuiloba*). As Reeves walks toward the center’s entrance, the planting design becomes more intense. In addition to established trees and shrubs, seasonal containers brim with tropical plants seldom found at local garden centers.

“I call the grounds, especially the parking lot, education by accident,” says Reeves. “There are so many meetings and workshops here throughout the week, not related to ornamentals at all. When you get out of your car to go to a meeting, you see these plants, and they are labeled. You look at them and talk to somebody about them. You photograph them, and you go to a nursery to look for them, so it is education by accident.”

HONING SKILLS

Reeves began working with the AgResearch Center during his breaks from college, when he assisted the staff with the fledgling

HOW TO STRING BOTTLES

The 14-foot-tall bottle “wall” Jason Reeves created for last year’s Summer Celebration was such a big hit that many people wanted to know how to make their own. Here are some tips from Reeves for constructing a smaller version.

- Collect different colored bottles and remove their labels. Alternate them to make the wall more interesting; blue ones are particularly showy, and lime-green ones seem to glow when light hits them.
- Reeves used a 3/16-inch diamond hole saw bit to drill holes in the glass, and threaded the bottles on galvanized aircraft cable. Both can be found at home improvement or farm supply stores.
- A large rectangular metal frame supported the cables, but in a home garden setting, a lumber frame might be easier to construct. At the home where Reeves got the inspiration for his bottle wall, the bottles were strung on rebar supported between a patio deck and an arbor, as shown in the photograph below. —L.A.



Reeves’s idea for the bottle wall came from this one he helped build at a private home.

field day called Summer Celebration. After graduating, he took a job at Randolph’s Greenhouses, a retail nursery in Jackson that is now closed. Former owner Rita Randolph, who hired him, recalls, “I sent him home with some of my printed information sheets about our hostas, grasses, and such, that I gave to customers. I wanted him to get familiar with what we carried. He came back with them all corrected with a red pen.” Having grown up in her family’s business, Randolph says, “I am self-taught as far as horticulture is concerned so I thought, ‘Well good, I’ll learn something from this guy.’ And I did!” She adds laughing, “Then the research center stole him from me!”

When Reeves became a full-time employee at the UT Garden, he joined forces with Ornamental Horticulture Specialist Carol Reese. “Not only is he extremely creative,” she says, “he is extremely organized. He is meticulous about keeping up with where he got plants, when they were planted, and adding them into his plant database.” All of the ingredients were on hand to expand the content and outreach of the garden and its Summer Celebration event. Creative minds, fueled by a passion for their subject, along with the willing hands of volunteers and multi-talented coworkers, need only the time and place to make something great—in spite of a restrictive budget. That is exactly what happened many times over.

The All-America Selections (AAS) Display Garden at the research center is a good example. “Jason was instrumental in getting that garden to become an AAS Display Garden in 2004,” says Diane Blazek, executive director of the Ohio-based AAS. But visitors should not expect to find the classic annual trials of neatly planted rows, partitioned into blocks of contrasting colors for the purpose of taking data.

This trial garden is, well, a garden, complete with curving beds arranged in aesthetically thoughtful combinations. And Reeves is taking data. Meanwhile, gardeners in the region get a double dose of useful information. They not only see what grows well in this USDA Hardiness Zone 7/AHS Heat Zone 7 garden, but get ideas for how to use the plants in their gardens.

In addition to a smorgasbord of colorful annuals, visitors also get the opportunity to experience many other



Reeves guides a group of visitors through the UT–Jackson trial garden during a recent Summer Celebration field day, sharing his observations of how various plants are performing.

dependable yet unusual plants on display in the garden before planting them in their own gardens. For example, Reeves likes to use selections of *Hydrangea paniculata* such as ‘Phantom’ and ‘Silver Dollar’ in sunny spots because not everyone realizes that there are hydrangeas that grow in full sun. And *Illicium parviflorum* ‘Florida Sunshine’, one of his favorites for its evergreen chartreuse foliage, shines in the garden throughout the year. Reeves offers many of these dependable plants at the Summer Celebration plant

sale, and he encourages local nurseries to stock them.

ARTISTIC INNOVATIONS

While the research center’s plants are certainly impressive by themselves, creative art installations augment them, especially during the Summer Celebration events. For the first of these unusual attractions in 2005, Reeves and several volunteers collected 854 men’s neckties and tied them to assorted bamboo structures. The theme? “All Tied Up in Gardening.” It



Each year, Reeves brainstorms with colleagues to develop new themes for the Summer Celebration. This planted sink was part of a kitchen garden theme he created a few years ago.

caught the attention of a local television station, which gave the display some air time, resulting in record attendance. Since then, the annual event has drawn an average of 2,500 attendees.

“The original goal was to get the garden recognized,” Reeves explains. “And I had to do it in a way that didn’t cost money. So I did something crazy. That’s what I still do.”

Reeves also has created a kitchen garden—literally, a kitchen complete with appliances—in the parking lot. Planted pots, pans, sinks, and other items were unusual, but they resulted in an imaginative and highly effective display. And he was just getting started. Another year, bicycles were parked in beds, spray painted colors to complement the flowers, and strung from vertical supports to make a trellis. Yes, that’s right, he made a trellis of bicycles.

Reeves is not just the concept guy; he’s usually the one doing the work as well, assisted by interns and students during the summer. He also works hard for and with the Master Gardener program. He organizes their annual garden tour event, helps them grow plugs into plants for the summer plant sale, and he is a friend. So when he needs something for one of his ambitious projects, the Master Gardeners work hard for him.

The latest creation—a bottle wall for last year’s Summer Celebration—involved rallying the Master Gardeners and others to collect thousands of empty glass bottles. Inspiration struck Reeves while helping Kayo and Helen Mullins, who are both retired from the AgResearch Center and are active Master Gardeners, construct a curtain of bottles set into the wooden framework of their deck and arbor. An idea for something much bigger took root in his imagination. The staff at the AgResearch Center welded large frames together and drilled holes in scores of colorful wine and water bottles so that a steel cable could be used to string them aloft. (For tips on how to do this in your own garden, see the sidebar on page 22.)

The bottle theme spilled into other areas, including the parking lot and entrance. Bottle chandeliers, over a dozen bottle trees, and even bottle dragonflies sprung up around the garden. Little bottles hanging in the trees came from a chance sighting of discarded lab equipment placed by a dumpster. Reeves filled them with windshield wiper fluid in various colors to make

the clear bottles more interesting. These bottles remained all winter, sparkling in the late afternoon sun.

The bottle theme was such a success that it will once again be the centerpiece of the 2015 Summer Celebration (see box below).

“Jason is really creative, innovative, and bold,” says Felder Rushing, a Mississippi-based gardening author, lecturer, and radio show host well known for his own interest in unconventional garden art. “He goes way overboard with quirky stuff in a way that makes people smile and draws them into the garden. In a sense, he almost lulls them into learning.”

CREATIVE SPARKS

Reeves, who’s 40 but looks younger, seems energized rather than exhausted by all that he does. How, you might ask, did he go

Road Trip to Tennessee

If you will be traveling anywhere near Jackson, Tennessee, this summer, consider timing your trip to coincide with this year’s Summer Celebration, titled “Bees, Birds, Butterflies & Bottles,” slated for July 9 from 10 a.m. to 6 p.m. Admission is \$5 for adults, free for children 17 and under. For details, visit <http://west.tennessee.edu/events/SummerCeleb.asp>.

from the pragmatic priorities of growing up on a small farm, to become this tireless innovator, the spark plug for the garden at UT–Jackson? What inspires him?

Reeves says that his parents always encouraged him, but his deep love of gardening was sparked by a visit with his grandmother to her friend Jerlene Riley, who lived about a half hour’s drive from his family farm. “It was just a country home and garden, with lots of flowers in the yard and in the vegetable garden,” he recalls. “When I would go over there, I would be intrigued by it all.”

When he was old enough to drive, he continued visiting her on his own. “We began going to nurseries together,” he says. “As seed catalogs arrived, we would spend time over the phone talking through them. She shared seeds and plants with me.” Reeves was in New Zealand when she passed away suddenly. “She had a wonderful life and died in her garden,” he says with admiration.



Top: Bicycles strung on cables and used as trellises highlighted another Summer Celebration field day. **Above:** For visitors, inspiration starts in the UT Gardens’ parking lot, where Reeves puts together attention-grabbing combinations of annuals, perennials, grasses, and shrubs.

According to Rick Pudwell, director of horticulture and outreach at the Memphis Botanic Garden in Tennessee, another source of inspiration for Reeves is his extensive travels to gardens around the world. “He takes what he sees, then uses it in his own way,” says Pudwell. “We’ve picked up quite a few tips from him over the years.”

Of course, Reeves’s innate self-starting work ethic and artistic eye has a lot to do with his success, notes his longtime co-worker Reese. “Anyone who gets to

know him recognizes the genius and the layers and layers of knowledge he has built up over the years,” she says. AgResearch Center Director Hayes agrees. “Jason is like the Energizer bunny,” he says with a laugh. “I’m just glad he works for me, and not me for him.”

Linda Askey writes and lectures about gardening techniques and experiences. A member of this magazine’s editorial advisory board, she lives in Birmingham, Alabama.

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Classic Hydrangeas

If you're having trouble choosing from among the myriad mophead and lacecap hydrangeas, you'll appreciate these recommendations for top-performing selections. BY ANDREW BUNTING

HYDRANGEAS ARE a large, diverse, and very ornamental genus, too large to tackle in a single article. In last year's May/June issue of this magazine, I wrote about *Hydrangea arborescens*, *H. paniculata*, and *H. quercifolia*. This time, my focus is the long-popular bigleaf hydrangea (*H. macrophylla*) and its closely allied, diminutive relative, the mountain hydrangea (*H. serrata*).

I don't think it's an overstatement to suggest that bigleaf hydrangeas are the most revered flowering shrubs in American gardens, thriving across much of the United States except in regions that receive little summer rainfall. Cold tolerance limits their northern range, but there are selections with exceptional hardiness for colder regions. Cultivars of the hardier mountain hydrangea are proving to be good alternatives, too.

SPECIES OVERVIEW

The precise relationship between mountain and bigleaf hydrangeas is debatable. Some references list mountain hydrangea as a subspecies of bigleaf hydrangea. Others, such as Michael Dirr's *Hydrangeas for American Gardens* (see "Resources," page 31), categorize them as two distinct species. I concur with Dirr's view that there are enough botanical and morphological differences to warrant separate species, so



Opposite: Introduction of reblooming Endless Summer® hydrangea in 2004 helped renew interest in hydrangeas. Above: 'Izu-no-hana' is a lacecap that grows to about four feet tall and wide.

am treating them as such in this article.

The bigleaf hydrangea (USDA Hardiness Zones 6–9, AHS Heat Zones 9–6) is the larger and more robust of the two species. Native to Japan, it can reach up to six or seven feet tall with an equal spread. The leaves are typically dark green, glossy, and up to eight inches long. The flower heads come in two distinct forms, which is an important characteristic when choosing selections.

Bigleaf hydrangeas were quite popular during the 1930s and 1940s but subsequently came to be viewed as “old-fashioned.” The resurgence in their popularity over the last decade or so is probably attributable to two

converging events. About 15 years ago, the plant was featured in *Martha Stewart Living* magazine. Literally overnight, there was an explosion of new interest in hydrangeas. And in 2004, Bailey Nurseries, based in St. Paul, Minnesota, introduced a selection called Endless Summer® (“Bailmer”). In addition to blooming on stems of the previous season like other bigleaf hydrangeas, this selection also blooms on the new season’s growth, which means it will still produce flowers even if the older stems are killed by frost or removed by overzealous gardeners. It became widely popular thanks to an energetic marketing campaign, and to date,

more than 20 million of them have been sold worldwide.

Native to Japan and Korea, the mountain hydrangea (Zones 6–10, 10–6) is more refined and compact than *H. macrophylla* in every respect. “The demure lacecaps of the mountain hydrangea are understated, in fact precious, especially when compared to those bred with a bigger-is-better mentality,” says plantsman Dan Hinkley, who consults for Monrovia nursery in Azusa, California.

Mark Weathington, director of the JC Raulston Arboretum in Raleigh, North Carolina, adds that “the small size and

BLUE OR PINK?

One of the questions we get most often at the Scott Arboretum, where I work, goes something like this: “Why is my ‘Forever Pink’ hydrangea blue?” Hydrangeas with blue or pink flowers can be either color depending on the amount of available aluminum in the soil. (White flowers usually stay white regardless of soil type.) In soils that are acidic (pH less than 6), aluminum is available to plants and the hydrangea flower color will be blue or purple; in soils where the pH is greater than 6, the aluminum is less available and the blue flowers will be pink; purple flowers will be reddish pink. Aluminum sulfate can be added to an alkaline soil to make pink hydrangea flowers turn blue.

—A.B.

smaller leaf fit well in almost any garden.” At maturity, most selections will reach three to five feet tall with a slender habit. The leaves are two to six inches long and up to two-and-a-half inches wide.

HYDRANGEA HARDINESS

Assessing cold tolerance among cultivars of *H. macrophylla* is complex. Because they tend to go dormant late in the fall, their buds may be damaged by an early freeze. They also tend to break dormancy early in the spring, so a late cold snap, especially one following several days of unseasonably warm weather, also can kill new growth and put flower buds at risk. Because most selections bloom on the previous season’s wood, these conditions often reduce or eliminate flowering the following summer, even though the hydrangea’s roots may survive.

In general, mountain hydrangea is considerably more hardy than its relative. After the winter of 2013–2014, for example, I observed that around Philadelphia, where I live, every bigleaf hydrangea was killed to the ground and very few flowered the subsequent summer. Most mountain hydrangeas, on the other hand, were undaunted.

Several hydrangea selections are considered remontant, a term used to describe plants that bloom on existing growth from the previous year as well as on the current season's growth. This

blue flower head. Selections with this type of bloom are referred to as mopheads or hortensias; this is the most common flower form of *H. macrophylla*. The showy parts of the mophead are sterile florets, the fertile parts of the flower are buried underneath the sterile florets.

Some cultivars produce a different flower type called the lacecap; these have flattened flower heads with delicate, fertile, interior flowers and larger, showier, sterile florets around the perimeter. Both *H. macrophylla* and *H. serrata* can produce either

soil pH and its influence on the availability of aluminum (see “Blue or Pink?”, page 27). Unless mentioned otherwise, I will describe the flower color of the cultivars based on a more acidic soil. It is important to remember, however, that many of these colors will change depending on soil pH.

SMALLER MOPHEADS

The stature of some of the larger cultivars of *H. macrophylla* can be overwhelming in a small garden. However, ‘Perfection’ grows only two to three feet tall, with blue-purple



When grouped, hydrangeas can be landscape showstoppers. Here ‘Blue Billow’, left, and ‘Nikko Blue’, right, partner to great effect.

desirable quality is found in certain hydrangea cultivars, such as the previously mentioned Endless Summer®, resulting in a longer blooming season. Because they produce flowers on the current season's growth, remontant cultivars offer more reliable blooming for regions where cold temperature damage to previous season's buds may occur.

FLOWER TYPES AND COLOR

When conjuring an image of the quintessential hydrangea, many gardeners will picture a flamboyantly large, rounded,

mophead or lacecap flowers. However, few *H. serrata* mophead selections are available in this country.

To distill this very large group of hydrangeas to a manageable size for this article, I queried experts from both coasts and several locations in between about their favorites. I will start with the mopheads, listing them by size of plants small to large, and follow with the lacecaps in the same manner. (For more recommended cultivars, see the chart on page 30.)

Regardless of flower type, the color of hydrangea blooms is generally a function of the

flowers. Although Weathington admits he is partial to lacecaps, he says, “‘Perfection’ is an amazing, double-flowered mophead with huge flower clusters and intense color. It has become a real favorite of mine.”

‘Lemon Daddy’, from Atlanta-based hydrangea breeder Ozzie Johnson, has bright golden foliage and grows to three feet tall and five feet wide. Tony Avent, owner of Plant Delights Nursery in Raleigh, North Carolina, finds its foliage so ornamental that he says, “I’d grow it even if it never flowered.” Best leaf coloring will occur in part shade; too much sun will

cause the leaves to fade. Newly emerging flowers are white, then fade to blue.

Flowers of 'Ami Pasquier' are smoky purple in acidic soils. It reaches three to four feet at maturity. Slightly larger, but still compact is the lesser known 'Mathilda Gutges'. The intense violet-blue flowers have a white center. Hydrangea collector Ray Sutton, who grows it in his garden in Kentucky, describes the color of its flowers as "one of the strongest blues or purples in the world."

Also on the smaller side are the selections in the Endless Summer® series, all of which are remontant. Endless Summer® The Original, with its classic blue hortensia flowers, was the first of the series to be released. Endless Summer® Bloom Struck has violet-purple flowers with white centers that sit atop reddish stems. While it thrives in colder climates, it has also exhibited excellent heat tolerance. Both of these grow three to four feet tall with a four- to five-foot spread. Endless Summer® Blushing Bride has flowers that emerge white and fade to a soft pink on plants that mature to three to five feet tall and wide.

LARGE MOPHEADS

There are several robust *H. macrophylla* cultivars with mophead blooms. They range in size between four and six feet tall with an equal spread. Two popular cultivars are 'Nikko Blue', which bears large, sky blue flowers, and remontant 'Penny Mac', which has deep violet-blue flowers.

'Ayesha' gets top marks from Brian O'Neil, director of horticulture at the Norfolk Botanical Garden in Virginia. "In our area, 'Ayesha' always seems to recover quickly and vigorously from the onslaughts of winter. Its spoon-shaped, slightly fragrant flowers set it apart from other cultivars," he says. Each of the florets, which open creamy white and deepen to pale blue, is "cupped," giving it an interesting textural quality.

'Frillibet' is one my favorite mopheads. The violet-blue florets look as if they have been cut with pinking shears. 'Nigra' has smaller violet-blue flower heads, with the added attribute of striking black stems.

'Preziosa' is thought to be a hybrid between *H. serrata* and *H. macrophylla* and exhibits intermediate qualities of both. The small mophead flowers transform from white to pink to red. This is one of the very few pink-flowering hydrangeas that will re-



Top: A hybrid between bigleaf and mountain hydrangea, 'Preziosa' has elegant flowers and is also valued for its maroon stems. Above: 'Frillibet' features petals with toothed edges.

MORE GARDEN-WORTHY HYDRANGEAS

Cultivar Name	Height/Spread (feet)	Flower Color*/Type	Comments
<i>Hydrangea macrophylla</i>			
'All Summer Beauty'	3-4/3-5	Large violet-blue flowers/mophead	Remontant bloomer, free flowering, compact habit
'Beauté Vendômoise'	5-6/4	Pale blue, loosely structured flower heads/lacecap	Profuse bloomer
Endless Summer® 'Twist-n-Shout'	3-5/3-5	Periwinkle blue/lacecap	Remontant bloomer, rounded
'Générale Vicomtesse de Vibraye'	4-6/4-6	Large, sky blue/mophead	Remontant heirloom selection, good for cut flowers
'Izu-no-hana'	3-4/3-4	Violet-blue double flowers/lacecap	Glossy green leaves
'Lanarth White'	3-4/4	Pure white outer florets surround pale blue inner florets/lacecap	Good choice for colder regions
'Madame Emile Mouillère'	4-6/4-6	White bracts with blue eye/mophead	Remontant, good choice for colder regions, attractive fall foliage color
<i>Hydrangea serrata</i>			
'Blue Billow'	3-4/3	Outer florets light blue, inner fertile flowers dark blue/lacecap	Good choice for colder regions; tolerates shade
'Golden Sunlight'	2-3/2-3	Outer florets white, inner fertile flowers lavender-blue/lacecap	Leaves emerge lemon yellow, mature to light green
'Kiyosumi'	3-4/3-4	White outer florets edged in reddish pink, pink inner florets/lacecap	Burgundy new growth
'Kokonoe Yama'	2-3/3-4	Delicate, light blue/lacecap	Bright green leaves with prominent white speckling
'Omacha Nishiki' (syn. 'O-amacha Nishiki')	2-4/4-6	Soft blue/lacecap	Light yellow-and-green variegated foliage, which may turn red in fall
'Tiara'	3-4/4	Mauve to blue/lacecap	New foliage has purple-red blush; very floriferous

*Flower color is given for acidic soil unless otherwise stated.

main pink regardless of the soil pH. The leaves are more refined than many of the larger-leaved *H. macrophylla* cultivars and have an attractive flush of red; the stems are maroon. It is also hardier than most *H. macrophylla* cultivars, surviving in Zone 5.

SMALLER LACECAPS

Hydrangea macrophylla Let's Dance® Diva! (SMHMLDD) only reaches two to three feet tall at maturity, making it the perfect lacecap hydrangea for small gardens. The large dinner-plate-size flowers are soft blue in acidic soils. This remontant hydrangea is a good choice for regions where winter dieback occurs.

Most *H. serrata* selections available in this country are lacecaps, and the following ones are a few of the best. Maturing at less than two feet is the remontant Tiny Tuff Stuff™ (MAKD), which, according to Alan Branhagen, director of horticulture at Powell Gardens in Kingsville,



A double-flowered lacecap, 'Miyama-yaemurasaki' is sometimes listed as 'Purple Tiers'.

Missouri, lives up to its name. "It is the top performer here in our erratic climate, which alternates between warm and cold all through the winter," he says. The flat-faced flowers have blue sterile outer florets with the same colored smaller fertile flowers in the center.

'Blue Deckle', with its robin's-egg blue flowers, is a favorite of Mal Condon, owner of Hydrangea Farm Nursery in Yarmouth Port, Massachusetts. "Rare for serratas," he notes, "it will develop some additional blooms in September here, and typically on new wood."

Ozzie Johnson is partial to 'Kurenai' for its "ever-evolving white to pink to deep pink to burgundy aging process." A petite selection, it has three-bracted, sterile florets rather than the typical four. The foliage develops red tones.

'Iyo-no-usuzumi' has small heads of intense blue flowers. It is one of Hinkley's favorite hydrangeas for the Pacific



Top: Blue Wave lacecap hydrangea and mahonia grow well together in this Pacific Northwest garden. Above: The dark pink-to-violet flowers of 'Fasan' offer a change from the standard pink.

Northwest. As he describes it, “Dense, three-foot mounds of deep green foliage are smothered in bicolor purple-mauve corymbs in early summer, transitioning to purple black as they age.”

‘Summer Frost’, an Ozzie Johnson introduction, is slightly larger, topping out at five feet tall. “The new growth becomes creamy white, giving a second season of interest,” says Johnson. This hydrangea will definitely brighten a dark spot in the garden!

There are several *H. serrata* cultivars that produce double flowers. While technically considered lacecaps, the floral display has a distinct tiered effect. ‘Shirofuji’ bears white flowers that fade to soft pink. ‘Chiri-san-sue’ produces a domed head of soft blue double flowers. ‘Miyama-yae-murasaki’ is my favorite, growing about five feet tall and wide and has intense blue, violet, or pink flowers. Its sterile florets have unusually long pedicels, imparting a lovely floating effect.

Sources

Hydrangea Farm Nursery, Yarmouth Port, MA. (508) 221-8206.

www.hydrangeafarm.com.

Hydrangeas Plus, Aurora, OR. (866) 433-7896.

www.hydrangeasplus.com.

Wilkerson Mill Gardens, Chattahoochee Hills, GA. (770) 463-2400.

www.hydrangea.com.

Resources

The American Hydrangea Society Inc., www.americanhydrangeasociety.org.

Complete Hydrangeas by Glyn Church. Firefly Books, Richmond Hill, ON, Canada, 2007.

Hydrangeas for American Gardens by Michael A. Dirr. Timber Press, Portland, OR, 2004.

LARGER LACECAPS

Several lacecap hydrangeas, all *H. macrophylla*, can reach up to seven feet tall. Maturing to a height of about six feet, with the potential of a 12-foot spread, ‘Veitchii’ is the “perfect hydrangea for making a statement in the garden,” says Avent. Its clusters of blue flowers are surrounded by white outer bracts. Blue Wave (‘Mariesii Perfecta’) is another striking six-footer with blue lacecaps in most soils.

One of Johnson’s favorites for the South is ‘Fasan’. Developed in Switzerland, it grows up to six feet tall and wide and has stunning violet-purple flowers. Introduced in 1904, ‘Lilacina’ is a six-footer that has soft-blue outer florets with serrated edges that glow against the deeper blue fertile flowers in the center. “Even though it is an old variety, ‘Lilacina’ is still one of the best,” says O’Neil.

MANY MORE CHOICES

There are hundreds more selections of bigleaf and mountain hydrangeas; this review barely scratches the surface. Selecting cultivars to include in your landscape can be daunting, but the dramatic blooms throughout the summer will make the effort well worth it.

Andrew Bunting is curator at the Scott Arboretum of Swarthmore College in Swarthmore, Pennsylvania.



from Hardscape *to* Oasis

No yard? No problem. With a little imagination and know-how, you can create lush gardens on places like patios, balconies, and rooftops.

BY LYNN FELICI-GALLANT

AS GREEN-THUMBED Baby Boomers begin to downsize and apartment-dwelling Millennials catch the gardening bug, hardscaped areas such as patios, balconies, and rooftops are increasingly being used as primary gardening space. But rather than seeing this as a limitation, gardeners and designers are getting creative, finding ways to transform often uninviting spaces into bountiful oases. Here are some tips and tricks to get you started.



Opposite: In this Pacific Northwest patio garden, containers of dwarf conifers and Japanese maples help define separate dining and seating areas. This page: A variety of colorful containers creates a warm welcome on the front steps to Brian Coleman's Seattle, Washington, home.

DESIGN CONSIDERATIONS

In designing any small garden, the first and most important consideration is coming to terms with how you intend to use it. “Defining the way you want to use the space will dictate the garden experience,” says Deborah Trickett, container garden designer and owner of the Captured Garden in Boston, Massachusetts.

Things to keep in mind when creating terrace, balcony, or rooftop gardens include: Do you want to entertain friends or is the area to be a private refuge? Would you like to grow edibles to use in cooking, or do you simply want to screen the neighbors? Is the view an asset, or an impediment? Are there unattractive features that must be disguised, such as an air conditioning unit or gutters? Your responses to questions like these will drive your design and plant choices.

For instance, if you want the area simply to be a serene spot to sip coffee before work or a glass of wine afterwards, you’ll want to focus on necessities—a chair or two, a table, and a few plants in containers to soften the hardscape.

Above right: Even the smallest spaces can accommodate an abundance of plants, such as these edibles in traditional pots and repurposed containers of all sizes. **Below right:** In this design by Pot, Inc., an Adirondack chair surrounded by containers becomes a quiet nook to cast off the stress of a busy day.

On the other end of the spectrum, if your intention is to mimic a conventional garden or have an area for entertaining multiple guests, you may opt to create different rooms linked by pathways to encourage flow from one area to another and set off by appropriate plantings and decor.

In one client’s Boston rooftop garden, Trickett divided the area into four distinct rooms: a breakfast nook; a dining area; a utility area with a grill and potting bench; and a quiet space with a firepit. She connected each room with a curving walkway edged with crushed stone. Strategic placement of containers and plants of varying heights screened the view between rooms, creating the impression of a larger area.

But you don’t need a vast rooftop to achieve the same result. You can delineate garden rooms in even the smallest of terraces or balconies. Freestanding vertically planted walls, fencing, or trellises can be





LOOK BEFORE YOU LEAP

Compared to an in-ground garden, creating a garden on a setting like a terrace, balcony, or rooftop entails its own set of practical considerations. Sketching out a plan for the area that includes not only plants and containers, but other outdoor living items you hope to include—like furniture, sculptures, decking, or trellises—will reveal a tremendous amount about your options and limitations. With your sketch in hand, here are a few important things to think about before adding a single item to the space.

Permissions and Precautions If you live in a condominium or apartment, investigate whether you need permission from the condominium association or landlord to create your garden or if your plan needs to be reviewed. Similarly, if you anticipate adding heavy plants, containers, or artwork to a rooftop or balcony, you may need to have a structural engineer confirm that the area can sustain the weight of these materials.

Factor in Climate and Exposure Take time to assess the light exposure and heat in the space, as well as how exposed it is to prevailing winds. Wind in particular can wreak more havoc on a balcony or rooftop garden than it would on a ground-level garden. And in regions with cold winters, it is also critical to understand the way snow might be captured on a roof or balcony so that you can consider its effect in terms of weight on plant or container selection.

Lugging Logistics If you need to use stairs or an elevator, think ahead about the weight of the items and whether you can do the work yourself. Make sure to measure doors and windows to determine if they are large enough to fit furniture or larger plants through them. And if you are bringing plants and soil or mulch through an apartment or home, lay down tarps or dropcloths to reduce overall cleanup and prevent scuffing of the floors.

—L.F.-G.

Large planters filled with ornamental grasses, trees, and shrubs create a sense of privacy on this rooftop dining area while still allowing occupants to enjoy the view.

used to separate one area from another; obelisks, furniture, and rugs might divide garden areas; and tile or stone paths can send you in a new direction.

VIEWS AND STYLE

Because a small hardscaped area—particularly if it is several floors aboveground—might be your only connection to the outside, it is especially important to consider the view from the inside. Trickett likes to study the space from the inside before even stepping outdoors. “These views set the tone for the garden,” she says. “Just as you want to ask yourself the purpose for the garden, think ahead about marrying décor, style, colors, and even objects of art indoors and out.”

Similarly, Baylor Chapman, designer and owner of Lila B. in San Francisco, notes this is the stage at which you decide upon style. You should ask yourself: Is your style rustic? Hip? Modern? Or classic? The containers and features you choose for the garden will often be tied to your interior design aesthetic, though Chapman recom-



On exposed urban hardscapes such as this rooftop, cacti, succulents, and other drought-tolerant plants make good choices.

mends you “slip in other styles to add interest to an outside space.” Decisions about style should be made early in the design process to guide other choices.

CONTAINER AND PLANT CHOICES

Containers are key players when gardening on hardscape. However, there’s “no need to be tied to traditional pottery for vessels,” says Chapman, who likes to shake things up a bit. She suggests “scouting around for other plant hosts such as a rectangular copper sink that is lighter than cast iron or stone.”

Keep in mind, however, that weight is a primary consideration when contemplating a terrace, balcony, or rooftop garden. (See “Look Before You Leap” on page 35.) It’s a good idea to choose containers made from lighter materials, such as fiberglass or resin. There are now many attractive lightweight containers on the market that have the look of stone, ceramic, or terra cotta.

Another strategy Chapman suggests is putting large containers on wheels for ease of movement. “It also allows for flexibility in design,” she says. “You can roll pots around to change a look or to take advantage of light changes during different seasons.”

Watering is always a concern when gardening, especially on hardscape. How fast will containers dry out? How will the water drain? Will water drip onto a neighbor’s bal-

cony or damage the hardscape materials on a terrace? And thinking through issues such as the location of your water source and how you’ll transport water from it to your containers will avoid problems later.

Your choice of containers will have an impact on water retention. Self-watering



Where space is extremely limited, an exuberant mix of plants in a single container, such as this one created by landscape designer Todd Holloway of Pot, Inc., can make a big impact.

containers stay moist longer than terra cotta and coco-lined hanging planters, for example, which are notorious for drying out quickly. And, of course, the smaller the container, the faster it will dry out.

Choose plants wisely, as well. Unless you are home often enough to replenish the water, eschew moisture-loving plants. Instead, seek out drought-tolerant and water-wise plants, such as succulents. (For a list of plants suggested by Trickett and Chapman, click on the web special linked to this article.) This is especially true for windswept and exposed areas. Remember to mulch your containers to help them retain water.

ENJOYING YOUR OASIS

Once you have taken into consideration all of these factors, a balcony or rooftop may present even greater opportunities to build the garden of your dreams than a ground-level yard. This is especially true in an urban area, notes Chapman. “My garden softens some of the urbanness of my neighborhood,” she says, “it’s a little natural oasis off the street.” As you begin to create your own little oasis, instead of letting a lack of soil deter you, embrace the world of possibilities it presents.

A freelance writer and former editor with Fine Gardening, Lynn Felici-Gallant lives in New Milford, Connecticut.



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The Yucca and Its Moth

by George Ellison

MOST OF us are familiar with yuccas, a genus of showy and often statuesque plants that grow in many American gardens. Yet the tiny white yucca moth, which plays a key role in the yucca plant's ability to survive, is almost unknown. For about 40 million years now, neither the plant nor the moth have been able to manage without one another. Their relationship has become a textbook example of a significant concept biologists term "obligate mutualism."

There are two types of mutualism. The more common is facultative or discretionary mutualism, whereby interacting species derive benefit without being fully dependent. For example, many plants produce fruits that are sought out by migrating birds. In return for food, the birds distribute seeds far and wide. While both plants and animals benefit, the birds do have other foods and the plants can disperse seeds by other means. In obligate mutualism, however, the interacting species are interdependent and cannot survive without each other. The yucca plant-moth relationship has been cited as an example of this process for some 150 years. (For more about the man who discovered this phenomenon, see the sidebar on page 40.)

THE GENUS YUCCA

Part of the asparagus family (Asparagaceae) along with agaves and false yuccas (*Hesperaloe* spp.), the genus *Yucca* contains 40 to 50 species. Yuccas occupy a wide range of habitats throughout the eastern United States across Texas into the southern Rockies, westward to the Pacific, north through the Great Plains to Canada, and south through Mexico into Central America.

The numerous yuccas west of the Mississippi include trunk-forming species like the Joshua tree (*Yucca brevifolia*) and the lovely blue yucca (*Y. rigida*), which displays luminous blue-gray leaves that make it one



Fragrant yucca flowers open in the evening to attract their specific moth pollinator.

of the most attractive yuccas. The dominant species in eastern states is Adam's needle (*Y. filamentosa*). These native yuccas, along with their many cultivars, offer a dramatic, architectural element in garden design.

The stately Adam's needle is striking year-round due to the sturdy, sharply pointed, evergreen cluster of leathery basal leaves edged with a delicate fringe of threadlike hairs. But it's from late spring

into early summer, when clusters of 50 or more nodding, waxy-white flowers appear on a woody stalk, that the plant really comes into its own.

In western North Carolina, where I reside, the distinctive habit of yuccas seems a bit incongruous among our diverse flora. I have wondered if, rather than being native to the eastern woodlands region, yuccas were introduced by early Native Americans,

since they are such a useful plant as both a fiber source and soap-producing agent. But scientific observations suggest that both plant and moth have been slowly adapting to climate and habitat changes and moving northward of their own volition.

INTIMATE PARTNERSHIP

Each yucca species must be pollinated by a species of either *Tegeticula* or *Parategeticula* from the insect family Prodoxidae. Adam's needle is pollinated by *T. yuccasella*, which has a grayish-white upper body and bronze under-wing margins that blend perfectly with the interior portions of the yucca flow-

Resources

Agaves, Yuccas, and Related Plants by Mary and Gary Irish. Timber Press, Portland, OR, 2000.

The Natural History of Pollination by Michael Proctor, Peter Yeo, and Andrew Lack. Timber Press, Portland, OR, 2003.

er. A very distinctive feature of species in the genus *Tegeticula* is the presence of several tentacles around the mouth that serve an important pollination function.

Inside a yucca's bell-shaped flowers, you will note the six pollen-tipped male stamens that surround the central female pistil. These are much lower than and angled away from the stigmatic cup, which hinders self-pollination. On the exposed end of the pistil, the pollen-receiving stigma flares to make a little cup with a hole at the bottom.

The female yucca moth visits a yucca flower, which is both conspicuous and fragrant at night, and gathers grains of pollen from the anthers. She rolls them into a small ball, which she tucks under her head, then flies to another flower on a different plant. After depositing her eggs inside the ovary at the base of the flower, she proceeds to the other end of the pistil and carefully packs the pollen ball into the cup using the tentacles surrounding her mouth. Germinating pollen grains send sperm-bearing tubes into the ovary, resulting in the fertilization of hundreds of immature seeds.

The developing larvae in the ovary consume a portion of the ripening yucca seeds, always leaving more than enough

THE MAN WHO SOLVED THE MOTH MYSTERY

The scientist credited with documenting the unique relationship between the yucca and the yucca moth is Charles Valentine Riley (1843–1895), a British born entomologist who contributed much to the advancement of the systematic study of insects of economic significance in the United States.



Charles Valentine Riley is shown at his microscope in this circa 1873 photo.

Riley started his career as state entomologist for Missouri in 1868, then became chief of the U.S. Entomological Commission established in 1877. Following the commission's successful research on a locust plague that had devastated vegetation in the Midwest and West, in 1878 Riley was appointed chief entomologist of the U.S. Department of Agriculture. The first of Riley's many published research papers about the fertilization of yucca plants appeared in the *Transactions of the Academy of Science of St. Louis* in 1873. Riley's insight into the relationship between the two organisms was influenced by the theory of evolution, which had rocked the scientific world following publication of Charles Darwin's seminal *Origin of the Species* over a decade earlier. In an article published in *American Entomologist* in 2004, Carol A. Sheppard and Richard A. Oliver noted that during this period the "revolutionary theory of descent with modification was undergoing vigorous debate, in part because scientists questioned the significance of the role played by natural selection ... Riley rebutted the criticism of many of his colleagues and friends who questioned the validity of the theory. He touted the yucca plant–yucca moth relationship as an example of Darwinian evolution; and, as the decades passed, Riley's name and this storied case of plant–insect mutualism became conjoined." —G.E.



Camouflaged to blend with yucca flowers, the tiny moths are less than half an inch long.

to ensure an adequate supply of seeds for plant reproduction.

Within a few weeks, fully grown larvae exit the seedpod, drop to the ground, bury themselves, and form a silken cocoon in which they stay until spring. Some larvae remain dormant for more than a year so that if the yucca fails to bloom one year—because of adverse weather conditions or

other factors—there will still be yucca moths around. When the yuccas bloom again, the adult moths emerge from the cocoons, mate—after which the male dies—and reinitiate the cycle.

An examination of individual yucca flowers will usually turn up one or more yucca moths per plant. After the seedpods form, a close look will reveal indentations where the ovipositor was inserted. Later in the season, the mature seedpods will display tiny escape holes drilled by the larvae.

ADMIRING NATURE

No one knows for certain how this mutually beneficial relationship got started, but those of us who have yuccas in our gardens, or enjoy them in the wild, can appreciate the result. 🐛

Freelance writer George Ellison and his wife, Elizabeth, an illustrator, live in Asheville, North Carolina.

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Fighting Pests Naturally with Beneficial Insects

by Scott Aker

ONE OF THE things that I enjoy most when working in the garden is all of the insects I encounter, especially the beneficial ones. Most gardeners are familiar with creatures like ladybird beetles (popularly but incorrectly referred to as ladybugs) and praying mantids. Yet these hard-to-miss insects comprise only a small fraction of the “good guys” that keep pest insects under control in our gardens and farm fields. If you take the time to look for

syrphid flies, which make an appearance whenever aphids are in abundance. Some are mottled in green, yellow, orange, and white, arranged in psychedelic patterns. The adults are bee mimics that hover around flowers, feeding on nectar and pollen, hence their common names of hover flies or flower flies.

More challenging to spot are predatory mites. They are the size of a speck of dust, but if you look at them under a magnifying glass (I like to use a jeweler’s loupe),

effectively than a bed planted with only a couple of different plants. They also do best when they have access to various microclimates, such as moist areas where they can shelter from hot, dry summer winds, and nooks and crannies to protect them from the pounding rain of a summer thunderstorm.

In addition to prey, many beneficials also need pollen or nectar during various life stages. Many of the composite flowers in the daisy family serve as great feeding stations



them, identify them, and learn something about their life cycles, you can begin taking steps to actively attract them. The key is to make your garden more hospitable to these beneficial insects.

PAYING ATTENTION

For a quick way to determine if pests and their natural enemies are present, simply tap or shake some foliage above a white piece of paper and take a look at whatever falls onto it. In late spring to early summer, you may find aphids or spider mites that had been sucking sap from the leaves. Look for the sluglike larvae of

you’ll see they lack the two spots typical of plant-feeding mites. Instead, they have a shiny body and long legs, which allow them to speed around on the paper fast enough that it can be tricky to get a good look at them. For help identifying both pests and beneficials, I’ve listed some resources in a box on the opposite page.

FAVORABLE CONDITIONS

Generally, predatory insects and mites thrive in ecologically diverse settings. A mixed border that has some of the look and feel of a meadow will provide a succession of prey for them much more ef-



Creating an ecologically diverse garden encourages the presence of beneficial insects such as this praying mantis, left, devouring a grasshopper, and the fourteen-spotted ladybird beetle, above, dining on a pea aphid.

for them, but be aware that double-flowered versions may lack anthers and pollen so are less attractive to these insects. Plants in the carrot family, such as dill and parsley, also flower prolifically and have a lot of pollen in their large, flat flower heads.

Along with summer- and fall-blooming plants, include those that provide pollen early in the season, such as yarrow (*Achillea* spp.), feverfew (*Tanacetum parthenium*), and cilantro (*Coriandrum sativum*), to make sure your beneficial insect population has a sufficient food supply as soon as possible. And if you’re concerned about aggravating your al-



Stock your garden with many kinds of flowering plants, but be sure to include composites such as purple coneflower, above, whose flowers are a good source of pollen and nectar.

lergies, don't worry. All of these plants have heavy, sticky pollen that won't be airborne for long, if at all.

THE NUMBERS GAME

Successful reproduction for predatory insects depends on whether or not their young have enough prey after hatching to reach adulthood. I've observed ladybird beetles wander around a rose shoot lightly infested with aphids, taking a census to determine if their numbers are sufficient to warrant laying an egg among them.

Resources

Garden Insects of North America by Whitney Cranshaw. Princeton University Press, Princeton, NJ, 2004.

The Gardener's Guide to Common-Sense Pest Control by William Olkowski, Sheila Daar, and Helga Olkowski. Taunton Press, Newtown, CT, 2013.

IPM for Gardeners: A Guide to Integrated Pest Management by Raymond A. Cloyd, Philip L. Nixon, and Nancy R. Pataky. Timber Press, Portland, OR, 2004.

This requires self-restraint, because you'll need to allow pest numbers to build up a bit rather than taking any measures to control them. Although it may feel like you are giving the garden to the pests, remember that predators can reproduce quickly, and they'll usually have things under control before long.

Also, because beneficial insects and mites are easily killed by the same pesticides that kill their prey, you must suspend—or at least delay—using pesticides of any kind. Even organic pesticides, which generally aren't as disruptive to the environment as synthetic pesticides, still have an impact. For example, pyrethrum and rotenone are more efficient at killing beneficial insects than they are at killing most pests. Horticultural oil can kill lacewing eggs and beneficial mites present on plants in late winter or early spring. If you've killed off the beneficial insects, the pest species will flourish in their absence, leading to more problems later on in the season. The more you encourage beneficial insects, the less you will need to rely on pesticides of any kind.

Finally, work with what nature provides in your garden. The suite of predators that is adapted to your part of the world is the best one for the pests that in-

Gardening Q&A with Scott Aker

SOLUTIONS FOR OVERGROWN BOXWOOD

I have a boxwood (*Buxus* spp.) shrub that is now obstructing my walkway. I've tried pruning it so the walkway is clear, but it looks odd when I am done and eventually just grows back. Do you have any suggestions?

Rather than pruning the boxwood away from the path, cut all the branches down to six to 12 inches from the ground. The result will be unsightly for a while, but it will grow new foliage and transform into a nice little shrub in a few years. Another option is to transplant it to a different location. Even large boxwoods transplant well. It's best to move it in spring so the shrub's roots can become well established before it is confronted with desiccating winter winds.

BLASTING APHIDS WITH WATER

I read that you can get rid of aphids on plants by spraying them with a jet of water. Does this kill the aphids? If not, wouldn't you just be moving the problem to other plants?

Soft-bodied aphids are usually crushed by the force of a strong jet of water. When possible, point the spray so the aphids are washed off toward grass, mulch, or a hardscape. Any aphids that survive the spraying are unlikely to be able to crawl to another suitable plant before they starve or die of exposure. —S.A.

Send your gardening questions to Scott Aker at saker@ahs.org (please include your city and state with submissions).

fest it. There's no need to purchase bags of ladybird beetles, mantid egg cases, or vials of lacewing eggs. Maintain a hospitable garden, encourage your neighbors to do likewise, and they will come. 🐞

Scott Aker is a horticulturist in the Washington, D.C., area.

Seed Savers Exchange's Heritage Farm

by Mary S. Chaddock



A VISIT TO bucolic Heritage Farm, which sits on 890 acres of rolling land just north of Decorah, Iowa, can feel like time traveling into an agrarian past. Lush gardens brim with diverse selections of vegetables and flowering plants, red barns anchor the landscape, cattle dot the pastures, and apple orchards roll down the hills. But thanks to Seed Savers Exchange (SSE), a nonprofit organization committed to conserving the genetic diversity of open-pollinated and heirloom edible and ornamental plants, Heritage Farm also offers a peek into the future.

ROOTED IN THE PAST

Heritage Farm is the headquarters of SSE, which was founded in 1975 by Kent Whealy and Diane Ott Whealy. In the early 1970s, the Whealys realized they were the last family members growing two heirloom seed varieties Ott Whealy's

great-grandparents brought to the United States from Bavaria in the 1880s. The plants—Grandpa Ott's morning glory and the German Pink tomato—represented generations of genetic diversity. This personal experience inspired them



Neatly planted rows of heirloom varieties such as 'Lina Sisco's Bird Egg' bean, above, make a verdant tapestry at Heritage Farm, top.

to encourage others to save and plant heritage seeds. SSE began with 29 gardeners paying a quarter each to receive a six-page list of seeds by mail. Today, roughly 13,000 members help grow and preserve more than 20,000 varieties of seed offered through an online catalog.

DIVERSIFICATION

A sample of the beauty and variety of old-time plants is found front and center in the Diversity Garden at Heritage Farm. One section of this year's Diversity Garden pays tribute to the SSE's 40th anniversary, displaying varieties traded in 1975 such as 'Lina Sisco's Bird Egg' bean. Another section with plants such as 'Redlands' carrot, 'Crimson' lentil, and 'Two-Inch Strawberry' popcorn illustrates the current preservation work. The final area, planted with Dwarf Beryl Beauty tomato and many others, symbolizes SSE's future, which involves breeding projects,

40TH ANNIVERSARY EVENTS

The Seed Savers Exchange's 40th anniversary will be a theme running through its events this year. These include:

- Open to SSE members only, the **Annual Conference & Campout** (July 17 to 19) features youth programming, film screenings, local and organic meals, live music, a seed swap, and barn dance.
- Two **seed-saving schools**, slated for August 28 to 30 and September 18 to 20, will teach the technical skills of hand-pollination and seed processing, as well as the biological and ecological concepts behind seed saving.
- The **Tomato Tasting Festival** on September 5 will offer the chance to sample rare varieties found only in SSE's seed bank, along with others available through the online exchange or catalog.
- The anniversary year wraps up with the **Fall Harvest School** on October 3. Visitors will learn how to propagate apple trees, prepare plants for winter storage, and hone their food preservation skills.

—M.S.C.



A stroll through the display gardens at Heritage Farm gives visitors a glimpse of the enormous plant diversity preserved in the Seed Savers Exchange collection.

new seed savers, and opportunities for seed stewardship.

John Torgrimson, who has been SSE executive director since 2010, encourages visitors to walk one of the multiple trails winding through the property so they can get a sense of the scope of SSE's work as they view the abundant blooming and ripening isolation fields and the orchards. Each year SSE grows out about

1,000 different heirloom plant varieties, evaluating them for qualities such as germination rate and harvesting seeds to build up stock for sharing and storing.

The 12 acres of apple orchards, which serve as a repository for one quarter of the remaining apple varieties in North America, are another important element of SSE's mission. Torgrimson is particularly excited that, for the first time since the turn of the

Additional Information

Seed Saver's Exchange's Heritage Farm, 3074 North Winn Road, Decorah, IA 52101. (563) 382-5990.
www.seedsavers.org.

■ Hours: March 1–October 31, daily 10 a.m.–5 p.m.; November 1–December 20, Thursday–Sunday 10 a.m.–5 p.m. Closed Easter, July 4, and Thanksgiving.

Seed Savers Exchange participates in the American Horticultural Society Reciprocal Admissions Program. AHS members bearing a current AHS membership card receive a gift shop discount. Contact Seed Savers Exchange for details.

Other nearby sites to explore:

Fort Atkinson Preserve, Atkinson, IA. (800) 463-4692.

www.fortatkinsoniowa.com.

Laura Ingalls Wilder Park & Museum.

Burr Oak, IA. (563) 735-5916.

www.lauraingallswilder.us.

last century, SSE returned some of these varieties to commerce in their catalog this year as custom-grafted trees.

Heritage Farm also features endangered livestock breeds. An 80-head herd of Ancient White Park cattle now calls the fields of Heritage Farm home. Representing a significant reservoir of bovine genetic diversity, they are among about only 800 remaining individuals of this historic breed, which originated in the United Kingdom. On a smaller scale, the farm showcases different breeds of heritage poultry each summer.

SEEDS OF THE FUTURE

About 15,000 visitors come to Heritage Farm annually for various events or just to enjoy the bountiful scenery. While the plant displays are worth visiting in their own right, they also may inspire you to get involved in preserving heirloom varieties. As SSE's Torgrimson says, "There's no better way to maintain diversity than by saving seeds and starting your own collection." 🌱

Mary S. Chadduck is an editorial intern for The American Gardener.

Okra Lives Up the Summer Garden

by Margene Whitler Hucek



LIKE MANY people, my first encounter with stewed okra left me unimpressed. But that changed when, on a trip to New Orleans, friends persuaded me to try shrimp gumbo. The zesty dish—with no hint of the slime some people find objectionable—made a fan of me and I’ve been growing and cooking okra ever since.

Okra (*Abelmoschus esculentus*) is a semi-tropical annual primarily grown for its edible seedpods. A close relative of mallow family members such as hibiscus, it is ornamental enough to be planted in a mixed border. In addition to a pleasing upright, branching habit, it has attractive leaves and its large, hollyhocklike flowers are creamy white or yellow with crimson centers. Even the upright seedpods are decorative, especially on the varieties that have red or burgundy ones.



Okra pods, such as these of ‘Jambalaya’, top, should be picked while they are tender. Above: Okra flowers resemble those of hollyhocks.

GROWING GUIDELINES

Okra is a warm-season vegetable that can be grown successfully in any climate where sweet corn grows. As few as six plants will provide enough okra for most home culinary purposes.

If you live in an area with a short growing season, choose varieties like ‘Jambalaya’ that mature early and start seeds indoors in biodegradable pots six weeks before the last-frost date. Always wait until the soil warms to at least 60 degrees Fahrenheit before planting either your okra seedlings or direct seeding in the garden. Germination can take up to three weeks, but nicking the seed coats with nail clippers and soaking seeds overnight will speed things up.

Keep in mind that okra is a branching plant that needs a lot of space; crowded plants produce fewer pods. It will grow most vigorously in loamy, free-draining

Sources

Park Seed Company, Hodges, SC.
(800) 845-3369.
www.parkseed.com.

Seed Savers Exchange, Decorah, IA.
(563) 382-5990. www.seedsavers.org.

Territorial Seed Company, Cottage Grove, OR. (800) 626-0866.
www.territorialseed.com.

soil enriched with compost. Apply a balanced fertilizer such as fish emulsion at planting time, then sidedress with liquid fertilizer or compost every three to four weeks during the growing season to increase production. Water regularly during periods without rainfall.

PESTS AND DISEASES

Pests and diseases are seldom a problem with okra, though aphids can become a nuisance. Insecticidal soap or a strong jet of water is an effective control. Stinkbugs can cause misshapen pods, so remove these pests by hand and drop them into a jar of soapy water to kill them. (You don't want to crush them because they will release an offensive odor.)

If your okra leaves suddenly turn yellow and wilt, the plant may be infected with fusarium wilt, a soil-borne disease. Dig up and destroy any infected plants immediately, and plant okra in a different location the following year, as you should be doing anyway as part of a regular crop rotation. The plants are also extremely sensitive to cold, wet weather; in my Virginia garden, I wait until early July to plant okra in a bed that previously hosted a cool-season crop of peas or lettuce.

RECOMMENDED VARIETIES

'Clemson Spineless' is an open-pollinated variety that was a 1939 All-America Selections winner. The vigorous, four-foot-tall plants produce light green, smooth pods beginning about 60 days after planting.

'Hill Country Red' produces green pods tinged with red, 60 to 70 days after planting, that are excellent for pickling. This robust heirloom variety reaches six feet tall.

'Jambalaya' is an early-maturing selection ideal for gardeners with a short growing season. It produces an abundance of meaty, dark green pods on compact plants beginning about 50 days after planting.

PLANTING BASICS

Getting Started Plant outdoors when soil temperatures are above 60 degrees Fahrenheit. Or start indoors six weeks before last-frost date and transplant into warm soil.

Spacing Sow seeds one inch deep and four inches apart. Thin shorter varieties to 12 to 15 inches apart and taller varieties to 18 to 24 inches apart. Space rows three to four feet apart, depending on cultivar.

Days to Maturity 48 to 80 days depending on cultivar. Pick pods while small and tender, between three to six days after flowering.



Okra is a branching plant that needs full sun and ample room to grow and produce the best harvest.

'Red Burgundy' yields dark purplish red, tender, six-inch-long pods on four-foot plants starting 55 to 60 days after planting. Its creamy-yellow flowers add to the show. **'Silver Queen'**, another heirloom variety, produces pale green, seven-inch-long pods about 70 to 80 days after planting and can reach six feet tall.

ENJOYING THE HARVEST

Pods mature quickly so check plants every two to three days once production begins. Wear gloves and a long-sleeved shirt and use a sharp knife or clippers when harvesting okra because even the so-called spineless varieties can irritate skin on contact. Pick pods when tender and immature, usually two to

three inches long in most varieties, although some of the long-podded types remain tender until pods are six or seven inches long.

If you leave pods on the plant too long they become tough and overall production is reduced. Okra will continue producing until frost but if I end up with a few over-mature, inedible pods toward the end of the season, I allow them to dry on the plant to use in fall flower arrangements.

Okra is best cooked within a day or two of harvest, but will keep in a plastic bag in the refrigerator for a week. If you have an abundance, they can be pickled, canned, or frozen. The flowers, which are also edible, have a mild, slightly sweet flavor. They can be stuffed or battered and deep-fried. They also make a beautiful garnish for summer platters.

Okra is rich in fiber, folate, and vitamins C and K, but it also contains a mucilaginous substance that some find objectionable. Adding tomatoes to okra helps reduce the sliminess, as does steaming them whole, or frying them quickly over high heat. Conveniently, okra matures in late summer, when there is an abundance of onions, tomatoes, and peppers to combine into gumbos.

For adding punch to your late summer garden, okra won't disappoint. At a time other plants are beginning to fade, it will just be coming into its own—providing both ornamental and culinary fireworks with its lovely flowers and plentiful pods.



An ornamental edible, 'Red Burgundy' has colorful stems and seedpods.

Margene Whitler Hucek is a garden writer based in Keswick, Virginia.

Recommendations for Your Gardening Library

Essential Perennials: The Complete Reference to 2700 Perennials for the Home Garden

Ruth Rogers Clausen and Thomas Christopher. Timber Press, Portland, Oregon, 2015. 452 pages. Publisher's price, hardcover: \$39.95.

UPON OPENING the cover of *Essential Perennials*, I was immediately entranced by the flyleaves. They contain labeled line drawings showing different types of leaves and flowers. Although I have decades of gardening experience, I am sometimes stumped by the botanical terms for these plant parts, such as knowing the difference between a corymb and a cyme. Now, I need only glance at these excellent illustrations.

As the authors point out, we gardeners are inundated with myriad new cultivars and hybrids as well as new genera and, of course, all of them are wonderful so how could we live without them all? Alas, we must make choices. This book endeavors to help us make those choices by focusing on the most important perennials and delineating why they are essential to our gardens. A bonus is that when shopping time comes, most of the included plants are readily available.

The chapter on perennial basics will be particularly helpful to new gardeners and a refresher for seasoned gardeners. The bulk of the book is an encyclopedia of plants, organized by botanical names. The nomenclature is the most up-to-date, but taxonomists continue to make modifications. Though I try to keep up with these changes, I had no idea that plants formerly listed as *Polygonum* are now divided between *Persicaria* and a new genus, *Aconogonum*.

For each genus, and the notable species and cultivars within them, brief descriptions include information about foliage, bloom, size, and cultural requirements as well as propagation methods, resistance to deer and other animals, and disease and pest problems. I most valued the descriptions of native habitat, tips about siting, and suggested companion plants. And for those interested in native plants, inclusion of data about the geographical area where the plant is found in the wild is extremely useful.

Stellar photography by Alan and Linda Detrick will incite further plant lust, so whether this book will help you narrow down your selections or tempt you to add more remains to be seen!

—Bobbie Schwartz

Bobbie Schwartz, owner of Bobbie's Green Thumb in Shaker Heights, Ohio, has been a landscape consultant and garden designer for 37 years.

Growing Beautiful Food: A Gardener's Guide to Cultivating Extraordinary Vegetables and Fruit

Matthew Benson. Rodale Press, New York, New York, 2015. 252 pages. Publisher's price, hardcover: \$32.50.

IT IS SAID that eating involves all the senses, yet the first bite is taken with the eyes, notes organic farmer Matthew Benson in *Growing Beautiful Food*. Benson's luscious photographs certainly attest to that as they present you with the visual feast of Stonegate Farm, his small farm in New York's Hudson River Valley. The images perfectly complement his lyrical prose, coaxing you into a new way of thinking about growing and eating food.

"If you begin to imagine farming and growing food as an art form," Benson writes, "where your aspirations move beyond the supply and demand of feeding yourself and others and into the realm of aesthetics, where gorgeous heirloom vegetables, fruit, and flowers fill the canvas between fencerows each season as a kind of delicious landscape painting, then you begin to cultivate beauty as well. And beauty is a fundamental human need, as essential as breath."

Benson's own aspiration to live a more balanced, sustainable life began when he met his wife, Heidi, and they tackled the task of restoring the overgrown historic estate where she had grown up. Over the years, this land became Stonegate Farm, shaped by an elevated aesthetic that illustrates how organic gardening can change the culture of agriculture.

After explaining why he began farming, Benson goes on to discuss the practical details of raising not only vegetables, herbs, and fruits, but flowers, bees, and chickens. He weaves in eloquent essays about his farm experiences and views on modern agriculture. Finally, he shares a few favorite recipes for enjoying the harvest.

Growing Beautiful Food is a remarkable love story about a small farm and the richness it yields, as well as a field guide for backyard food lovers. "By farming and growing food, we learn to listen to worlds outside of our own, and begin to think and imagine like plants," Benson writes. "By thinking like both plant and planet, we tune in to the kind of stewardship that realigns us with the natural world." If how we eat can change the world, growing our own beautiful food would be a giant step forward to healing the planet.

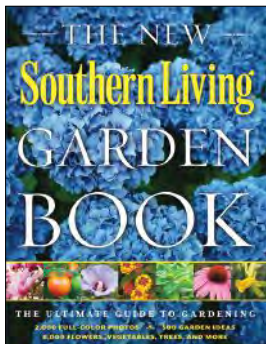
—Ellen Ecker Ogden

Ellen Ecker Ogden is the author of The Complete Kitchen Garden (Stewart, Tabori and Chang, 2011) featuring themed designs and recipes for cooks who garden. Find her on www.ellenogden.com.

The New Southern Living Garden Book

Edited by Steve Bender. Oxmoor House, New York, New York, 2015. 768 pages. Publisher's price, softcover: \$34.95.

ANY BOOK attempting to cover all aspects of home gardening for a region with climate zones, topography, and soil types as



diverse as the sauce ingredients at a barbeque cook-off is ambitious, to say the least. But this is just what the *Southern Living Garden Book*, published 10 years ago, managed to do. Now, this “bible of Southern gardening,” has done it again with a revised and updated 2015 edition that boasts “2,000 color photographs and 500 garden ideas” interspersed with “8,000 flowers, vegetables, trees, and more.”

Geographically speaking, this book's content is intended to apply to a large swath of the country. As its editor, Steve Bender, explains, “For us, the South begins south of the Mason–Dixon Line at the Maryland–Pennsylvania border and extends westward across Kentucky and the bootheel of Missouri to Oklahoma and Texas. Moving south, we cover gardening all the way to the tip of Brownsville, Texas, and Key West, Florida.” Given the quantity of trustworthy gardening information this encyclopedic tome contains, it is understandably the size of a thick family photo album.

Acknowledging that gardening practices have changed over the last decade, it embraces updated sustainable gardening techniques, discusses rain water harvesting, shares new thoughts about integrated pest management, and puts a timely emphasis on home food gardening. But the real heart of the book is the recommended plant sections. Multitudes of old favorites are showcased, accompanied by outstanding introductions of the past decade, and peppered with warnings about the aggressive spreaders we used to love.

I found the organization of this extensive plant list confusing, however, because plants are identified by their botanical name with the exception of vegetables, nuts, and fruits. Carrots are listed after *Carpinus* and peppers come after *Peperomia*, but the cataloging isn't always consistent. For example, edible mulberries are listed under their botanical name, *Morus*.

I noticed a few production flaws, too. In the copy I received to review, the table of contents doesn't consistently correlate with the chapters, and in the Plant Finder section, the plant selection guides don't always match up with the pages indicated in the key.

Despite these glitches, *The New Southern Living Garden Book* is a staggeringly comprehensive source of gardening information. It's the perfect guide for the new or newly transplanted gardener in the South, and a reliable reference for even the most seasoned gardeners in this region.

—Pam Beck

Pam Beck is a garden writer, photographer, and lecturer based in Wake Forest, North Carolina.

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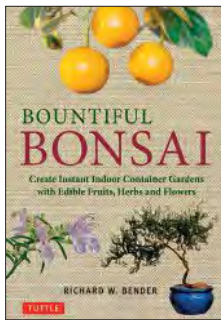
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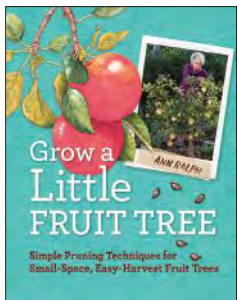
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Techniques for Pushing Garden Boundaries

GARDENING DEMANDS flexibility. And I'm not referring just to the kind needed to reach that last apple on the tree, I mean mental flexibility as well—the kind of can-do thinking gardeners in the past used to re-imagine their reality. No flat land? Create terraces. No land at all? Grow in water. Seasons too short? Turn a jar upside down to protect plants from frost. This kind of boundary-pushing, problem-solving approach to gardening is what connects the following books.



In *Bountiful Bonsai* (Tuttle Publishing, 2015, \$14.95), Richard W. Bender expands the art of bonsai from ornamental trees to include plants usually found in orchards, herb gardens, or flower borders. Bender encourages gardeners to explore this new twist on traditional bonsai by suggesting alternative bonsai subjects and describing how they are best developed into beautiful and productive specimens.



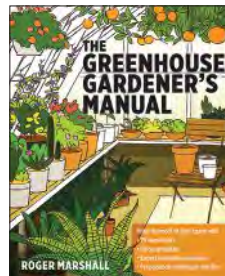
Grow a Little Fruit Tree: Simple Pruning Techniques for Small-Space, Easy-Harvest Fruit Trees (Storey Publishing, 2014, \$16.95) aims to debunk the belief that fruit trees take up too much space. Author Ann Ralph, an ardent fruit grower, clearly describes pruning and care techniques to achieve small space nirvana—productive fruit trees less than six feet tall. Instructive illustrations support Ralph's discussions of fruit tree cultivation, choosing among cultivars, and the differences between rootstocks.



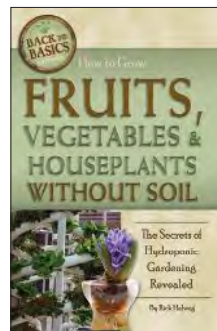
Designed to stretch the reader's mental image of gardens and what they contain, *Grow a Living Wall* (Cool Springs Press, 2015, \$24.99) by Shawna Coronado dares the reader to go vertical. It showcases 21 different themed gardens—from veggies to moss and hydroponics—along with clear instructions on how to create them. Each project includes a list of suggested plants and tools, maintenance tips, and vibrant photographs of the finished garden.



The Postage Stamp Vegetable Garden (Ten Speed Press, 2015, \$18.99) by Karen Newcomb challenges gardeners to think inside the box to expand their harvest from minimal spaces. She covers basic intensive gardening techniques integrated with biodynamic methods such as moon cycle planting. Layout examples, detailed descriptions of heirloom vegetables, flowers, and herbs available today, and an extensive list of seed sources round out the book.



Greenhouses are the ultimate expression of horticultural flexibility. They allow gardeners to experiment with plants from different zones, extend their garden seasons, and even expand gardening into a year-round activity. *The Greenhouse Gardener's Manual* (Timber Press, 2014, \$24.95) by Roger Marshall provides the nuts and bolts of designing and maintaining greenhouses for these purposes without overwhelming readers with technical minutiae.



Gardening without soil seems counterintuitive but *How to Grow Fruits, Vegetables & Houseplants Without Soil* (Atlantic Publishing Group Inc., 2014, \$15.95) by Rick Helweg shows beginners that it is both possible and productive. Using a step-by-step approach, Helweg leads the reader from implementing the simplest of systems—sprouts in a jar—to more involved setups, complete with material and tool lists. 🌱

—Mary S. Chadduck, Editorial Intern

Horticultural News and Research Important to American Gardeners

FAST-MUTATING FUNGUS THREATENS EASTERN BLACK WALNUT

Eastern black walnut (*Juglans nigra*) and butternut (*Juglans cinerea*) trees across the country are under threat from the grim-sounding thousand cankers disease (TCD). This disease is caused by a fungus (*Geosmithia morbida*) that is carried by the walnut twig beetle (*Pityophthorus juglandis*).



fungus—burrow through the outer bark of the tree, creating tunnels in the inner bark to lay their eggs. The fungus colonizes these spaces, which creates the canker. When beetle populations are high, the cankers can girdle the tree, interrupting the flow of water and nutrients, and eventually killing the tree. Spotting initial damage is difficult because the cankers are hidden beneath the outer bark,



Left: A black walnut displays typical dieback from thousand cankers disease. The disease gradually kills trees by girdling the trunk, as seen above, which restricts the vital flow of water and nutrients.

The fungus and the walnut beetle are native to the southwestern United States, and TCD was first reported there in the early 1990s. So far, the disease has been reported as far east as Tennessee, Pennsylvania, Ohio, and Virginia, and beetles were recently detected in Indiana. What has caused their relatively recent spread to the eastern side of the country is unknown, but the transportation of infested wood into new areas is suspected.

TCD results when walnut twig beetles—virtually all of which carry the

beetles are about the size of a flake of ground black pepper, and entrance holes are correspondingly minute.

The disease will be elusive to control. One key reason for this was recently discovered by a team of researchers from Purdue University in West Lafayette, Indiana, and Colorado State University in Fort Collins. The researchers have found that the fungus's genetic makeup is very complex, and it has a rapid mutation rate. This means that it can out-mutate control tactics such as breeding genet-

ically resistant trees or developing a chemical line of defense.

Currently the only control measure is quarantine. Because a single log from an infested tree can contain thousands of walnut twig beetles, people are advised to avoid transporting walnut and butternut wood out of their area. More information about TCD research, identification, and suggested action is available at www.thousandcankers.com.

REPORT LINKS POPULAR HERBICIDE WITH INCREASED CANCER RISK

A report linking glyphosate, the active ingredient in the world's most popular herbicide, Roundup, with cancer has been creating a furor in the gardening world. In March, the World Health Organization's International Agency for Research on Cancer's (IARC) issued a release stating that glyphosate joins malathion and diazinon "as probably carcinogenic to humans." According to the release, the IARC review of more than 10 years of independent scientific studies revealed that there is limited evidence that glyphosate is carcinogenic in humans and sufficient evidence that it causes cancer in animals.

Roundup's manufacturer, St. Louis-based Monsanto, quickly issued a statement refuting the report and challenging the IARC's methodology. The IARC is not a regulatory agency, nor does it quantify increased risk of cancer due to a chemical or recommend exposure levels. In 2013, Monsanto requested, and was granted, approval from the Environmental Protection Agency for increased tolerance levels for glyphosate contamination in food and feed.

You can find an IARC press release about the report at www.iarc.fr/en/media-centre/iarcnews/pdf/MonographVolume112.pdf. The complete IARC report was published online in *The Lancet Oncology* (www.thelancet.com/journals/lanonc/article/PIIS1473-2045/2815/2970134-8/abstract).

NOTABLE NATIVE TREES FOR 2015

The majestic native bur oak tree (*Quercus macrocarpa*), is the 2015 Garden Club of America Plant of the Year. Its primary range extends west of the Appalachians to the middle of the Great Plains, north into Canada and south to Texas. With a potential lifespan of 200 to 300 years, bur oak can reach 100 feet tall with a massive trunk that supports heavy, horizontal limbs of equal spread. In fact,

everything about this winner is large: its fiddle-shaped leaves are eight to 10 inches long and it boasts the largest acorn of all the native oaks. Its acorns are an important food source for a variety of wildlife and, because it can handle pollution, it is a good landscaping choice for large, open urban areas. For a list of past Plant of the Year selections by the Garden Club of America, go to www.gcamerica.org/gca-awards-plant-of-the-year.



Top: Long-lived bur oak matures into an impressive specimen tree. One of its other common names, mossy cup, is derived from the fringed covering on its large acorns, above. **Left:** In early summer, American yellowwood produces an abundance of fragrant white flowers that draw a variety of pollinators. It has a tendency to divide near the ground, forming a multi-trunked tree.

Similarly, the Society of Municipal Arborists has named American yellowwood (*Cladrastis kentukea*) as its Urban Tree of the Year. Native to the Southeast, the tree produces pendulous racemes of intensely fragrant white flowers in early summer that attract pollinators. In autumn, its leaves shine a beautiful yellow. Yellowwood, so named for the color of the fresh-cut heartwood, has a low-branching habit and tops out at around 50 feet with an equal spread. It is not bothered by pests and, with adequate water, does well in a variety of urban settings. Winners from past years are listed at www.urban-forestry.com.

PROFESSIONAL ORGANIZATION FOR LANDSCAPERS GETS NEW NAME

As of April 2015, the Professional Landcare Network is now the National Association of Landscape Professionals (NALP). The



name change was prompted by the need to more accurately reflect the organization's focus on education, advocacy, and professionalism in the landscape industry nationwide. The NALP provides business, safety, and career development education to its 4,000 members. It also coordinates the National Collegiate Landscape Competition, the largest recruiting event and student competition in the industry. For more information about the NALP and its programs, visit www.landscapeprofessionals.org.

OUTSTANDING LANDSCAPE DESIGNERS RECOGNIZED WITH COVETED AWARD

The 2015 Landscape Designer of the Year Award from the Association of Professional Landscape Designers goes to Phipps Conservatory and Botanical Gardens in Pittsburgh, Pennsylvania, and Andropogon Associates of Philadelphia, Pennsylvania for the Center for Sustainable Landscapes project at Phipps.

Integral to the success of the center's design is a water management system that supplies and treats enough water to meet the needs of the building and landscape. The stormwater lagoon, stocked with native wildlife, captures water runoff from the Tropical Conservatory roof



The rooftop garden at the Center for Sustainable Landscapes at Phipps Conservatory and Botanical Gardens features native plants that are found within 200 miles of its location.

and distributes it to water features on the site, while underground cisterns collect runoff from neighboring buildings to use for irrigation.

The project, which has reintroduced more than 150 native plant species to the former brownfield site, is part of a study

to discern the effectiveness of compost tea in building soil and aiding in establishing plants in a landscape. Another study is monitoring the performance of the rain gardens and green roof to absorb and filter rainwater. More information about the center can be found at www.phipps.conservatory.org.

BEST DAHLIA VARIETY IN 50 YEARS

As part of the American Dahlia Society's (ADS) centennial celebration this year, the organization has named 'Edna C' the



'Edna C' dahlia

"Best Dahlia of the Past 50 Years." Widely grown since its introduction in 1968, this four-foot-tall dahlia has clear yellow flowers with recurved petals that bloom

summer to fall. They can measure up to eight inches across and make exceptional cut flowers. 'Edna C' takes up the mantle from 'Jersey's Beauty', which the ADS chose in 1964 as the best dahlia for the previous 50 years since the organization's founding in 1915. Visit www.dahlia.org to learn more.

Written by Editorial Intern Mary S. Chaddock and Associate Editor Viveka Neveln.



Trumpet Daffodil Bravouré (#8048) and Muscari latifolium (#3745)

The Art and Soul of Spring

Bring the beauty of bulbs to your gardens from over 750 of the best Dutch flower bulbs and herbaceous peonies at the best prices. The simple act of planting plump bulbs on a sunny fall day will bring your family years of gorgeous flowers. What would spring be without the easy magic of flower bulbs? They are the art and soul of spring gardens.

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Taking Your Garden to New Levels with Raised Beds

by Rita Pelczar

THE FIRST raised beds I built several years ago at my current home in North Carolina were from necessity. Grading had removed most of the topsoil, so what was left was clay and rocks—lots of rocks. I collected the largest of the rocks, along with others from elsewhere on the property, and put them to use as a border for three sizeable raised beds. After a couple deliveries of good topsoil and compost, I was ready to plant. These beds are now home to a riotous mix of perennials, shrubs, and even a couple of trees, which appreciate the good drainage the elevated beds provide.

Raised beds also can improve production in vegetable gardens, as long as you fill them with good soil amended with lots of composted organic matter. Often raised beds can be easily converted to a cold frame or fitted with a row cover to extend the growing season. They are also easy to fence if deer or rabbits are a problem *and* they look good. What more could you ask?

DIMENSIONS AND MATERIALS

Raised beds can be of any length, but their width is limited by your reach. If you have access from a path on both sides, a three- to five-foot-wide bed works well. If access is from one side only, less than three feet wide is better. Having a pathway for access is important because you want to avoid compacting the soil by walking on it; loose and well-aerated soil encourages deep root growth and makes weed-pulling easier.

The depth of the bed should accommodate the roots of the plants you want to grow. Most salad greens do well in a depth of six inches, while larger plants such as cabbage family crops, squash, peppers, and tomatoes will do better with an eight to 12 inch—or more—depth. If bending is difficult for you, try a two- to three-foot-tall raised bed, which elevates the soil surface to a comfortable level.



The author's raised bed herb garden is edged with rocks collected on her property.

Building raised beds can be a great way to recycle items you may already have on hand from other projects, such as cinder blocks, bricks, and straw bales. I turned some logs from my woods into raised beds in my kitchen garden. You

can find plans and directions for building your own beds in books or online.

Purchasing one of numerous kits that are available can simplify the construction process. These kits vary in material—wood, plastic, and compos-



The Farmstead's easy-to-assemble raised bed kit features sturdy mortise-and-tenon joints.

COMPARING THE KITS AT A GLANCE

Name/Manufacturer	Material	Size Options/Configurations	Assembly Requirements	Price
Periwinkle Grow Bed/ Gardener's Supply Co.	UV-stable polypropylene	3' by 3' by 10" depth 3' by 6' by 10" depth	Easy, interlocking corners pin together; 3' by 6' size requires tools	\$59.95–\$109
Raised Garden Bed Kit/ The Farmstead	Vermont white cedar	Multiple sizes available: 2–4' wide by 4–8' long locust pegs all have an 8" depth; sides fit together, secured with locust pegs	Easy, no tools needed.	\$75–\$140
Raised Garden Planter/ Cedarcraft™	western red cedar	4' by 4', 9.5" depth	Easy, no tools needed; side panels slide into corner posts	\$119.99
Redy-Garden Raised Bed kit/ Classic Baluster, LLC	cedar	8 sections, 1" by 4" by 32"; options for various configurations, can be stacked for increased depth	Easy, no tools needed; 12" galvanized stakes slide through pre-drilled holes	\$39.99–\$59.99

ites are the most common—size, shape, appearance, assembly requirements, and of course, price (see comparison chart above). Here are a few I've sampled in my own garden.

RAISED BED KITS

If sturdiness is your concern, consider either the **Farmstead Raised Garden Bed Kit** or the **Cedarcraft™ Raised Garden Planter**. Both are heavy, so assemble them where they will stay. The first is made of Vermont white cedar, the second of western red cedar, so they resist rot and age to an attractive gray. The Farmstead kit comes in a variety of sizes, all with an eight-inch depth, and features a 17th-century mortise-and-tenon design. For deeper beds, two or more kits can be stacked. The Cedarcraft planter is a four-foot square with a nine-and-a-half-inch depth. The corner pieces and ends are routed to fit together snugly, and while the assembly is quick and easy, a mallet helps seat the corners.

The **Redy-Garden Raised Bed** kit, also made of cedar, is a good choice if you like to get creative with the shape of your bed. The sides are connected with galvanized steel pegs threaded through pre-drilled holes, forming hinges so you can create whatever angles you wish. Each side is four inches tall and 32 inches long; they can be stacked for greater depth or to create tiers.

To add a pop of color to the garden, consider Gardener's Supply Company's **Periwinkle Grow Bed**. Constructed of

Sources

Cedarcraft™, www.cedarcraft.com.

Eartheasy, www.eartheasy.com.

The Farmstead,

www.gardenraisedbeds.com.

Gardener's Supply Company,

www.gardeners.com.

Menards, www.menards.com.



Gardener's Supply Company's colorful Periwinkle Grow Bed comes in two sizes.

vivid periwinkle blue UV-stable polypropylene—also available in black for the less adventurous—it comes in two sizes: a three-foot square or a three-by-six-foot rectangle; both are 10 inches deep. The interlocking corners pin together for quick assembly.

RAISED BED COMPONENTS

If you want to construct beds with specific dimensions, the Gardener's Supply Company's **Raised Bed Corners** are helpful.

The powder-coated aluminum corners have channels designed to fit two-inch milled lumber, for depths of six to 23 inches. These need to be secured with screws, so you'll need a Phillips-head screwdriver or a drill with a Phillips-head tip. After the sides are secured, tap on the plastic caps for a finished look. The outside dimensions are determined by the length and width of the lumber you purchase. Two sets of corners will make one rectangular bed.

If your bed is going to be longer than eight feet, additional inline connectors are recommended. I used two sets of eight-inch-deep corners plus a set of inline connectors to construct a bed that is 16 feet long by three feet wide. At \$45.90 to \$93.90 for two sets of two, depending on their size, the corners are an economical option for making your own large raised bed.

To keep my raised beds irrigated during dry periods, I use the **Raised Bed Snip-N-Drip Soaker System**, also from Gardener's Supply. It includes 25 feet of half-inch soaker hose with all necessary fittings and can be customized to suit the size and shape of your beds; it is available for \$19.95.

If you're looking to create a fertile, well-drained medium in which you can grow vegetables, berries, herbs, flowers, and more, you can't go wrong with raised beds. Once you assemble or build them, fill them with good soil and you will have many years of easily maintained and productive gardening.

Rita Pelczar is a contributing editor with The American Gardener.

REGIONAL HAPPENINGS

Horticultural Events from Around the Country

NORTHEAST

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

JUNE 1–4. **Native Orchid Conference.** Town & Country Motor Lodge. Gorham, New Hampshire. (603) 647-1063. www.nativeorchidconference.info.

RAP JUNE 6. **Up in the Trees: An Arborist's View Walk, Talk and Climb.** Lecture, demonstration. Berkshire Botanical Garden. Stockbridge, Massachusetts. (413) 298-3926. www.berkshirebotanical.org.

RAP JUNE 6 & 7. **Bonsai Show.** Buffalo and Erie County Botanical Gardens. Buffalo, New York. (716) 827-1584. www.buffalogardens.com.

RAP JUNE 7. **Permaculture: Edible Landscaping to Regenerative Design.** Lecture. Polly Hill Arboretum. West Tisbury, Massachusetts. (508) 693-9426. www.pollyhillarboretum.org.

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

RAP JUNE 7. **Succulent Love.** Lecture. Tower Hill Botanic Garden. Boylston, Massachusetts. (508) 869-6111. www.towerhillbg.org.

RAP JUNE 14–21. **Dogwood Days.** Celebration. The Wakefield Estate. Milton, Massachusetts. (617) 333-0924. www.wakefieldtrust.org.

RAP JUNE 18. **Creating a Diverse Backyard**

Habitat. Lecture. Blithewold Mansion, Gardens & Arboretum. Bristol, Rhode Island. (401) 253-2707. www.blithewold.org.

JUNE 19–21. **Newport Flower Show.** The Preservation Society of Newport County. Newport, Rhode Island. (401) 847-1000. www.newportmansions.org.

RAP JUNE 26. **Artful Gardens: Creative Design.** Annual garden symposium. Coastal Maine Botanical Gardens. Boothbay, Maine. (207) 633-4333. www.MaineGardens.org.

Looking ahead

RAP JULY 14. **Promoting Native Pollinators.** Lecture, ramble. The Fells Historic Estate & Gardens. Newbury, New Hampshire. (603) 763-4789. www.thefells.org.

JULY 29–AUG. 2. **American Begonia Society Convention.** American Begonia Society. Natick, Massachusetts. www.begonias.org.

Focus on Hydrangeas in New England

ALL THINGS hydrangea will be the focus of the inaugural Cape Cod Hydrangea Festival from July 10 to 19. The brainchild of local gardening expert and radio show host C.L. Fornari, the event celebrates what Fornari calls “our signature plant. We grow it well!” Hydrangeas thrive in the sandy soil and maritime climate of Cape Cod, so this will be the perfect opportunity for admiring their blue, pink, and white blooms at their peak.



Hydrangeas will be in full display during Cape Cod's summer festival.

Fornari's own garden will be one of more than 40 private gardens from Provincetown to Woods Hole open for the tour. In addition to the tours, local businesses and museums will offer lectures, demonstrations, art exhibits, and special discounts. For a complete list of activities, visit www.capecodchamber.org/hydrangea-fest.

Coinciding with the festival, Heritage Museums & Gardens in Sandwich, Massachusetts, is hosting the Hydrangea 2015

Conference on July 14 to 16. Nationally renowned plantsman and hydrangea hybridizer Michael Dirr will give the keynote address and Fornari will be a speaker as well. For conference information, visit www.heritagemusumsandgardens.org.

American Dahlia Society at 100

IN CELEBRATION of the 100th anniversary of its founding in 1915, the American Dahlia Society (ADS) is holding a special Centennial Show September 17 to 21 in Hempstead, New York. Hosted by the Mid Island Dahlia Society, this event includes tours of the dahlia garden at Planting Fields Arboretum and private gardens, dahlia competitions and shows, and the ADS general meeting.

On Saturday, September 19, an educational symposium sponsored by the American Horticultural Society features three noted speakers: Hanu Pappu, who heads the Dahlia Research Project at Washington State University; perennial plant expert and author Allan M. Armitage; and Keith Hammett, a New Zealand-based ornamental plant breeder.

Registration is required to attend most events, but the dahlia show will be open to the general public at designated times. For more information, visit the ADS website (www.dahlia.org). The registration deadline is August 1.

—Mary S. Chaddock, Editorial Intern

MID-ATLANTIC

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

MAY 22. **Rooting Out or Rooting for Weeds.** Lecture. U.S. Botanic Garden. Washington, DC. (202) 225-8333. www.usbg.gov.

MAY 30. **Under the Arbor: Garden Classics—Lavender and Roses.** Lecture. National Herb Garden. Washington, DC. (202) 245-2726. www.usna.usda.gov.

JUNE 1–5. **Smithsonian Botanical Symposium 2015: Next Generation Pteridology.** International Conference on Lycophyte & Fern Research. National Museum of Natural History. Washington, D.C. (202) 633-0920. www.botany.si.edu.

JUNE 3–6. **Native Plants in the Landscape.** Conference. Millersville University. Millersville, Pennsylvania. (717) 871-2189. www.millersvillenativeplants.org.

RAP JUNE 3 & 10. **Research, Design & Build a Garden Insect Hotel.** Workshop. Delaware Center for Horticulture. Wilmington, Delaware. (302) 658-6262. www.thedch.org.

RAP JUNE 12. **The Care of Trees.** Class. Winterthur Museum, Garden & Library. Winterthur, Delaware. (302) 888-4600. www.winterthur.org.

Looking ahead

JULY 27–AUG. 1. **Perennial Plant Association Symposium.** Baltimore, Maryland. (614) 771-8431. www.perennialplant.org.

SOUTHEAST

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

RAP MAY 20 & 21. **Ferns from the Beginnings to the Ends.** Birmingham Fern Society Lecture Series. Birmingham Botanical Gardens. Birmingham, Alabama. (205) 414-3950. www.bbgardens.org.

RAP JUNE 3. **Oak Obsession: All About Quercus.** Lecture. Boone County Arboretum. Union, Kentucky. (859) 384-4999. www.bcarboretum.org.

RAP JUNE 6 & 7. **Triangle Bonsai Expo.** JC Raulston Arboretum at NC State University. Raleigh, North Carolina. (919) 515-3132. www.jcra.ncsu.edu.

RAP JUNE 17–21. **Dazzling Daylily Festival.** Western Kentucky Botanical Garden. Owensboro, Kentucky. (270) 852-8925. www.wkbg.org.

RAP JUNE 18. **Wit's End: A Collector's Garden.** Lecture. Cheekwood Botanical Garden & Museum of Art. Nashville, Tennessee. (615) 356-8000. www.cheekwood.org.

JUNE 18–20. **American Hosta Society National Convention.** Raleigh, North Carolina. Email: hostabob@gmail.com. www.americanhostasociety.org.

JUNE 25–28. **American Hibiscus Society National Convention.** Punta Gorda, Florida. (941) 484-6459. www.americanhibiscus.org.

RAP JUNE 27. **Wild Edibles of Summer.** Workshop. Bernheim Arboretum and Research Forest. Clermont, Kentucky. (502) 955-8512. www.bernheim.org.

Looking ahead

JULY 15–18. **Cullowhee Native Plant Conference.** Western Carolina University. Cullowhee, North Carolina. (800) 928-4968. www.wcu.edu.

NORTH CENTRAL

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

RAP MAY 21. **Selecting and Planting Trees.** Seminar. McCrory Gardens. Brookings, South Dakota. (605) 688-6707. www.sdstate.edu/ps/mccrory.

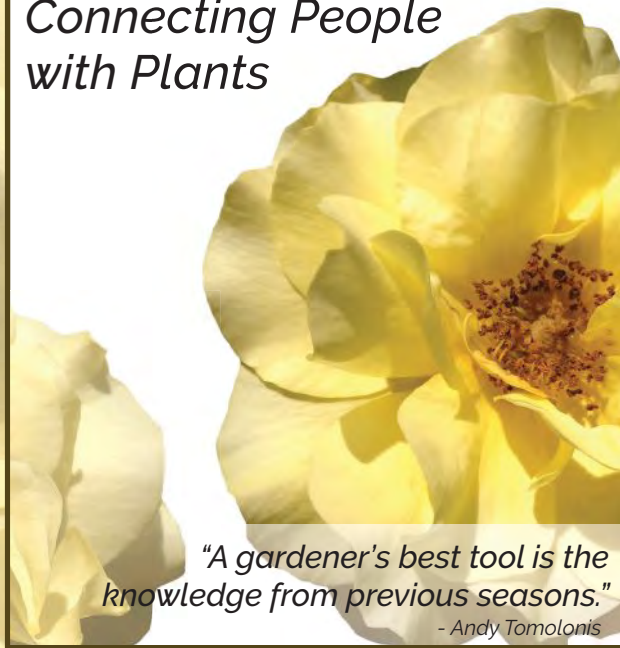
RAP MAY 23. **Tree Planting: Best Practices.** Class. Cleveland Botanical Garden. Cleveland, Ohio. (216) 721-1600. www.cb garden.org.

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Tree Houses in Cleveland

WHAT BETTER WAY to keep the summer doldrums away than exploring tree houses?



The Acoustic Canopy tree house is shown in this artist's rendering.

From May 23 to August 23 at the Cleveland Botanical Garden in Ohio, five interactive tree houses installed throughout the garden will encourage guests of all ages to climb, play, and discover. Don't tell the kids, but each tree house features activities that explore an educational theme. For example, the wooden instruments in the Acoustic Canopy are designed to inspire experimentation with sounds and music. Other themes include art, math, and reading. Back on the ground, the Adventure Research Station caters to budding scientists and the Campsite Adventure encourages nature exploration. For more information, visit www.cb garden.org.

Santa Fe Botanical Garden Celebrates Monarchs

THE SANTA FE BOTANICAL GARDEN (SFBG) in New Mexico is launching "Monarch-Orange Takes Flight" on May 30, as part of "Summer of Color," a larger, city-wide exhibition going on through Labor Day. SFBG has invited business partners to design orange-themed containers using pollinator friendly plants including, of course, milkweeds. Visitors get to vote for their favorite display and a "People's Choice" award will be announced in June.

SFBG summer workshops associated with "Monarch-Orange Takes Flight" will supplement the container show. Those looking for garden design tips will enjoy "Orange Container Gardening, Beyond Terracotta" on May 30 and "Make it Orange, Plants for a Vibrant Garden" on July 27. Monarch habitat stewardship strategies will be covered during "Monarchs, Milkweeds, and More" on June 9 and "Milkweed Cultivation" on August 11.

Registration information for the workshops, and more details about "Monarch-Orange Takes Flight" is available at www.santafebotanicalgarden.org.

—Mary S. Chadduck, Editorial Intern

RAP MAY 28. **Rock Gardens and Their Plants.** Lecture. Reiman Gardens at Iowa State University. Ames, Iowa. (515) 294-2710. www.reimgardens.com.

RAP JUNE 5-7. **Garden Fair.** Klehm Arboretum & Botanic Garden. Rockford, Illinois. (815) 965-8146. www.klehm.org.

RAP JUNE 6. **Garden Adventure Day.** Family activities. Fellows Riverside Gardens. Youngstown, Ohio. (330) 740-7116. www.millcreekmetroparks.org.

RAP JUNE 18. **Permaculture Forest Gardens.** Lecture. Lurie Garden. Chicago, Illinois. (312) 228-1004. www.luriegarden.org.

JUNE 22-26. **2015 American Public Gardens Association Conference: Watering Our Roots To Grow Our Communities.** Minneapolis/St. Paul, Minnesota. (610) 708-3010. www.2015.publicgardens.org/registration.

Looking ahead

RAP JULY 10 & 11. **Home Garden Tour.** Olbrich Botanical Gardens. Madison, Wisconsin. (608) 246-4550. www.olbrich.org.

JULY 11 & 12. **GardenWalk Cleveland.** Self-guided tours. Cleveland, Ohio. www.gardenwalkcleveland.org.

JULY 11-14. **Cultivate '15.** Horticulture convention. Greater Columbus Convention Center. AmericanHort. Columbus, Ohio. (614) 487-1117. www.cultivate15.org.

SOUTH CENTRAL

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

RAP MAY 23. **The Native Orchids of South Mississippi.** Lecture. The Crosby Arboretum. Picayune, Mississippi. (601) 799-2311. www.crosbyarboretum.msstate.edu.

RAP MAY 28. **Love Your Landscape.**

Lecture. Myriad Botanical Gardens. Oklahoma City, Oklahoma. (405) 445-7079. www.myriadgardens.org.

RAP MAY 30. **Good to the Last Drop—Rainwater Harvesting.** Dallas Arboretum and Botanical Garden. Dallas, Texas. (214) 515-6500. www.dallasarboretum.org.

RAP JUNE 6. **Sustaining a Sustainable Garden.** Seminar. American Rose Society & Gardens of the American Rose Center. Shreveport, Louisiana. (318) 938-5402. www.Rose.org.

RAP JUNE 12. **Hens in the Hollyhocks.** Lecture. Garvan Woodland Gardens. Hot Springs, Arkansas. (501) 262-9300. www.garvangardens.org.

RAP JUNE 20. **Buzz: A Celebration of Garden Pollinators.** Observation hives, information. Powell Gardens. Kingsville, Missouri. (816) 697-2600. www.powellgardens.org.

RAP JUNE 27. **Sensory Gardens.** Class. Texas Discovery Gardens. Dallas, Texas. (214) 428-7476. www.texasdiscoverygardens.org.

Looking ahead

AHS JULY 9-11. **AHS National Children & Youth Garden Symposium.** Austin, Texas. (703) 768-5700. www.ahs.org/gardening-programs/youth-gardening/ncygs/2015-ncygs/overview.

RAP JULY 11. **Friends of the Garden Annual Butterfly Festival.** Springfield Botanical Gardens at Nathanael Greene/Close Memorial Park. Springfield, Missouri. (417) 891-1515. www.friendsofthegarden.org.

SOUTHWEST

AZ, CO, NM, UT

RAP MAY 27 & JUNE 3. **Small Outdoor Patios.** Class. Desert Botanical Garden. Phoenix, Arizona. (480) 941-1225. www.dbg.org.

RAP MAY 28. **Converting Lawn to Xeriscape.** Class. Denver Botanic Gardens. Denver, Colorado. (720) 865-3500. www.botanicgardens.org.

RAP JUNE 22. **Vermicomposting.** Lecture. Red Butte Garden and Arboretum at the University of Utah. Salt Lake City, Utah. (801) 585-0556. www.redbuttegarden.org.

RAP JUNE 27. **Native Herb Festival.** The Arboretum at Flagstaff. Flagstaff, Arizona. (928) 774-1442. www.thearb.org.

WEST COAST

CA, HI, NV

RAP MAY 19. **Succulent Wreath Class.** San Diego Botanic Garden. Encinitas, California. (760) 436-3036. www.SDBGarden.org.

RAP MAY 24. **The History of Palos Verdes and the South Coast Botanic Garden.** Lecture. South Coast Botanic Garden. Palos Verdes Peninsula, California. (310) 544-1948. www.southcoastbotanicgarden.org.

RAP MAY 30. **Phenology Workshop: The Science of the Seasons.** Arboretum at the University of California Santa Cruz. Santa Cruz, California. (831) 502-2998. www.arboretum.ucsc.edu.

RAP JUNE 6. **Botanical Latin.** Class. University of California Botanic Garden at Berkeley. Berkeley, California. (510) 643-2755. www.botanicgarden.berkeley.edu.

RAP JUNE 6. **Fruit Tree Pruning 101.** Class. Mendocino Coast Botanical Gardens. Fort Bragg, California. (707) 964-4352. www.gardenbythesea.org.

RAP JUNE 13. **Organic Fruit and Vegetable Gardening.** Class. Los Angeles County Arboretum & Botanic Garden. Arcadia, California. (626) 821-3222. www.arboretum.org.

RAP JUNE 13. **Water Issues.** Class. Quarryhill Botanical Garden. Glen Ellen, California. (707) 996-3166. www.quarryhillbg.org.

RAP JUNE 23. **Summer Color with Native**

Plants. Lecture. Rancho Santa Ana Botanic Garden. Claremont, California. (909) 625-8767. www.rsabg.org.

JUNE 30–JULY 4. **Gesneriads by the Golden Gate.** Convention. Gesneriad Society International. Oakland, California. (727) 796-5615. www.gesneriadsociety.org.

Looking ahead

RAP JULY 11. **Flowers from Down Under.** Walk, talk. San Francisco Botanical Garden at Strybing Arboretum. San Francisco, California. (415) 661-1316. www.sfbg.org.

NORTHWEST

AK, ID, MT, OR, WA, WY

RAP MAY 30. **Botany Basics and Native Plant ID.** Class. Kruckeberg Botanic Garden. Shoreline, Washington. (206) 546-1281. www.kruckeberg.org.

RAP MAY 30. **Growing Lavender in the Northwest.** Class. Bellevue Botanical Garden. Bellevue, Washington. (425) 451-3755. www.bellevuebotanical.org.

RAP JUNE 6. **Niwaki.** Bonsai demonstration. The Oregon Garden. Silverton, Oregon. (503) 874-8100. www.oregongarden.org.

JUNE 26–28. **Montana Native Plant Society Annual Meeting.** Flathead Chapter. Bigfork, Montana. www.mtnativeplants.org.

JUNE 27. **Building Healthy Soil.** Lecture. University of Washington Botanic Gardens. Seattle, Washington. (206) 685-8033. <http://depts.washington.edu/uwbj>.

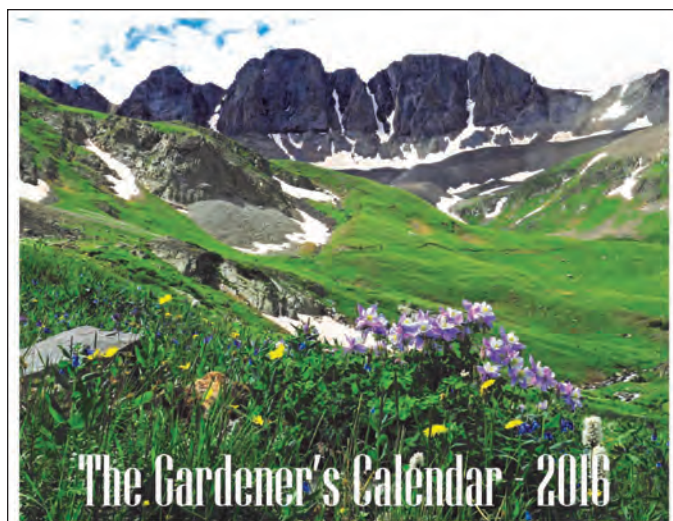
CANADA

RAP MAY 27. **Cultivating Plants for Privacy.** Lecture. Toronto Botanical Garden. Toronto, Ontario. (416) 397-1341. www.torontobotanicalgarden.ca.

RAP MAY 31. **Taming Wildflowers.** Lecture. Royal Botanical Gardens. Burlington, Ontario. (800) 694-4769. www.rbg.ca.

RAP JUNE 11. **Hobbit Hole Gardens.** Workshop. Muttart Conservatory. Edmonton, Alberta. (780) 496-8737. www.muttartconservatory.ca.

JUNE 13–21. **GardenOntario Week.** Garden tours, workshops, social events, and more. Ontario Horticultural Association. Ontario, Canada. (705) 645-3552. www.gardenontario.org/subdomains/week.



2016 "Gardeners" Calendar

One of the benefits that TGOA/MGCA offers its members is the opportunity for TGOA/MGCA and AHS members to participate in our annual photography contest. From these entries, photos are chosen for our annual calendar. We encourage all men and women to become a member of TGOA/MGCA and enjoy all the benefits of a worthwhile organization. For more information about TGOA/MGCA or to order calendars for \$7.00 postpaid, please call or email:

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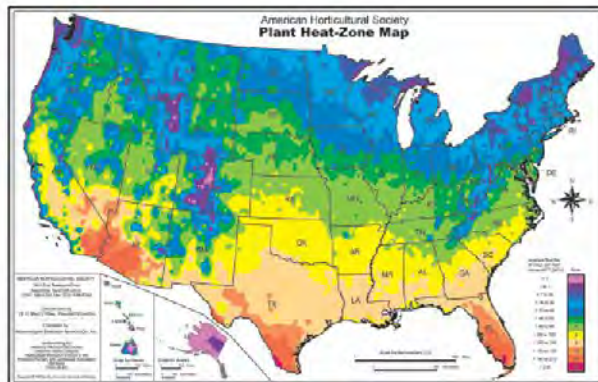
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PRONUNCIATIONS AND PLANTING ZONES

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. USDA



Zones listed are still aligned with the 1990 version of the USDA's map.

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 zones 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.

Abelmoschus esculentus ay-bel-MOS-kus
es-kyew-LEN-tus (USDA Hardiness Zones
11-11, AHS Heat Zones 12-4)
Ajuga reptans uh-JOO-guh REP-tanz (3-9, 9-1)
Allium schubertii AL-ee-um shoo-BUR-tee-eye
(4-10, 10-1)
Arabis alpina subsp. **caucasica** AIR-uh-biss
al-PY-nuh subsp. kaw-KAZ-ih-kuh (4-7, 7-4)
Eranthis hyemalis ee-RAN-thiss hy-ih-MAL-iss
(4-9, 9-1)
Galanthus nivalis guh-LAN-thus nih-VAL-iss
(3-8, 8-1)
Hydrangea arborescens hy-DRAN-juh
ar-bo-RES-enz (4-9, 9-4)
H. macrophylla H. mak-ro-FIL-uh (6-9, 9-6)
H. paniculata H. pan-ik-yew-LAY-tuh (3-8, 8-3)
H. quercifolia H. kwer-sih-FO-lee-uh (5-9, 9-4)
H. serrata H. sair-RAY-tuh (6-10, 10-6)
Illicium parviflorum ih-LISS-ee-um
par-vih-FLOR-um (7-10, 10-7)
Iris bucharica EYE-riss bew-KAR-ih-kuh
(5-9, 9-5)
I. cristata I. kris-TAY-tuh (4-8, 8-1)
I. fulva I. FUL-vuh (7-10, 10-7)
I. japonica I. jah-PON-ih-kuh (7-9, 9-7)
I. koreana I. kor-ee-AN-uh (5-8, 8-5)
I. lactea I. LACK-tee-uh (4-8, 8-1)
I. laevigata I. lee-vih-GAY-tuh (3-9, 9-1)
I. pallida I. PAL-lih-duh (4-9, 9-1)
I. pseudacorus I. soo-DAK-or-us (4-9, 9-3)
I. pumila I. PYEW-mih-luh (4-9, 9-1)
I. reticulata I. reh-tik-yew-LAY-tuh (3-9, 9-1)
I. tectorum I. tek-TOR-um (5-9, 9-3)
I. versicolor I. vur-SIK-uh-lur (3-9, 9-1)
I. virginica I. vir-JIN-ih-kuh (5-9, 9-5)

Juniperus virginiana joo-NIP-er-iss
vir-jin-ee-AN-uh (3-9, 9-1)
Lamium orvala LAM-ee-um OR-vah-lah
(7-11, 11-7)
Lathyrus vernus LATH-ih-rus VER-nus
(5-9, 9-5)
Linum perenne LY-num pur-EN-ee (7-9, 9-7)
Mimulus ringens MIM-yew-lus RIN-jenz
(3-8, 8-3)
Papaver orientale puh-PAH-vur or-ee-en-TAL-ee
(3-8, 9-1)
Phlomis russeliana FLO-mis ruh-sel-ee-AN-uh
(5-9, 9-5)
Phlox divaricata FLOKS dih-vair-ih-KAY-tuh
(3-9, 8-1)
P. subulata P. sub-yew-LAY-tuh (3-8, 8-1)
Polygonatum humile pah-lih-GO-nay-tum
HYEW-mih-lee (5-8, 8-4)
Polygonatum capitatum pah-LIG-o-num
kap-ih-TAY-tum (8-9, 9-1)
Primula japonica PRIM-yew-luh jah-PON-ih-kuh
(4-8, 8-1)
Sansevieria cylindrica san-suh-VEER-ee-uh
sih-LIN-drih-kuh (10-11, 12-10)
Thymophylla tenuiloba thy-mo-FIL-luh
ten-yew-ih-LO-buh (0-0, 12-9)
Veronica prostrata vur-ON-ih-kuh
pros-TRAY-tuh (6-9, 9-6)
Yucca brevifolia YUK-uh breh-vih-FO-lee-uh
(9-11, 12-10)
Y. filamentosa Y. fil-uh-men-TOH-suh
(5-10, 10-5)
Y. rigida Y. RIH-jih-duh (7-10, 10-7)

GARDEN MARKET

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Jerusalem Sage: A Tough Perennial for All Seasons

by Carolyn Singer



Jerusalem sage's yellow flowers are borne in tiered whorls on upright stalks

WHEN THE early daylight plays across my garden, Jerusalem sage (*Phlomis russeliana*, USDA Hardiness Zones 5–10, AHS Heat Zones 9–1) always catches my eye, whether it is in full May bloom or its bold foliage is sparkling with ice on a frosty morning. I was initially drawn to this plant, which I planted more than two decades ago, because of its fuzzy, heart-shaped leaves, but it soon became a favorite for its adaptability and durability.

EXTREMELY EASY-GOING

For starters, Jerusalem sage is undaunted by climate extremes. It is native to the mountainous regions of Syria and Turkey, so is right at home in the 2,650-foot elevation northern Sierra foothills in California, where I live. Winter temperatures

in my garden occasionally drop 40 degrees Fahrenheit in a 24-hour period, and summer heat waves may bring several days above 90 degrees. Jerusalem sage never appears to mind, even on the hottest days.

Though Jerusalem sage is a member of the mint family (Lamiaceae)—which has a reputation for wanderlust—it is not invasive. I placed my original plant in full sun, where I could view it from various windows. Gradually it has spread about three

square feet, forming a groundcover dense enough that weeds don't grow through it. Nor do plants die out in the center, signaling a need for division.

Having thick, fleshy roots, Jerusalem sage is very drought-tolerant. My plants, which grow in clay loam, only need to be watered once a week in the heat of summer. And, as if all these virtues weren't enough, deer don't find Jerusalem sage appetizing.

BEAUTIFUL BLOOMER

In late spring and early summer, sturdy stalks rise two to three feet above the new growth of dark olive-green leaves. The foliage is evergreen in mild climates like mine. Ball-shaped whorls of soft yellow flowers encircle the stalks, each cluster separated by a few inches, adding to the structural interest of this perennial. I don't cut back stalks when flowers fade because I find the brown seed heads ornamental, and they last for months. My region is known for occasional heavy, wet snows from fall into late spring that can break the branches of mature oaks and firs, but the Jerusalem sage seed heads usually remain untouched. Capped with snow, they create a picturesque focal point in the garden.

A few years ago, I took a rooted section from my first plant to test it in the dappled shade of an alder. It established quickly under this deciduous tree and has bloomed as heavily as the parent plant in full sun.

The emergence of flowering stalks in April signals the time to cut back stalks from last year at the base. Sometimes I allow the soft green new growth to mingle with last season's brown stalks for an interesting contrast in texture and color. I enjoy the cut seed heads a bit longer in everlasting arrangements on the porch. 🌿

Sources

Digging Dog Nursery, Albion, CA.
(707) 937-1130.

www.diggingdog.com.

Joy Creek Nursery, Scappoose, OR.
(503) 543-7474. www.joycreek.com.

Carolyn Singer is the author of The Seasoned Gardener (Garden Wisdom Press, 2012). She gardens in Grass Valley, California.

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